#1-0



SAFETY PROCEDURE MANUAL

MONSANTO COMPANY
CHOCOLATE BAYOU PLANT
ALVIN, TEXAS

C 001472

CBY 3109597

April, 1977

Copy No. _____

A S S I G N M E N T

This Safety Procedures Manual is assigned to _____ and must remain in this location.

This manual will not go with the individual filling the capacity noted above upon the individuals leaving the job.

DO NOT TRANSFER THIS BOOK TO ANOTHER POSITION, LOCATION OR PERSON.

Only upon General Superintendent or Manager of PTD approval, may an additional manual be issued. The manuals come in a set of three: General Procedures, Safety Procedures, and Emergency Action Procedures.

C 001473

CBY 3109598

TABLE OF CONTENTS

SAFETY PROCEDURES

Number	Title
SP-001	Chocolate Bayou Plant Safety Program
SP-002	Fire and Spill Alarm
SP-003	Minor Injury Reporting and Investigation
SP-004	Treatment of Injury to Contract Personnel
SP-005	Investigating and Reporting of Significant Injuries, Near-Misses, Fires and Spills
SP-006	Equipment Inspection
SP-007	Electrical Ground Resistance Inspection and Testing
SP-008	Testing, Labeling, Handling and Disposing of Metal Sample Pressure Containers
SP-009	Bypassing and Testing Protective Devices
SP-010	Use and Control of Hoses
SP-011	In Plant Rail Car Moving
SP-012	Rail Car Loading and Unloading
SP-013	Solid and Hazardous Waste Disposal
SP-014	Use of Vacuum Trucks
SP-015	Fire Water Usage
SP-016	Isolation and Decontamination of Plant Equipment
SP-017	Removal of Equipment from Operating Units for Repair
SP-018	Machinery and Electrical Lockout
SP-019	Fire Permits and Vessel Entry/Fire Permits
SP-020	Mobile Lifting Equipment Safety

C 001474

CBY 3109599

SP-021	Scaffold Safety Rules and Practices
SP-022	Mobile Lifting Equipment & Insulated Bucket Truck Work Near High Voltage Lines
SP-023	Plumbers Plugs
SP-024	Guidelines for Work on Energized Electrical Circuits
SP-025	Plant Wide Gas Cylinder, Regulator and Manifold Safety
SP-026	Procurement and Handling of Radioactive Materials and X-Ray Producing Equipment
SP-027	
SP-028	
SP-029	Scrap Material Disposition
SP-030	Static Grounding and Bonding of Hydroblasting Equipment and Other Portable Equipment
SP-031	Hydrocleaning
SP-032	Testing and Operating of Fume Hoods
SP-033	
SP-034	Corrosion-Inspection of Process Equipment and Tankage
SP-039	Respiratory Protection Program

C 001475

CBY 3109600

SAFETY PROCEDURES

This page is issued quarterly - check reviewed/revised dates against those in the manual to be sure latest copy is in the manual.

PROCEDURE NUMBER	TITLE	DATE LAST REVIEWED	DATE LAST REVISED
SP - 001	Chocolate Bayou Plant Safety Program	4/1/77	
SP - 002	Fire & Spill Alarm		3/3/81
SP - 003	Minor Injury Reporting and Investigation		8/5/81
SP - 004	Treatment of Injury to Contract Personnel		8/5/81
SP - 005	Investigating and Reporting of Significant Injuries, N-M, Fires & Spills		3/20/80
SP - 006	Equipment Inspection		5/5/82
SP - 007	Electrical Ground Resistance Inspection and Testing		8/1/81
SP - 008	Testing, Labeling, Handling & Disposing of Metal Sample Pressure Containers		8/30/80
SP - 009	Bypassing and Testing Protective Devices		12/15/80
SP - 010	Use and Control of Hoses	8/13/81	
SP - 011	In-Plant Rail Car Moving		8/27/81
SP - 012	Rail Car Loading & Unloading		8/27/81
SP - 013	Solid and Hazardous Waste Disposal		11/30/81
SP - 014	Use of Vacuum Trucks		12/17/81
SP - 015	Fire Water Usage CBY 3109601		9/4/81
SP - 016	Isolation and Decontamination of Plant Equipment		7/27/81

C 001476

PROCEDURE NUMBER	TITLE	DATE LAST REVIEWED	DATE LAST REVISED
SP - 017	Removal of Equipment from Operating Units for Repair	8/7/81	
SP - 018	Machinery and Electrical Lockout	8/20/81	
SP - 019	Fire Permits and Vessel Entry/Fire Permits		12/1/81
SP - 020	Mobile Lifting Equipment Safety		7/1/81
SP - 021	Scaffold Safety Rules and Practices		11/11/81
SP - 022	Mobile Lifting Equipment & Insulated Bucket Truck Work Near High Voltage Lines		8/11/81
SP - 023	Plumbers Plugs	6/3/81	
SP - 024	Guidelines for Work on Energized Electrical Circuits	10/12/81	
SP - 025	Plant Wide ~~Gas~~ GAS Cylinder, Regulator and Manifold Safety		12/3/81
SP - 026	Procurement & Handling of Radioactive Materials and X-Ray Producing Equip.		5/1/81
SP - 027			
SP - 028			
SP - 029	Scrap Materials Disposition		9/1/81
SP - 030	Static Grounding and Bonding of Hydroblasting Equipment and Other Portable Equipment	6/22/81	
SP - 031	Hydrocleaning	6/23/81	
SP - 032	Testing and Operating of Fume Hoods		8/14/81
SP - 033			
SP - 034	Corrosion-Inspection of Process Equipment and Tankage		11/19/80
SP - 035	EQUIPMENT INSPECTION		
SP - 039	Respiratory Protection Program		3/2/81

CBY 3109602 C 001477

TABLE OF CONTENTS

SAFETY PROCEDURES

TITLE	NUMBER
-A-	
Alarm, Fire & Spill	002
-C-	
Corrosion-Inspection of Process Equipment & Tankage	034
Cylinder Gas, Regulator and Manifold Safety	025
-D-	
Decontamination and Isolation of Plant Equipment	016
-E-	
Energized Electrical Circuits, Guidelines for Work on	024
Equipment Inspection	006
Equipment, Mobile Lifting & Insulated Bucket Truck Work Near High Voltage Lines	022
Equipment, Mobile Lifting Safety	020
Equipment, Removal of from Operating Units for Repair	017
-F-	
Fire Permits, Vessel Entry/Fire Permits	019
Fire Water Usage	015
-G-	
Ground, Electrical Resistance Inspection and Testing	007
-H-	
Hoses, Use and Control of	010
Hydrocleaning Procedure	031

CBY 3109603

C 001478

-I-

Injury Reporting, Minor & Investigating	003
Injury,Treating of to Contract Personnel	004
Isolation & Decontamination of Plant Equipment	016

-L-

Lockout Procedure, Machinery & Electrical	018

-M-

Machinery and Electrical Lockout	018
Mobile Lifting Equipment and Insulated Bucket Truck Work Near High Voltage Lines	022
Mobile Lifting Equipment Safety	020

-P-

Plumbers Plugs	023
Protective Devices, Bypassing & Testing	009

-R-

Radioactive Procurement & Handling of Materials and X-Ray Producing Equipment	026
Rail Car, In-Plant Moving	011
Raid Car, Loading and Unloading	012
Removal of Equipment from Operating Units for Repair	017
Respiratory Protection Program	039

-S-

Safety Program, Chocolate Bayou Plant	001
Sample Containers, Testing, Labeling, Handling & Disposing of Metal Pressure	008
Scaffold Safety Rules & Practices CBY 3109604	021
Scrap Materials Disposition C 001479	029
Spills, Investigating and Reporting of Significant Injuries, Near-Misses, Fires &	005

Static Grounding and Bonding of Hydroblasting Equipment & Other Portable Equipment 030

-T-

Testing, Electrical Ground Resistance & Inspection 007

Testing and Operating of Fume Hoods 032

-V-

Vacuum Trucks, Use of 014

Vessel Entry/Fire Permits 019

-W-

Waste Disposal, Solid and Hazardous 013

CBY 3109605

C 001480

CHOCOLATE BAYOU PLANT SAFETY PROGRAM

PURPOSE

This procedure re-affirms the Monsanto safety policy, defines responsibility for safety, and outlines the general safety program for the Chocolate Bayou Plant.

POLICY

It is the policy of Monsanto that every employee is entitled to a safe and healthful place in which to work. To this end, every reasonable effort will be made in the interest of accident prevention, fire protection, and health preservation.

It is also acknowledged that all efforts in Monsanto are directed toward a favorable position in our free-competition economy. Monsanto management and, in particular, those who direct the Chocolate Bayou operation avow that the safety and welfare of all employees must be maintained in order to achieve this purpose. In order to produce quality products at optimum quantities and minimum cost, reasonable procedures and regulations have been established. These together with continual safety educational efforts, and firm, fair administration will necessarily result in a safe plant.

RESPONSIBILITIES

All employees share in the responsibility for the continual safe operation of the Chocolate Bayou Plant. This responsibility is distributed as follows:

A. Line Organizations

1. The Individual Employee by virtue of his employment assumes a definite responsibility for his personal safety as well as for the safety of his co-workers. He is charged with observing all accident prevention regulations as a direct job responsibility.

   It is recognized that the formal safety efforts of plant management will be ineffective without the personal acceptance by all of safety as "a way of life". Conformity to safety procedures and the development of safe working habits together with concern for the "other fellow" are the greatest contributions an employee can make in furthering

CHOCOLATE BAYOU PLANT SAFETY PROGRAM

4. The plant manager is charged with the responsibility for the overall safety of the Chocolate Bayou Plant.

B. Staff Organizations

1. The Safety Department as a staff group assists the line organization in establishing and maintaining a safe operation. In this capacity they will recommend, advise, and assist line personnel. Ultimate recourse in the event of conflicting opinions will follow the line organization to the plant manager. The Safety Department, however, is directly responsible for the following safety items:

   a. Safety orientation of new employees.
   b. Inspecting and maintaining all fire protection equipment.
   c. Training emergency personnel.
   d. Directing fire fighting and emergency personnel.
   e. Providing adequate medical treatment to injured employees.
   f. Performing atmospheric tests for fire-entry permits.
   g. Evaluating and appraising management of plant safety performance and informing management of problem areas.

2. Other staff departments in safety as well as other phases of work, are intended to assist the line. The responsibility for correcting an unsafe condition and for performing a particular series of tests, for example, is still a line function although staff personnel may be required to do the work. The responsibility for safety cannot be delegated.

PROCEDURE

The following procedures and methods are to be included in the Chocolate Bayou Safety Program. These will be supplemented as new methods are found suitable.

A. General

1. Employee Safety Indoctrination and Subsequent Safety Training.
2. Committees - Permanent and Special
3. Establishment and Updating of Plant and Departmental Safety Rules.

CBY 3109608

CHOCOLATE BAYOU PLANT SAFETY PROGRAM

4. Periodic Inspections of Departments
5. Accident Investigations and Reports
   a. Minor Injuries
   b. Fires
   c. Near Misses, Serious Injuries
6. Fire-Entry Permits
7. Lock-Out System
8. Control of Smoking and Matches
9. Personal Protective Equipment
10. Plant Manager's Inspection
11. Toxicity - Flammability Knowledge
12. Plantwide Publicity Efforts
13. Written Departmental Safety Rules
14. Process Hazard Audits
15. Setting Specific Safety Goals with Attendant Publicity and Program
16. Off-the-Job Safety Education and Publicity

B. Plant Safety Organization

1. Plant Manager's Accident Prevention Council will meet monthly. The council is composed of the plant manager's immediate staff and a representative from Process Technology with the safety director serving as secretary. This council will assist in directing the plant manager's overall safety program and will expedite performance down through their respective organizations. Typical activities of these meetings will include:

   a. The selection of safety programs and the assignment of program committees.
   b. A review of plant accident experience and corrective action.
   c. Assignment of special hazard committees.
   d. Establishment of plantwide safety regulations.

2. Special Committees will be chosen ~~by council~~ to perform a specific one-time assignment. All employees are eligible for these committees.

   The committees may serve the following functions.

CBY 3109609

C 001484

CHOCOLATE BAYOU PLANT SAFETY PROGRAM

our safety effort. This contribution is evidenced by employees who continually use the required protective and safety equipment, routinely follow specific procedures, participate in safety programs, submit suggestions to their supervisors, and actively strive for correction of plant hazards. OK

Each employee has the authority and the RESPONSIBILITY to initiate corrective action for unsafe practices and conditions of which he is aware. This will normally involve notification of his supervisor or the concerned supervisor. In cases where an immediate injury or equipment damage is eminent, he must act immediately and then refer the problem and the action taken to his supervisor or the responsible supervisor.

2. Supervisory employees are directly responsible for the safety of operations under their control and for the personal safety of every employee under their supervision. This responsbility cannot be shared with any staff organiztion nor shifted laterally in any manner.

3. A supervisor is specifically responsible for:

   a. Developing safety procedures and regulations specific to his area of responsibility.
   b. Securing conformity to these as well as to all plantwide safety procedures. This job is made easier by:

      1. Setting a good example to all his employees.
      2. Establishing firm, equitable standards of performance.
      3. Listening to employees' suggestions and answering them promptly.
      4. Preparing effective departmental safety training and educational programs.
      5. Investigating all injuries, thereby evidencing sincerity.
      6. Maintaining departmental safety check lists and inspection records of safety equipment.
      7. Seeking the assistance of staff personnel in aiding their departmental safety program.

CBY 3109613

C 001485

CHOCOLATE BAYOU PLANT SAFETY PROGRAM

3. Office employees will attend a safety meeting every four months conducted by a program committee selected by the Accident Prevention Council.

D. Inspections

Inspections will include, but not be limited to, the following:

1. Quarterly inspections of the plant by a team of three general superintendents. The safety director and a fire/safety inspector will assist the quarterly inspection teams.

2. An annual inspection of the entire plant by the plant manager. The safety director and a fire/safety inspector will assist as necessary.

3. Operating departments will schedule and conduct formal inspections. Suggested schedule: weekly formal inspection by foreman using checklist; monthly inspection by operating supervisor and superintendent.

4. Inspection of safety equipment other than fire protection equipment and air masks is a departmental responsibility. (Including blankets, safety showers, eye baths, protective equipment).

AUTHOR: Francis Dupre
F. H. DUPRE

APPROVED BY:
J. S. HAGOOD

APPROVED BY: G.E. Davenport /dlp
G. E. DAVENPORT

CBY 3109611

CHOCOLATE BAYOU PLANT SAFETY PROGRAM

4. The plant manager is charged with the responsibility for the overall safety of the Chocolate Bayou Plant.

B. Staff Organizations

1. The Safety Department as a staff group assists the line organization in establishing and maintaining a safe operation. In this capacity they will recommend, advise, and assist line personnel. Ultimate recourse in the event of conflicting opinions will follow the line organization to the plant manager. The Safety Department, however, is directly responsible for the following safety items:

   a. Safety orientation of new employees.
   b. Inspecting and maintaining all fire protection equipment.
   c. Training emergency personnel.
   d. Directing fire fighting and emergency personnel.
   e. Providing adequate medical treatment to injured employees.
   f. Performing atmospheric tests for fire-entry permits.
   g. Evaluating and appraising management of plant safety performance and informing management of problem areas.

2. Other staff departments in safety as well as other phases of work, are intended to assist the line. The responsibility for correcting an unsafe condition and for performing a particular series of tests, for example, is still a line function although staff personnel may be required to do the work. The responsibility for safety cannot be delegated.

PROCEDURE

The following procedures and methods are to be included in the Chocolate Bayou Safety Program. These will be supplemented as new methods are found suitable.

A. General

1. Employee Safety Indoctrination and Subsequent Safety Training.
2. Committees - Permanent and Special
3. Establishment and Updating of Plant and Departmental Safety Rules.

C 001489 CBY 3109614

CHOCOLATE BAYOU PLANT SAFETY PROGRAM

4. Periodic Inspections of Departments
5. Accident Investigations and Reports
   a. Minor Injuries
   b. Fires
   c. Near Misses, Serious Injuries
6. Fire-Entry Permits
7. Lock-Out System
8. Control of Smoking and Matches
9. Personal Protective Equipment
10. Plant Manager's Inspection
11. Toxicity - Flammability Knowledge
12. Plantwide Publicity Efforts
13. Written Departmental Safety Rules
14. Process Hazard Audits
15. Setting Specific Safety Goals with Attendant Publicity and Program
16. Off-the-Job Safety Education and Publicity

B. Plant Safety Organization

1. Plant Manager's Accident Prevention Council will meet monthly. The council is composed of the plant manager's immediate staff and a representative from Process Technology with the safety director serving as secretary. This council will assist in directing the plant manager's overall safety program and will expedite performance down through their respective organizations. Typical activities of these meetings will include:

   a. The selection of safety programs and the assignment of program committees.
   b. A review of plant accident experience and corrective action.
   c. Assignment of special hazard committees.
   d. Establishment of plantwide safety regulations.

2. Special Committees will be chosen by council to perform a specific one-time assignment. All employees are eligible for these committees.

   The committees may serve the following functions.

C 001490 CBY 3109615

CHOCOLATE BAYOU PLANT SAFETY PROGRAM

a. To conduct plantwide safety programs with attending publicity and safety meetings. The subjects of these programs will be selected by the Accident Prevention Council. (Examples: Fire Protection, Eye Protection, Vacation Safety, Housekeeping, Achievement of Safety Goals).

b. To conduct plantwide hazard surveys. (Example: Ladder Survey or Hose Survey following incidents resulting from same).

c. To conduct safety efforts outside the plant. (Example: Safety displays for employee functions).

No committee can assume the line responsibility for safety but rather is intended to supplement line efforts.

3. Process Safety Audit Committee will be appointed by the plant manager and members will generally have a technical background.

This committee will review new projects and expansions or revisions to existing units for hazards which could result in a disaster. It will not concern itself with minor personnel hazards which are a normal line supervision responsibility. (See GP-053).

C. Safety Training

In addition to the day-to-day job safety training, formal safety training for hourly employees and special non-exempt groups (Example: lab analysts) will include:

1. Either a weekly 10-minute group or individual safety contact by the line supervisor covering a specific planned safety topic, OR a monthly departmental safety meeting.

2. A plantwide safety program every three months on general safety subjects. This program will be planned, prepared, and conducted by a committee selected by the Accident Prevention Council.

CBY 3109616

FIRE AND SPILL ALARM

SCOPE

This attachment defines the responsibilities of personnel when a fire or spill occurs and the procedure to be followed in case of an alarm.

POLICY

When a fire or spill occurs the individual observing the emergency should immediately turn in a fire/spill alarm. If in the judgement of the individuals involved corrective action can be taken without jeopardizing their safety, they should do so.

RESPONSIBILITIES

1. To Sound a Fire and Spill Alarm

   The fire/spill alarm is activated by the telephone system, dial "77" and the proper area code. As the last number of the code is dialed the alarm will start sounding, also the security officer at the main gate will be able to talk to you and get some information as to the problem. In this manner should the alarm be false the security officer can relay to the Safety Department that it was false and avoid alot of confusion. The proper code for a particular area can be found on:

   a. The front of each telephone within its area.

   b. The fire and spill alarm code card.

   c. The map in front of the poant telephone book.

   EXAMPLE: To sound the alarm for the #1 Barge Dock - Dial "77-1-1-1"

2. Failure of the Automatic System

   After turning in an alarm the code should start sounding immediately, in the event that this does not happen try once more to be sure you dialed correctly. If the alarm does not sound then dial the emergency number 4222 and explain to the security officer what has happened. Tell him the code and he will manually sound the alarm with the auxiliary horn.

CBY 3109618

FIRE AND SPILL ALARM

3. When the Fire and Spill Alarm Sounds

In the event of an alarm all traffic will move to the side of the street, stop and turn off the motor. The only exception to this rule is the emergency vehicles responding to the scene. Distribution, Utilities, Environmental Control and I & E vehicles will also be allowed to operate but need permission from either the Safety Department or Night Supervisor. If the diesel switch engine is in the plant it will be the responsibility of the Distribution Department to insure it is shutdown. All open flame and spark producing work and machinery must be stopped. Smoking must be stopped in all areas (offices included).

All entries into the plant during alarm must be cleared through the Emergency Coordinator at the Main Gate, extension 4301.

Depending upon the seriousness of the problem other precautions may have to be taken. Wind direction will be a determing factor as to what must be done if there is a major spill or toxic vapor release. It may be necessary to shutdown open flame heaters which would effect the operation of the unit or entire plant. Immediate notification by the unit to exposed personnel in nearby operating areas or shops should be made by either radio or telephone. All information as to the emergency action or evacuation should be reported to the Safety Superintendent or Night Supervisor at the Main Gate by using the emergency telephone 4222. The Fire Safety Inspector in charge of the emergency will be involved in the decision for whatever action is necessary for control of the problem. The Fire Safety Inspector is the main link of communication with the Safety Supervisor, Safety Superintendent or Night Supervisor.

All personnel who are not members of the emergency response team or operating personnel of the areas involved must stay away, and if in the area must get out and remain at a safe distance. If in a unit with sign in tags and you are unable to leave through the Control Room, you or your supervisor should contact the unit or main gate so you can be accounted for.

Work in an area may be resumed as soon as it has been determined it is safe and not affected by the fire or spill. The Safety Superintendent or Night Supervisor should be contacted at the main gate, extension 4301 to assist in this decision. It will be necessary for the operating personnel to resign the permits. Smoking may also be resumed in areas not affected.

CBY 3109619

FIRE AND SPILL ALARM

4. Back-up Fire Crew

Should additional help be needed in an emergency, the next on-coming shift emergency response team will be called out. The need for additional help will be decided by the Safety Department. The contacts will be made by telephone. During off-hours the Fire Safety Inspector will instruct the security officer to make the calls, units should be notified what members from their unit has been called out.

An up-do-date list of emergency response team members on each shift will be mantained by the Safety Department. The security officers will have a copy of this list.

5. End of Emergency

When the emergency is over, the member of the Safety Department coordinating the emergency in the field will check with operating supervision for the affected area. If agreed that all is safe, the Safety Department representative will radio the security officers and request that the "ALL CLEAR" be blown. The security officer will then sound the "ALL CLEAR" signal which is ONE 15 SECOND BLAST on the code horns. This will indicate that all parties concerned should resume normal operations.

6. Testing the Fire and Spill Alarm System

The fire and spill alarm system will be tested every Monday at 1:00 P.M. The Safety Department is responsible for the maintenance of the fire and spill alarm system.

AUTHOR: C. A. Coburn
C. A. Coburn

APPROVED BY:
J. S. Hagood

APPROVED BY:
G. E. Davenport

CBY 3109620

MINOR INJURY REPORTING AND INVESTIGATION

PURPOSE

The minor injury and accident investigation procedure is established to provide a record of all industrial injuries and their causes for use in accident prevention work.

POLICY

Thorough analysis of the causes of accidents is essential to an effective accident prevention program. All injuries, no matter how small, must be reported immediately for treatment and investigation.

SCOPE

This procedure applies to all employees at the Chocolate Bayou location. The procedure does not apply to injuries occurring to contractor or employees nor to off-the-job injuries occurring to our own employees.

RESPONSIBILITY

The injured is responsible for reporting to the dispensary for treatment of his injury as soon as possible. The supervisor of the injured is responsible for the investigation of the events relating to the injury, taking corrective action if necessary, and completing the injury report form the Safety Department is responsible for the preparation and distribution of reports compiled from the injury report.

PROCEDURE

The Injury and Accident Report form is used for reporting the investigation of a minor injury. See Attachemnt #1. This report is initiated by the plant nurse (or the fire safety inspector) on any injury requiring treatment and given to the injured employee to take to his supervisor

The accident should be investigated and the report completed immediately but in no case later than the next working day. The report should then be mailed to the Safety Department via line supervision of the injured employee.

CBY 3109621

MINOR INJURY REPORTING AND INVESTIGATION

Monsanto

MONSANTO COMPANY
ST. LOUIS, MISSOURI

ILLNESS AND INJURY REPORT

MONSANTO LOCATION NO. ____ COMPANY ____ REPORT NO ____

EMPLOYEE NAME — LAST NAME — FIRST NAME — M.I. — AGE — SEX M F — SOCIAL SEC. NO. — EMPL. HEALTH PHYSICS — HANDICAP ☐ YES ☐ NO

A·B·C·D·E·F·X·Y·Z· 1 2 3

DAY OF THE WEEK 1 2 3 4 5 6 7 S M T W T F S

DEPT — INCIDENT LOC — TREATMENT DATE — SUPERVISOR NAME — LAST NAME — FIRST NAME — M.I.

CONDITIONS AT TIME OF ACCIDENT

WEATHER

TEMPERATURE EXTREMES

CLASSIFICATION

SEVERITY

TYPE OF INJURY (Select One)

ILLNESS (Select One) (As Classified On Monsanto Form ... or OSHA 200)

ILLNESS (Cont'd)

041 Disorder Due to Repeated Trauma (26)

042 All Other Occupational Illnesses (29)

INJURED PART

Indicate 1-Primary 2 Secondary in First Column

*For These Parts Enter L-Left R-Right B-Both in Second Column

HEAD

TRUNK

LIMBS

FINGER

OTHER

TO BE COMPLETED BY IMMEDIATE SUPERVISION

INJURED SUGGESTED ACTION TO PREVENT REOCCURRENCE

BRIEF DESCRIPTION OF WHAT HAPPENED, CORRECTIVE ACTION TAKEN AND WHY

LATE REPORT ☐ YES ☐ NO IF YES, EXPLAIN

SUPV. SIGNATURE

SELECT ONE IN EACH CATEGORY INDICATE: 1 BASIC 2 CONTRIBUTOR

UNSAFE CONDITIONS

UNSAFE ACTS

UNSAFE ACTS (Cont'd)

PERSONAL FACTOR

SUPERVISORY RESPONSIBILITIES

SELECT ONE IN EACH CATEGORY

AGENCY

EMPLOYMENT STATUS

ACCIDENT TYPE

OPERATION

ASSOCIATED AGENCY NO.

EMPLOYEE'S STATEMENT

DIAGNOSIS AND TREATMENT

TREATED BY

WITNESSES

THIS FORM MUST BE COMPLETED AND RETURNED TO THE SAFETY DIRECTOR WITHIN 5 DAYS AFTER DISPENSARY TREATMENT

PLANT SAFETY DEPT.

C 001498

CBY 3109623

TREATMENT OF INJURY TO CONTRACT PERSONNEL

PURPOSE

The purpose of this procedure is to establish a practical method for treatment of injury to contract personnel.

SCOPE

This procedure covers all personnel of contractors working at Monsanto Chocolate Bayou.

PROCEDURE

1. Any injury to a contract employee shall be immediately reported to the Monsanto Safety Department where appropriate treatment can be secured.

2. Should further medical attention be recommended by the Monsanto Safety Department, the contractor will be responsible for making arrangements for the injured to get further medical treatment.

3. In the case of a serious injury that requires immediate physician attention, Monsanto will furnish transportation to one of the following medical facilities:

   Alvin Community Hospital
   Clear Lake Hospital
   Danbury Hospital

   Emergency care will be administered enroute.

4. Each contractor must report injuries immediately to both the Monsanto supervision responsible for the work area and the Monsanto supervision to which they report. In addition, work must be stopped following a serious injury and must not resume until the appropriate Monsanto supervisor has checked the job site.

   Note: A contractor may obtain permission from the Monsanto Safety Department to maintain first aid facilities at their job site for the treatment of minor injuries. This practice will be the exception and not the rule and will only be considered upon the contractor meeting the following criteria:

   - The person(s) designated to administer first aid is qualified (minimum of a current Red Cross First Aid Card).

CBY 3109624

C 001499

TREATMENT OF INJURY TO CONTRACT PERSONNEL

CONTRACTOR INJURY & ACCIDENT REPORT

DATE	TIME	NAME OF INJURED
DAY OF WEEK	COMPANY	DEPT. WHERE INJURY OCCURRED
FOREMAN	TYPE OF INJURY	INJURED PART

EMPLOYEE'S STATEMENT OF INJURY AND ACCIDENT CAUSE: _____

TREATMENT: _____

TREATED BY _____ DATE TREATED _____

CBY 3109626

C 001501

INVESTIGATION AND REPORTING OF SIGNIFICANT INJURIES, NEAR-MISSES, FIRES AND SPILLS

e. The chairman may need to be familiar with technology of an incident when the preliminary indicators show that technology is important to the cause and/or solution.

Refer to Attachment #3 for suggested instructions to the chairman of investigation committees.

3. The investigation will be started by the committee within 24 hours of the time of the incident. The following guidelines should be used:

   a. Visit scene of accident to investigate physical facilities. Take photographs or make sketches and diagrams to record details of the physical environment.

   b. Interview witnesses and the injured employee if available. The plant nurse should be contacted to determine extent of injury or disability. Additional concerned personnel may be interviewed and should include the concerned line supervision

   c. The committee will tentatively agree on the cause of the accident and recommendations and the chairman will prepare a rough draft following the format in Attachment #1.

   d. A report number will be assigned by the Safety Department.

4. Within three working days following the incident the investigation report will be reviewed and approved by the Department Superintendent or Supervisor involved. The Safety Superintendent may assist in this review. The entire committee may participate if requested by the chairman, Department Superintendent, or Safety Superintendent.

5. Within three working days the committee will also present the report in person jointly to the Superintendent or Manager involved for approva

6. The basic report, with appendix, will be published within ten working days following the incident. Copies will normally be distributed to all Superintendents, Managers, and the Safety Department unless restricted by the Plant Manager.

7. The distribution of the basic report, without appendix, will normally be to all plant supervision, but may be restricted by the Superintender Manager, or Plant Manager.

C 001502

CBY 3109630

INVESTIGATION AND REPORTING OF SIGNIFICANT INJURIES, NEAR-MISSES, FIRES AND SPILLS

2. A NEAR-MISS is any incident where significant injury or property damage could have resulted had circumstances been only a slightly different than actual or had the activity been continued. A near-miss will be judged significant by the concerned Superintendent or PT Manager with the recommendation of the Safety Department considered.

3. A FIRE or SPILL will be judged significant by the concerned Superintendent or PT Manager with the recommendation of the Safety Department considered.

RESPONSIBILITIES

1. The GENERAL SUPERINTENDENT, CED SUPERINTENDENT, AND PT MANAGER are responsible for:

   a. Insuring that incidents which are covered in the definitions section are reported to him and the Safety Department.

   b. Initiating an investigation, appointing a committee, and briefing the chairman for incidents as follows:

revised

   1. For Fires or Spills: The Superintendent of the area in which the incident occurs.

   2. For Injuries: The Superintendent of the injured person.

   3. For Near-Misses: The Superintendent of the employee or the equipment exposed to the near-miss.

   c. Assigning responsibility for corrective action in his involved area.

   d. Reviewing investigation reports for incidents outside their areas, determining application of recommendations and assigning responsibilities.

   e. Reporting application and status of the recommendations pertaining to their areas.

C 001504

CBY 3109628

INVESTIGATION AND REPORTING OF SIGNIFICANT INJURIES, NEAR-MISSES, FIRES AND SPILLS

8. The following instructions are applicable to status reporting:

   a. Each Group Foreman will report response to the recommendations to the Unit Superintendent, and to the Safety Department. A copy of the recommendations sheet from the accident report can be used for reporting this response, retyping should not be necessary.

   b. Each Group Foreman should indicate those recommendations that are applicable to operations, the date the recommendation is completed, any comments, and the status of the recommendation. Status should continue to be reported monthly until action on recommendation is complete.

AUTHOR: J. C. Usrey

APPROVED BY: J. S. Haggod

APPROVED BY: G E Davenport 4/16/83
G. E. Davenport

CBY 3109631

INVESTIGATION AND REPORTING OF SIGNIFICANT INJURIES, NEAR-MISSES, FIRES AND SPILLS

MONSANTO COMPANY
CHOCOLATE BAYOU PLANT
ALVIN, TEXAS

ACCIDENT INVESTIGATION REPORT NO._____
NEAR-MISS INVESTIGATION REPORT NO._____
FIRE/SPILL INVESTIGATION REPORT NO._____
DATE:_____ (APPROVED BY)_____

TO: ALL SUPERVISION (Normally)
SUBJECT: Investigation of _____Accident in

_____
Department and Unit

DESCRIPTION OF ACCIDENT

The opening paragraph should be a summary statement of the incident itself stating the extent of injuries and/or damage to equipment, who was injured if applicable (functional job descriptions, not names) and the where, when, what and how of the incident. This should be followed by a brief chronological description of the events occurring and conditions existing just prior to, during and following the accident that are related to the accident or that will assist in giving a clearer understanding of the nature of the occurrence. This should be given in summary and limited to a statement of facts only; not conclusions drawn as a result of unsubstantiated theories.

CAUSE

The prime cause, as determined by the investigating committee, that was responsible for the accident should be covered in this section. Only those secondary causes, if any, that the committee feels were critically important should be listed and labeled "secondary causes". (The listing of secondary causes tends to dilute emphasis on the prime cause.)

RECOMMENDATIONS

These recommendations should be the result of the investigation by the committee making this report. Only measures to correct both the direct cause and contributing causes to the accident should be covered. If corrections are already made or underway, this should be reflected in the report. Completion dates and assignments of responsibility to Superintendents will be included in this section. Assigning of joint responsibility should be avoided for clarity. Recommendations should be specific and realistic and should avoid generalizations such as "be more careful", "pay attention", etc. When recommending "reviewing" of

A/I, F/S, N-M Report #_____ Subject:_____

Reporting Department_____

Status Report Date _____

☐ Check When All Recommendations are Complete

Distribution of Status Reports (Unit Supv., etc.)

_____ _____ _____

_____ _____ Inv. Comm. Chairman

_____ _____ _____

Recommendations	A/NA	Date Comp.	Comments/Status
Recommendations should be listed in priority with the first applying to the prime cause.			

C 001509

A - Applicable } List One

CBY 3109634

Attachment #1
SP-005 Page ___ of ___

INVESTIGATION AND REPORTING OF SIGNIFICANT INJURIES, NEAR-MISSES, FIRES AND SPILLS

REPORT APPENDIX
ACCIDENT INVESTIGATION REPORT NO._____
NEAR-MISS INVESTIGATION REPORT NO._____
FIRE/SPILL INVESTIGATION REPORT NO._____

DATE: (Approved by Superintendent)

ACCIDENT CLASSIFICATION

This should be enumerated as follows (where applicable).

1. Name (Optional)
2. Department
3. Occupation
4. Experience on the Job
5. Equipment Involved
6. Operation Being Performed
7. Type of Accident
8. Mechanical Cause
9. Human Cause
10. Type of Injury
11. Parts of Body Involved
12. Time and Date of Accident
13. Date Investigation Initiated

C 001510

ACCIDENT INVESTIGATION

This should cover all pertinent information gathered by the investigating committee in sufficient detail. It should include statements of witnesses past history of the injured if it affects the accident, and any other pertinent information gathered during the course of the investigation.

PERSONNEL INTERVIEWED AND WITNESSES

CBY 3109635

Include in this section personnel interviewed and w...

INVESTIGATION AND REPORTING OF SIGNIFICANT INJURIES, NEAR-MISSES, FIRES AND SPILLS

INSTRUCTIONS OF THE CHAIRMAN OF INVESTIGATION COMMITTEES

1. Selected chairman will meet with the Superintendent or Manager immediately following the incident requiring investigation to receive a general outline of what is expected as committe chairman.

2. The chairman should read Safety Procedure SP-005.

3. The chairman should not edict his opinions or allow individuals reviewing/approving the report to do so with the committee members. He should use his conference leadership techniques in guiding the committee in their activities. The interest is in using group dynamics to determine cause and corrective action for specific incident.

4. It is important that the committee determine the true facts of "what happened" and what can be done to prevent similar or related incidents in the future.

5. Frequently, errors in judgement or failure of individuals to follow established procedures are involved in an incident. These occurrences should not be "whitewashed". They should be recognized by the committee and noted in the report. However, it is important to speak to "what" was done and not speak to "who" did it.

6. The key committee function is to identify the prime cause of the incident. This prime cause should be identified in the report. Any other secondary contributing factors which the committee feels critically important should also be listed, but they should be labeled as secondary factors and should be minimized.

7. The committee's "recommendations" should deal with the prime cause of the accident. Secondary contributing factors and any other safety lessons that have been identified may be listed if they are relevant and important. Recommendations should be as specific as possible. It should not be assumed that plant supervision knows what "standard procedures" or "safe working practices" are. Make reference to specific procedure numbers, plant safety guides, or any other known documents. Describe the actual "do's" and "don'ts" the committee has identified in the incident. Keep in mind that supervision across the plant will be reading these recommendations and trying to relate them to our overall safety program. Make the recommendations meaningful and applicable.

CBY 3109636

TESTING, LABELING, HANDLING, AND DISPOSING OF METAL SAMPLE PRESSURE CONTAINERS

PURPOSE

This procedure provides a means for testing, identifying, labeling, and disposing of all metal sample containers used to contain material under pressure or vacuum, whether they are for samples or standards. This procedure does not include compressed gas cylinders purchased from an outside vendor, or 1, 2, or 5 gallon cans.

POLICY

All metal containers used in the plant for samples or standards that are under pressure or vacuum must adhere to specified ICC (Interstate Commerce Commission), DOT (Department of Transportation), or other specifications. They must be tested at periodic intervals, properly labeled or identified, properly handled, and properly disposed of when they do not meet specified criteria.

SCOPE

This procedure covers the responsibilities of the departments owning and using these containers, specifications, and requirements for safe use and handling of the containers.

RESPONSIBILITY

Everyone is responsible for proper handling of these containers.

The Control Lab is responsible for testing, identifying, and disposing of all containers used for catching samples by Manufacturing, Distribution, and PTD, and those used for standards by the Lab and I & E Maintenance Department.

The I & E Maintenance Department is responsible for testing, identifying, and as necessary, removing from service containers used in the field for standardizing process analyzers that differ from those prepared by the Lab.

All other users of metal sample containers are responsible for testing, identifying, and as necessary, removing from service containers they use which do not fall in the categories listed above.

CBY 3109638

C 001513

TESTING, LABELING, HANDLING, AND DISPOSING OF METAL SAMPLE PRESSURE CONTAINERS

B. 5.3 1 Cylinder

1. These cylinders are to be used as the gas standard cylinders throughout the plant. They must conform to the following standard: DOT 4B240ET. These cylinders are painted blue.

2. These cylinders will be labeled as to content.

3. Cylinders showing any visual abnormalties will be decontaminated and properly disposed of immediately.

4. These cylinders are to be used only for gas standards. No other foreign material will be added to the cylinder, such as aluminum foil for mixing purposes.

5. The maximum working pressure on these cylinders will be 160 psig.

6. After 5 years use these cylinders will be decontaminated and discarded. New cylinders will be used for replacement.

C. 5 Gallon Butane Cylinders

1. These cylinders are generally used by the I&E Department for standards used in the field.

2. These cylinders must adhere to the following specifications: DOT or ICC 4BA 240.

3. Cylinders in gas use will not require a safety valve. Cylinders in liquid use must have safety valves.

4. These cylinders will be painted yellow and their serial numbers recorded by I&E. See section H for painting specifications.

5. I&E will tag the cylinders showing the analyzer they are for and the composition of the standard contained therein.

6. The Control Lab will prepare the standards for these cylinders as needed and analyze the standards.

7. The use of an outside vendor is recommended for hydrostatic testing of these cylinders at 360 psig since the Control Lab's equipment will not handle them. It will be the I&E Department's responsibility to have these cylinders tested at least once every five (5) years.

8. The maximum working pressure on these cylinders will be 160 psig. The cylinders will be so labeled.

CBY 3109640

TESTING, LABELING, HANDLING, AND DISPOSING
OF METAL SAMPLE PRESSURE CONTAINERS

8. Wrenches and pliers must never be used to close valves on sample containers.

9. General department procedures must be followed when taking samples. Sample containers filled with liquid samples must be filled from the inlet valve on the container; i.e., not the dip tube end. All containers used for liquid samples must contain a dip tube.

10. Sample containers containing samples must be kept away from abnormal sources of heat.

11. Sample containers requiring repairs must first be decontaminated by steam cleaning.

12. Sample containers must not be thrown off or on truck, racks, benches, etc.

13. Any cylinders taken out of service for refilling or storage, shall be inspected visually all over for mechanical damage, such as rust spots, cracked paint, pits in paint, or dents in cylinders. Any damages found shall be reported to supervision and further inspection made before further use of such cylinders. In any case all cylinders in use will be inspected semi-annually with appropriate records kept.

14. Cylinders used in outside service must be placed on an open grate in order to reduce rusting of the bottom of the cylinders.

F. Proper Disposal of Metal Containers

1. All sample containers to be disposed of will be sent to the Lab for proper disposal or proper instructions for disposing of the container.

G. Specifications to Coat and Paint Carbon Steel Sample Bombs

1. Sandblast to white metal in accordance with SSPC-SP5-63 (anchor pattern shall conform to a minimum of 1 mils).

2. Apply one coat of Matcote 1-830 epoxy promer to the sandblasted surfaces (dry film thickness 1.5 - 2 mils).

3. Apply one coat of Matcote Rust-Ban EX-6707 minimum yellow to the primed surfaces.

4. Apply one finish coat of Matcote Rust-Ban EX-6707 minimum yellow.

5. Total dry film thickness should be 10 mils.

C 001517

CBY 3109642

BYPASSING AND TESTING PROTECTIVE DEVICES

PURPOSE

revised Define the control measures to reduce losses due to bypassed or malfunctioning protective devices.

POLICY

No protective devices will be intentionally bypassed or made inoperative without providing adequate alternate protection, continuing communication that the device is bypassed, and approval from authorized supervision.

All protective devices will be routinely tested to assure operability.

SCOPE

This procedure applies to any department (operating unit, laboratory or facility) which must use protective devices to minimize loss or control conditions that affect the safety of personnel and equipment. Examples of protective devices are shutdown devices, interlocks, alarms, relief valves, vents, back-flow preventers, etc.

RESPONSIBILITY

The responsibility for control of protective device bypassing and the routine testing of protective devices rests with the owning department at the level of manufacturing superintendent or PT group supervisors as the case may be. Authorization for bypassing protective devices will not be delegated to lower levels of supervision by the manufacturing superintendent or PT group supervisor.

Each department will be responsible for providing the necessary internal procedure to implement the control of bypassing and testing protective devices along the guidelines established in the procedure. Records of bypassing and testing of protective devices will be maintained by the owning department of facility.

PROCEDURE

A. Bypassing Protective Devices

In the event that a protective device must be taken out of service, it will be the responsibility of authorized supervision to approve its removal from service.

revised For purposes of this procedure temporarily altering a safety device setpoint (vibration switch, P.S.V., safety interlock, etc.) either above or below a previously specified valve or altering an activation point controlled through a computer system (such as modicon or provox) will be classified as bypassing that safety device.

C 001519 CBY 3109644

BYPASSING AND TESTING PROTECTIVE DEVICES (Cont'd)

B. Routine Checking of Protective Devices

In order to minimize the loss potential resulting from inoperable protective devices, each department (operating unit, laboratory or facility) will define and implement programs for testing the operability of these devices. These tests may be either operational checks or based on preventive maintenance programs, depending upon individual circumstances, but should be sufficiently frequent to assure that the device will function when needed.

Each department having block valves located under relief valves will take the following precautions to insure relief valves are not inadvertently blocked out of service. These precautions will also be taken for block valves located in vent lines when the vent line serves as relief protection for the equipment such as vessels normally operating at atmospheric pressure.

1. Maintain a current checklist showing location and status of block valves beneath relief valves, or in vent lines used for relief protection. Use the checklist on a regular basis (monthly is suggested) to physically verify block valve status.

2. Block valves will be car sealed in the open or normal position.

3. These block valves will be painted yellow for proper coding.

AUTHOR: J. C. Usrey

APPROVED BY: J. S. Hagood

APPROVED BY: G. E. Davenport 9/13/83

C 001521

CBY 3109645

CONTROL TAG (FRONT)

ATTENTION
PROTECTIVE DEVICE
BYPASSED

CHECK BOARD EACH SHIFT FOR COMPLETIONS

DEVICE DESCRIPTION/FUNCTION _____

_____

_____

REASON FOR REMOVAL _____

_____

ALTERNATE PROTECTION _____

_____

_____

REMOVED FROM SERVICE BY:
PROCESSOR _____ TIME _____
FOREMAN _____ DATE _____

ESTIMATED COMPLETION
DATE/TIME _____

SAFETY NOTIFIED (OUT OF SERVICE)
BY: _____

AUTHORIZATION:
MFG. SUPT. _____ DATE _____

SYSTEM RETURNED TO SERVICE & PHYSICALLY VERIFIED BY:
PROCESSOR: _____ TIME _____
FOREMAN: _____ DATE _____

SAFETY NOTIFIED (IN SERVICE)
BY: _____

RETURN TO MFG. SUPT. WHEN COMPLETE

NEW ATTACHMENT

CBY 3109646

C 001522

INVESTIGATION AND REPORTING OF SIGNIFICANT INJURIES, NEAR-MISSES, FIRES AND SPILLS

INSTRUCTIONS OF THE CHAIRMAN OF INVESTIGATION COMMITTEES

1. Selected chairman will meet with the Superintendent or Manager immediately following the incident requiring investigation to receive a general outline of what is expected as committe chairman.

2. The chairman should read Safety Procedure SP-005.

3. The chairman should not edict his opinions or allow individuals reviewing/approving the report to do so with the committee members. He should use his conference leadership techniques in guiding the committee in their activities. The interest is in using group dynamics to determine cause and corrective action for specific incident.

4. It is important that the committee determine the true facts of "what happened" and what can be done to prevent similar or related incidents in the future.

5. Frequently, errors in judgement or failure of individuals to follow established procedures are involved in an incident. These occurrences should not be "whitewashed". They should be recognized by the committee and noted in the report. However, it is important to speak to "what" was done and not speak to "who" did it.

6. The key committee function is to identify the prime cause of the incident. This prime cause should be identified in the report. Any other secondary contributing factors which the committee feels critically important should also be listed, but they should be labeled as secondary factors and should be minimized.

7. The committee's "recommendations" should deal with the prime cause of the accident. Secondary contributing factors and any other safety lessons that have been identified may be listed if they are relevant and important. Recommendations should be as specific as possible. It should not be assumed that plant supervision knows what "standard procedures" or "safe working practices" are. Make reference to specific procedure numbers, plant safety guides, or any other known documents. Describe the actual "do's" and "don'ts" the committee has identified in the incident. Keep in mind that supervision across the plant will be reading these recommendations and trying to relate them to our overall safety program. Make the recommendations meaningful and applicable.

CBY 3109636

C 001524

TESTING, LABELING, HANDLING, AND DISPOSING OF METAL SAMPLE PRESSURE CONTAINERS

PURPOSE

This procedure provides a means for testing, identifying, labeling, and disposing of all metal sample containers used to contain material under pressure or vacuum, whether they are for samples or standards. This procedure does not include compressed gas cylinders purchased from an outside vendor, or 1, 2, or 5 gallon cans.

POLICY

All metal containers used in the plant for samples or standards that are under pressure or vacuum must adhere to specified ICC (Interstate Commerce Commission), DOT (Department of Transportation), or other specifications. They must be tested at periodic intervals, properly labeled or identified, properly handled, and properly disposed of when they do not meet specified criteria.

SCOPE

This procedure covers the responsibilities of the departments owning and using these containers, specifications, and requirements for safe use and handling of the containers.

RESPONSIBILITY

Everyone is responsible for proper handling of these containers.

The Control Lab is responsible for testing, identifying, and disposing of all containers used for catching samples by Manufacturing, Distribution, and PTD, and those used for standards by the Lab and I & E Maintenance Department.

The I & E Maintenance Department is responsible for testing, identifying, and as necessary, removing from service containers used in the field for standardizing process analyzers that differ from those prepared by the Lab.

All other users of metal sample containers are responsible for testing, identifying, and as necessary, removing from service containers they use which do not fall in the categories listed above.

C 001526

CBY 3109638

TESTING, LABELING, HANDLING, AND DISPOSING
OF METAL SAMPLE PRESSURE CONTAINERS

B. 5.3 l Cylinder

1. These cylinders are to be used as the gas standard cylinders throughout the plant. They must conform to the following standard: DOT 4B240ET. These cylinders are painted blue.

2. These cylinders will be labeled as to content.

3. Cylinders showing any visual abnormalties will be decontaminated and properly disposed of immediately.

4. These cylinders are to be used only for gas standards. No other foreign material will be added to the cylinder, such as aluminum foil for mixing purposes.

5. The maximum working pressure on these cylinders will be 160 psig.

6. After 5 years use these cylinders will be decontaminated and discarded. New cylinders will be used for replacement.

C. 5 Gallon Butane Cylinders

1. These cylinders are generally used by the I&E Department for standards used in the field.

2. These cylinders must adhere to the following specifications: DOT or ICC 4BA 240.

3. Cylinders in gas use will not require a safety valve. Cylinders in liquid use must have safety valves.

4. These cylinders will be painted yellow and their serial numbers recorded by I&E. See section H for painting specifications.

5. I&E will tag the cylinders showing the analyzer they are for and the composition of the standard contained therein.

6. The Control Lab will prepare the standards for these cylinders as needed and analyze the standards.

7. The use of an outside vendor is recommended for hydrostatic testing of these cylinders at 360 psig since the Control Lab's equipment will not handle them. It will be the I&E Department's responsibility to have these cylinders tested at least once every five (5) years.

8. The maximum working pressure on these cylinders will be 160 psig. The cylinders will be so labeled.

CBY 3109640

C 001528

TESTING, LABELING, HANDLING, AND DISPOSING
OF METAL SAMPLE PRESSURE CONTAINERS

8. Wrenches and pliers must never be used to close valves on sample containers.

9. General department procedures must be followed when taking samples. Sample containers filled with liquid samples must be filled from the inlet valve on the container; i.e., not the dip tube end. All containers used for liquid samples must contain a dip tube.

10. Sample containers containing samples must be kept away from abnormal sources of heat.

11. Sample containers requiring repairs must first be decontaminated by steam cleaning.

12. Sample containers must not be thrown off or on truck, racks, benches, etc.

13. Any cylinders taken out of service for refilling or storage, shall be inspected visually all over for mechanical damage, such as rust spots, cracked paint, pits in paint, or dents in cylinders. Any damages found shall be reported to supervision and further inspection made before further use of such cylinders. In any case all cylinders in use will be inspected semi-annually with appropriate records kept.

14. Cylinders used in outside service must be placed on an open grate in order to reduce rusting of the bottom of the cylinders.

F. Proper Disposal of Metal Containers

1. All sample containers to be disposed of will be sent to the Lab for proper disposal or proper instructions for disposing of the container.

G. Specifications to Coat and Paint Carbon Steel Sample Bombs

1. Sandblast to white metal in accordance with SSPC-SP5-63 (anchor pattern shall conform to a minimum of 1 mils).

2. Apply one coat of Matcote 1-830 epoxy promer to the sandblasted surfaces (dry film thickness 1.5 - 2 mils).

3. Apply one coat of Matcote Rust-Ban EX-6707 minimum yellow to the primed surfaces.

4. Apply one finish coat of Matcote Rust-Ban EX-6707 minimum yellow.

5. Total dry film thickness should be 10 mils.

CBY 3109642

C 001530

BYPASSING AND TESTING PROTECTIVE DEVICES

PURPOSE

revised Define the control measures to reduce losses due to bypassed or malfunctioning protective devices.

POLICY

No protective devices will be intentionally bypassed or made inoperative without providing adequate alternate protection, continuing communication that the device is bypassed, and approval from authorized supervision.

All protective devices will be routinely tested to assure operability.

SCOPE

This procedure applies to any department (operating unit, laboratory or facility) which must use protective devices to minimize loss or control conditions that affect the safety of personnel and equipment. Examples of protective devices are shutdown devices, interlocks, alarms, relief valves, vents, back-flow preventers, etc.

RESPONSIBILITY

The responsibility for control of protective device bypassing and the routine testing of protective devices rests with the owning department at the level of manufacturing superintendent or PT group supervisors as the case may be. Authorization for bypassing protective devices will not be delegated to lower levels of supervision by the manufacturing superintendent or PT group supervisor.

Each department will be responsible for providing the necessary internal procedure to implement the control of bypassing and testing protective devices along the guidelines established in the procedure. Records of bypassing and testing of protective devices will be maintained by the owning department of facility.

PROCEDURE

A. Bypassing Protective Devices

In the event that a protective device must be taken out of service, it will be the responsibility of authorized supervision to approve its removal from service.

revised For purposes of this procedure temporarily altering a safety device setpoint (vibration switch, P.S.V., safety interlock, etc.) either above or below a previously specified valve or altering an activation point controlled through a computer system (such as modicon or provox) will be classified as bypassing that safety device.

C 001532 CBY 3109644

BYPASSING AND TESTING PROTECTIVE DEVICES (Cont'd)

B. Routine Checking of Protective Devices

In order to minimize the loss potential resulting from inoperable protective devices, each department (operating unit, laboratory or facility) will define and implement programs for testing the operability of these devices. These tests may be either operational checks or based on preventive maintenance programs, depending upon individual circumstances, but should be sufficiently frequent to assure that the device will function when needed.

Each department having block valves located under relief valves will take the following precautions to insure relief valves are not inadvertently blocked out of service. These precautions will also be taken for block valves located in vent lines when the vent line serves as relief protection for the equipment such as vessels normally operating at atmospheric pressure.

1. Maintain a current checklist showing location and status of block valves beneath relief valves, or in vent lines used for relief protection. Use the checklist on a regular basis (monthly is suggested) to physically verify block valve status.

2. Block valves will be car sealed in the open or normal position.

3. These block valves will be painted yellow for proper coding.

AUTHOR: J. C. Usrey

APPROVED BY: J. S. Hagood

APPROVED BY: G. E. Davenport 9/13/83

C 001534

CBY 3109645

CONTROL TAG (FRONT)

ATTENTION
PROTECTIVE DEVICE
BYPASSED

CHECK BOARD EACH SHIFT FOR COMPLETIONS

DEVICE DESCRIPTION/FUNCTION _____

_____

REASON FOR REMOVAL _____

ALTERNATE PROTECTION _____

_____

REMOVED FROM SERVICE BY:
PROCESSOR _____ TIME _____
FOREMAN _____ DATE _____

ESTIMATED COMPLETION
DATE/TIME _____

SAFETY NOTIFIED (OUT OF SERVICE)
BY: _____

AUTHORIZATION:
MFG. SUPT. _____ DATE _____

SYSTEM RETURNED TO SERVICE & PHYSICALLY VERIFIED BY:
PROCESSOR: _____ TIME _____
FOREMAN: _____ DATE _____

SAFETY NOTIFIED (IN SERVICE)
BY: _____

RETURN TO MFG. SUPT. WHEN COMPLETE

NEW ATTACHMENT

CBY 3109646 C 001535

FIRE PERMITS AND VESSEL ENTRY/FIRE PERMITS

PURPOSE

The purpose of this procedure is to define work requiring a Fire Permit or Vessel Entry/Fire Permit and to define the requirements and procedure for issuing such permits.

SCOPE

This procedure applies to work performed in the fenced plant and the cross-country pipelines which might provide a source of ignition and/or require entry into a vessel.

POLICY

Work requiring Fire Permits or Vessel Entry/Fire Permit should be done only if no alternate, safer means of accomplishing the same end result is available. Each request for a permit should be examined critically to determine if the same work can be done without the use of ignition sources, vehicles or without having personnel enter the vessel. Only if no other method exists, or the alternate method is totally impractical, should a permit be issued.

PROCEDURE

The permits covered by this procedure are Fire Permits and Vessel Entry/Fire Permits. Either of these two permits may or may not be a "special" permit. The requirements for the types of permits are described below:

1. A Fire Permit (see Attachment #2) is required for all ignition producing operations that are not a part of a vessel Entry/Fire Permit in the following locations:

   a. All hazardous areas described as Division I or Division II as shown on Drawing No. 340EE1 (Attachment #1) except control buildings and except the Distribution tank truck loading rack where it is impractical to issue a permit to each truck.

   b. Any non-harardous area as shown on Drawing 340EE1, any approved open area, or any other undesignated area where ignition producing operations are being done on a closed vessel or pipe, contaminated equipment, or near flammable liquids or gases. This does not include natural gas lines or acetylene bottles in maintenance shops.

C 001537 CBY 3109648

FIRE PERMITS AND VESSEL ENTRY/FIRE PERMITS

c. Fire permit work on the inside of a vessel.

d. Open flame work to be done on the outside shell of a vessel.

e. Entry of vessels which cannot be done without making exceptions of certain precautions as stated in the section entitled "Comments" later in this procedure.

f. Entry of a vessel by a group not doing Special Permit work where another group is doing Special Permit work.

g. Work on or in close proximity to energized circuits, 480 volts (277 volts phase to ground) and higher.

h. Open flame work, or use of internal combustion engines/ vehicles in "pump alleys" handling flammable materials. The "pump alleys" or other areas requiring Special Permits will be identified by the Manufacturing Department.

i. Use inside a vessel of equipment requiring greater than 32 volt electrical supply.

j. Operation of lifting equipment near high voltage lines. (Procedure SP-022 applies.)

Exceptions (Ordinary Fire Permit Required)

a. Steam, water, or steam condensate piping 2" or less in diameter where length from the last closed block valve to the open end of the pipe does not exceed 6' and the main header on the other side of the block valve is pressured.

b. Steam tracing with block valves closed from sources of pressure, provided the tracing is a minimum of 8" from any process or utility line and depressured.

c. Sandblasting of process piping not containing cumene hydroperoxide, chlorine, hydrogen cyanide, oxygen, and acetylenic compounds.

d. Hot bolting (removing every other flange bolt) with an impact wrench which may be done on a regular Fire Permit if the line or equipment has been depressured.

C 001539 CBY 3109650

FIRE PERMITS AND VESSEL ENTRY/FIRE PERMITS

6. Welding may require two permits - one at the machine and one at the work. The same idea applies for other internal combustion engines. Locating the welding machine or engines out of a classified area (see Attachment #1) will eliminate the need for one permit. The Shift Foreman will specify the location of welding machines, engines or similar machines which must be located in a classified area. One permit will be sufficient for machines grouped together in a classified area. Machines should be shutdown when work is discontinued for personnel breaks, etc.

7. Operating personnel are required to issue permits to themselves as well as to maintenance and other personnel.

8. All permits throughout the plant are automatically cancelled when a fire alarm sounds. Prior to the all-clear in areas outside the emergency area, and after the Shift Foreman has determined that work can be resumed safely, Processors may re-issue permit by signing them. In the emergency area itself, this authority cannot be delegated before the all-clear has sounded. After the all-clear, permits may be re-issued by Processor signature.

COMMENTS

No procedures can be written which would cover all precautions necessary to make a job safe, but the following paragraphs are intended as a list of items to be considered when issuing permits.

1. Sewers are a constant fire hazard. Therefore, sewer openings in the vicinty (within 35 feet) of open flame work must be tightly covered and protected against slag and sparks. This can be accomplished by: sealing sewer openings with plastic sheeting and sand; sealing with plastic sheeting and water; or purging with a generous flow of steam.

2. Suitable protection should be considered for each job requiring a permit. Such protection includes, but is not limited to: fire protection equipment, fire containment blankets, a fire watch, etc. The permit should state these precautions.

3. All piping vessels which have contained flammables or which might have become hazardous through contamination with flammables must be isolated and decontaminated before a permit is issued; otherwise a Special Permit is required.

C 001541

CBY 3109652

a. "Isolation" of a line or vessel means blinding (with a gasket inserted on the side of the blind away from the line or vessel being worked on and the flanges tightened again), or disconnecting and removing from the area the line or vessel (refer to SP-016 for Isolation Methods). Blinds must have

FIRE PERMITS AND VESSEL ENTRY/FIRE PERMITS

5. When spark-producing work is to be done (cutting torch, welding, etc.) special consideration must be given to containing the sparks to as small an area as possible. Consideration of proximity to possible fuel sources, amount of sparks produced and worker safety should all be taken into account.

6. Decontamination does not necessarily eliminate the need for special protective equipment, such as air masks, respirators goggles, lift lines, or other equipment which is considered necessary for the safety of the job by the operating foreman. Safety harnesses and/or wristlets with lift lines attached should be worn when entering a vessel. Wristlets only should be used if the vessel opening is too small to permit removal of a man with a safety harness. Safety harnesses and wristlets are not practical in certain situations such as where the vessel internals will not allow pulling a man out or in the case of bottom entry with the man working on a scaffold inside the vessel.

7. Before any tank, tower or other vessel containing flammable material is pumped out by means of portable equipment:

   a. The portable equipment must be electrically grounded and bonded to the vessel.

   b. Strong consideration should be given to the use of hard piping in making the connection between the vessel and portable equipment. In the event that the use of hard piping is impractical, SP-010 must be followed in selecting, testing and using a hose system. (see SP-035)

8. "Hot Taps" are permissible only as a last resort in case of emergency or when the expense of isolation and decontamination is unreasonable, and then only with a Special Permit. The metal thickness and condition of the equipment to be "hot tapped" must be checked by the Materials Technology Section prior to performing the work. All "hot taps" on lines must be approved by the General Superintendent in charge of the line. Lines which should not be "hot tapped" are compressed air, cumene hydroperoxide, chlorine, ethylene over 450 psi and 155°F., hydrogen cyanide, oxygen, hydrogen, caustic, butadiene, acetylenic compounds. No welding is to be done on any carbon steel or low alloy lines where the operating temperature is below 70°F. without prior consultation with the Materials Technology Department.

9. Work on or in close proximity to energized circuits of 480 volts (277 volts to ground) will be done only as a last resort, in an emergency, or when no other practical method exists, and then only under a "Special Permit".

C 001543 CBY 3109654

FIRE PERMITS AND VESSEL ENTRY/FIRE PERMITS

14. Driving or extracting piling using a crane causes unusually high stress to be placed on the crane boom and associated equipment. For this reason special consideration should be given to such things as type of equipment used, placement of equipment and personnel while doing this type of work. Also, special consideration should be given to the possibility of underground piping, wiring, etc. being in the way of the piles being driven. (Underground drawings may not be complete.) In most cases a special job safety analysis should be conducted before doing this type work.

15. For work covered by a vessel entry permit a ground fault interruption device must be used with any equipment requiring greater than 32 volt power source.

SITUATIONS NOT COVERED

Situations not covered by this procedure must be approved by the concerned general superintendent.

RESPONSIBILITIES

See Attachment #4.

ORIGINAL AUTHOR: W. W. Varnado

REVISED: C. R. Murrell
C. R. Murrell

APPROVED BY: J W Kongable
J. W. Kongable

APPROVED BY: G.E Davenport /ac Hatton
G. E. Davenport

Reviewed: J Clary 9/8/83
Safety Dept.

C 001545

CBY 3109656

945100 C

CBY 3109657

FIRE PERMITS AND VESSEL ENTRY/FIRE PERMITS

personnel inside vessel, account for personnel inside vessel, direct evacuation of work crew; remain alert for changes in surrounding area that could affect work inside vessel; perform special duties as defined on the permit form. Normally the Safety Back-up will be from the group performing the work.

Carrying out the above responsibilities is signified by the signatures required on the various types of permits according to the following table:

		Fire Permit	Vessel Entry/Fire Permit	Special Permit
1.	Shift Foreman	Yes	Yes	Yes
2.	Processor	Yes	Yes	Yes
3.	Day Foreman or Operations Planner	*	Yes	Yes
4.	Monsanto Maintenance Technician	Yes	Yes	Yes
5.	Monsanto Maintenance Foreman ##	Yes	Yes	Yes
6.	Contractor Foreman (Maint. & CED) ***	Yes	Yes	Yes
7.	Contractor Hourly Personnel (Maintenance and CED)	**	**	**
8.	Monsanto CED Supervisor	Yes	Yes	Yes
9.	Anyone	Yes	Yes	Yes
10.	Fire/Safety Inspector	(Required when vapor tests are performed by him)		
11.	Manufacturing Superintendent	No	No	Oral Approval Only
12.	I&E Maintenance Superintendent ###	No	No	Oral Approval
13.	Superintendent, Manufacturing	No	No	Oral Approval Only
14.	Superintendent, Maintenance ###	No	No	Oral Approval
15.	Night Supervisor	#	#	#

* Required for any ignition producing work on process or utility lines or vessels.

** Not required except for contractor hourly personnel work individually such as TMI technicians and truck drivers.

*** Contractor Foreman (Maint. and CED) signature not required for vehicle or electrical test equipment.

\# May sign for any supervision absent from the plant and may act for any superintendents absent from the plant on all permits except special permits.

Monsanto Maintenance Foreman signature not required for vehicle, electrical test equipment, nor "in-plant" contractor work.

Only for 480 volts (277 volts phase to ground).

CBY 3109667

C 001547

FIRE PERMITS AND VESSEL ENTRY/FIRE PERMITS

10. The Plant Engineering Department is responsible for classifying instruments and types of work on instruments which are intrinsically safe and do not require a fire permit for Division I and Division II areas. Also, they have the responsibility to evaluate and tag portable electrical equipment and tools which do not require fire permits for use in classified areas. Equipment not identified and tagged will require a fire permit for use in classified areas.

11. The Safety Department will provide a Fire/Safety Inspector who, upon request by operating or maintenance supervision, will make initial vapor tests, except at the pipeline metering stations, and subsequent vapor tests as requested. The inspector will indicate on the permit the type of tests made, the time and results of such test, and affix his signature. Interpretation of the test results and hazards involved, if any, will be discussed with the supervisor requesting the test. When vapor testing is necessary, a test should be done immediately prior to commencement of work. If there is to be a time delay between vapor testing and the start of work, precautions should be taken to prevent contamination of the equipment. If there is any doubt, the vapor test should be re-done before beginning work.

For vessel entry the Fire/Safety Inspector will perform vapor tests for Oxygen content and for vessels with Radioactive sources use a geiger counter to assur the complete isolation of the source prior to issuance of the permit. All test results will be entered on the permit form by the Fire/Safety Inspector.

On jobs where vapor tests for flammable vapors should be made during the progress of the work or when requested, the Fire/Safety Inspector will, at the request of the Shift Foreman, leave an instrument with operations after making the initial check. All subsequent test shall be recorded and initialed on the face of the permit by the person making the tests.

12. The Manufacturing Superintendent has specific responsibility only on "special" permits. His oral approval signifies that the work is necessary, the method is practical, and the prescribed precautions, when taken, are adequate. He determines the need for and approves a contingency plan when needed.

He is responsible for making frequent unannounced work sampling visits to operating areas to monitor work practices and procedure compliance.

13. The I&E Maintenance Superintendent has specific responsibility only on "special" permits to be issued for work on or in close proximity to energized circuits of 480 volts (277 volts to ground) and higher. His oral approval signifies that the work is necessary, the method is practical, and the prescribed precautions, when taken are adequate. He determines the need for and approves a contingency plan when needed.

CBY 3109665

C 001549

FIRE PERMITS AND VESSEL ENTRY/FIRE PERMITS

a) proper work site
b) how equipment was decontaminated
c) what service the equipment was in
d) what the hazards are in the area
e) how complete decontamination was verified
f) how to be reached if any problems are encountered
g) location of nearest safety equipment, safety showers, etc.

He is responsible for stopping work in his area being done by others if, in his opinion, conditions change making further work unsafe. If this occurs, he will notify the Shift Foreman immediately after stopping such work.

He may make subsequent vapor tests or request that a vapor tester be left at the work site. The Safety Department will issue and maintain these vapor testers.

3. The Day Foreman (or Operation Planner) is responsible and must sign the permit for any work requiring ignition producing equipment on or in process or utility equipment. He must also sign all vessel entry permits.

4. The Monsanto Maintenance Technician performing the actual "hot" work or entering a vessel will sign ALL permits, indicating that he understands and will follcw the precautions and special instructions prescribed. He is responsible for verifying the job situation to be safe, in his opinion, prior to starting work. He will stop the work if, in his opinion, conditions change making further work unsafe. If this occurs, he will notify the Shift Foreman or area Processor immediately after stopping such work. He returns the bottom sheet of the permit to the Shift Foreman when the work is completed.

   He may make subsequent vapor tests or request that a vapor tester be left at the work site.

5. The Monsanto Maintenance Foreman is responsible for the personnel performing the work including contractors which do not routinely in the plant (non-"in-plant" contractors). He has the responsibility for implementing any special precautions specified by the permit. He signs ALL permits except those for vehicles,

C 001551 CBY 3109663

ORANGE BORDER

VESSEL ENTRY/FIRE PERMIT

FIRE AND ENTRY PERMIT PROCEDURE

Refer to the Fire and Entry permit procedure for further clarification. No procedure, especially a condensation such as this, can be written to cover all cases. The proper use of this permit depends on the judgment of the people signing the permit and performing the work.

This permit shall be securely fastened to the piece of equipment being worked on, or if this is impractical, at a point immediately adjacent and shall be clearly visible at all times while the work is in progress.

DEFINITIONS:
Fire Permits are required for ALL welding or flame operations and any other sparking operations within operating and distribution battery limits.

Exceptions include inside area maintenance shops, the instrument shop, laboratory and fire training group. These exceptions do not apply to work on a closed vessel, pipe, or contaminated equipment. See map accompanying the Fire and Entry Permit Procedure for areas where non-flame sparking work is permitted without permit.

Entry Permits are required before any person may enter a closed vessel or an open vessel deeper than five feet (fire wall enclosures and pipe ways excepted).

Special Permits are required for especially hazardous work such as fire permit work on or in closed vessels, or on piping which has not been decontaminated, depressured or isolated with blinds or disconnections. (See exceptions in Fire and Entry Permit Procedure.)

Responsibilities: Department foreman is directly responsible for the safe condition of work: he approves the permit. Processor is responsible for executing the precautions and preparations to make the job safe. Maintenance foreman is responsible for the safety of the men performing the work, their instructions and precautions. Fire Safety inspector is responsible for making gas tests. Manufacturing Superintendents and Superintendents of Manufacturing must orally approve Special Permits. Night Supervisors, who represent all supervision when that supervision is absent from the plant, may act in the capacity of all supervision, during off-hours. Superintendents are required to approve all Special Permits.

Limitations: All permits are automatically cancelled when the fire or spill alarm sounds and can be re-issued by counter-signature of department foreman and processor Permits are valid for a 24 hour period with the proper signatures. Vapor test must be renewed on a minimum frequency of 12 hours.

Please return the permit to the operating foreman or processor when job is complete.

ORANGE BORDER

CBY 3109661

C 001553

RED BORDER

FIRE PERMIT

FIRE AND ENTRY PERMIT PROCEDURE

Refer to the Fire and Entry permit procedure for further clarification. No procedure, especially a condensation such as this, can be written to cover all cases. The proper use of this permit depends on the judgment of the people signing the permit and performing the work.

This permit shall be securely fastened to the piece of equipment being worked on, or if this is impractical, at a point immediately adjacent and shall be clearly visible at all times while the work is in progress.

DEFINITIONS:

Fire Permits are required for ALL welding or flame operations and any other sparking operations within operating and distribution battery limits.

Exceptions include inside area maintenance shops, the instrument shop, laboratory and fire training group. These exceptions do not apply to work on a closed vessel, pipe, or contaminated equipment. See map accompanying the Fire and Entry Permit Procedure for areas where non-flame sparking work is permitted without permit.

Entry Permits are required before any person may enter a closed vessel or an open vessel deeper than five feet (fire wall enclosures and pipe ways excepted).

Special Permits are required for especially hazardous work such as fire permit work on or in closed vessels, or on piping which has not been decontaminated, depressured or isolated with blinds or disconnections. (See exceptions in Fire and Entry Permit Procedure.)

Responsibilities: Department foreman is directly responsible for the safe condition of work: he approves the permit. Processor is responsible for executing the precautions and preparations to make the job safe. Maintenance foreman is responsible for the safety of the men performing the work, their instructions and precautions. Fire Safety inspector is responsible for making gas tests. Manufacturing Superintendents and Superintendents of Manufacturing must orally approve Special Permits. Night Supervisors, who represent all supervision when that supervision is absent from the plant, may act in the capacity of all supervision, during off-hours. Superintendents are required to approve all Special Permits.

Limitations: All permits are automatically cancelled when the fire or spill alarm sounds and can be re-issued by counter-signature of department foreman and processor Permits are valid for a 24 hour period with the proper signatures. Vapor test must be renewed on a minimum frequency of 12 hours.

Please return the permit to the operating foreman or processor when job is complete.

RED BORDER

CBY 3109659

C 001555

MONSANTO PROCEDURE MANUAL

DISTRIBUTION

Plant Manager (Jones)
Project Director,Mfg. (Frizzell)
General Superintendent (Hagood)
Employee Relations Supv. (Malfitano)
Employee Relations Representative (Watkins)
Benefits Representative (Sabesta)

Safety & Loss Superintendent (Wilbeck) (3)
Safety Supervisor (Satsky)

Plant Security (Captain)
Industrial Hygienist (Katy Lindberg)

Plant Accounting Superintendent (Wall)
Area Accounting Prop.& Maint. (Clemons)
Data Processing Manager (Attra)
Accounts Payable Supervisor (Kelly)

Manager of PT (Yeretsky)
PT Group Supervisor (Graham)
PT Group Supervisor (Saunders)

General Superintendent (Gray)
MTS Superintendent (Ingersoll)
Plt.Engineering Superintendent (Fisher)
Projects Group Supervisor (Isadore)
Projects Group Supervisor (Pickett)
Engineering Services Supervisor (Birch)
Central Files (Knight) (2)
General Maintenance Superintendent (Osburn)
General Maintenance Group Foreman (3)
Stores Superintendent (Ingersoll)
Stores Supervisor (Loving)
Maintenance Shop 4 (2)
Maintenance Shop 5
Maintenance Shop 6
Maintenance Shop 7
I&E Superintendent (Stultz)
I&E Group Foreman
I&E Specialist (Williams) (SPM)
Contract Group Foreman

Shop #1 (EAP & SP Only)
Shop #1-I&E (EAP & SP Only)

MTA/IDA Superintendent (Sheridan)
MTA/IDA Group Foreman (Purdom)
MTA/IDA Tech.Superintendent (Silver)
MTA/IDA TSD Supervisor (Turner)
Resin/Formalin/DPO Superintendent (Louvet)
Formalin/DPO Group Foreman
Formalin/DPO Shift Foreman

Production Coord.Superintendent (Ogens)
Manager,Env.Affairs & Tech (Guilliams)
Env.Affairs & Tech.Superintendent (McCurley)
Superintendent Mfg.& Services (Ceyanes)

Purchasing Buyer (Reed)
Utilities Superintendent (Atkins)
Utilities Group Foreman (Goza)
Utilities Shift Foreman
Energy,Util.&Site Dev. Superintendent(Blake)
Dist.Operations Superintendent (Harlan)
Distribution Group FOreman (Menard)
Distribution Shift Foreman (2)
Distribution Production Spec. (Jolly)
Night Supervisors
AN & E.C. Mfg. Superintendent (Silva)
AN Group Foreman
AN Shift Foreman
Control Lab Superintendent (Meade)
Lab Group Foreman (Faulkner)(2)
Env.Control Group Foreman (Strickland)
Env.Control Shift Foreman

Manager,Mfg.Guest Companies (Murrell)
SAB Superintendent (Hamilton)
SAB Group Foreman (Mathews)
SAB Production Planner (SPM)
Technical Superintendent (Fouts)
Sorbic Superintendent (Steinhauser)
Sorbic Group Foreman (Bass)
Sorbic Shift Foreman
MR/Projects Manager (Seals)
MHBA MFG.Superintendent (Ochsner)
MHBA Group Foreman (King)
MHBA Shift Foreman
MHBA Process Specialist
CED Superintendent (Ganschinietz)

C 001557

Rev. 1/24/86

CBY 3109668

Monsanto

FROM (NAME—LOCATION—PHONE) Colton Isadore - Chocolate Bayou Plant - Ext.4537

DATE : February 28,1986 cc:

SUBJECT : PROCEDURE MANUAL REVISIONS

REFERENCE :

TO : Attached Distribution

Attached are updates for your SAFETY PROCEDURE MANUAL: SP-010 has been revised. Please remove the old copies from your manual and insert the revised copies.

SP-010 USE AND CONTROL OF HOSES

Pages 1-14 of 14

Attachment #1
Attachment #2
Attachment #3

Colton Isadore

Colton Isadore

CI/sk

Attachments

CBY 3109669

IN - 10 (REV. 8/77)

C 001558

USE AND CONTROL OF HOSES

PURPOSE

Use of hoses in chemical process applications is undesirable relative to fixed piping. The objective must be to eliminate the use of hoses whenever practical.

This procedure provides a systematic means of controlling use of flexible hoses when they are found necessary. The control approach used includes specifying hose testing methods, testing frequency and record keeping.

POLICY

The control system set forth in this procedure provides guidelines based on very minimum needs. Individual department requirements may call for more stringent or more frequent testing and inspection. The very nature of hose systems dictates the need for over-control rather than under-control, and approaches in this direction are encouraged. Hose uses must be reviewed in departmental biennial safety audits and uses eliminated wherever practical.

SCOPE

Under this procedure hoses have been classified into three groups:

Group I includes all hoses in chemical or oil (process) service.

Group II includes all hoses in air, water, nitrogen or steam service.

Group III includes specialized hoses such as those used in automobiles or in a laboratory.

Group I hoses generally result in the most severe or hazardous consequences if a failure occurs. Flexible connections in permanent piping systems (expansion joints, "chicsan"(flexible elbow type) joints, bellows, etc.) are covered in piping specifications and not in this procedure.

Hoses used and provided by contractors performing specific services (i.e., vacuum trucks, hoses supplied by tank truck carriers, contractor acid washing, etc.) are covered by this procedure. In the areas where full compliance is not currently practical or controllable, the owning department and/or Maintenance is expected to develop approaches which will result in eventual compliance. The best practical alternate approaches (Monsanto ownerships, rigid pipe, on-site testing and inspection, etc.) should be used in the interim. The Monsanto

C 001559

CBY 3109670

USE AND CONTROL OF HOSES

5. Hoses that have been tested should be so marked by the Maintenance Department.

C. MTS, Maintenance Engineering, Project Engineering

Will review and approve new hose applications and assist the owning department in selection of hose or alternate materials. Approval will be by memo. The hose service will then be added to the approved services list in the Local Standards List and R.A.R.D.

HOSE SAFETY

Under almost all circumstances hoses and hose systems will not have the physical integrity of rigid pipe systems. This fact in itself indicates a need for extra precautions in handling hoses. The following general guidelines are provided as a help in avoiding damage to hose syetems:

A. Avoid sharp bends by means of suitable supports or hose routing; especially avoid kinking any kind of hose. The fabric or metal braid will frequently break or deteriorate when subjected to low radius bends. (Note: A minimum bend radius is published for many hoses in hose catalogs.)

B. Avoid exterior damage to hoses such as cuts, bruises, abrasions, chaffing, or chemical attack.

C. Never use a hose in any service other than that specifically stated for the hose. Chemical attack can occur in many forms and remain undetected until failure.

D. Avoid use of hoses where a hose merely makes for easier piping connections. In general, no hose will 100% substitute for rigid piping.

E. The difference in hazards between suction hoses, open ended discharge hoses and pressure hoses is an important consideration in hose selection.

PROCEDURE

CBY 3109672

A. Definitions

Due to the large number of hoses at Chocolate Bayou the hoses have been classified into three groups for a more workable program. All abbreviations and definitions contained herein

C 001561

USE AND CONTROL OF HOSES

f. Group II Hoses include:

- Utility Hoses (water, air & yellow nitrogen) (UT)
- Steam Hoses (ST)
- Low Pressure, Oxygen-Acetylene Welding Hoses (W)

3. Nitrogen Hose - Yellow

To protect against inadvertent use of nitrogen, the following requirements are set forth controlling use of nitrogen hoses:

a. Nitrogen hose station will be equipped with (National Female Head with 3/4 Brass-B-BFF12.

added b. Nitrogen hoses will be a yellow 3/4 x 50F long B.F. Goodrich nitrogen hose to be coupled National Brass-B-BFH12 on end and National B-EMH12LN other end. Both ends to be attached with Dixon A-9 Clamps. Hose will be stenciled "Monsanto Nitrogen" every 24 inches. Crow's Feet will not be attached to Nitrogen Stations under any circumstances. In applications where nitrogen is regularly used, permanent piping properly equipped with back flow protection should be installed.

added c. Nitrogen hose stations will be clearly labeled with high visibility (yellow) permanent identification signs.

added d. In new installation, Nitrogen Hose Station will be separated from utility hose connections by at least 10 feet where possible. Separation of nitrogen stations from other utility stations is also to be considered where practical in existing application.

e. Stores will stock National male and female fittings necessary for connecting hoses to equipment. A MC Stock # will be assigned and made available to all units.

4. Group III Hoses CBY 3109674

Include specialized type hoses such as automotive or vehicular hoses and very small (1/4") hoses that are used in the laboratory or on gas cylinders. However, if the hoses are used in a high pressure or hazardous service, even small hoses should be classified as Group I hoses. Group III hoses should be visually inspected annually. The judgement of the individual department supervisor must be carefully exercised to determine if a hose falls into a Group III or Group I category.

C 001563

USE AND CONTROL OF HOSES

b. Hose Data Records - The following hose data will be maintained by the owning department on each hose (see Attachment #1):

1. Hose identification number

2. Monsanto hose specification number or hose description.

3. Hose pressure data: (a) Hose working pressure
(b) Hose burst pressure
(c) Hose test pressure

c. Hose Identification Tag - A hose identification tag must be affixed to each with the information outlined below:

1. Hose number

2. Service

3. Date of manufacture or purchase

4. Working pressure

5. Burst pressure

Purchase orders should specify that hoses be tagged by manufacturer reflecting the above information. Stores should verify upon receipt.

If a hose is not branded with manufacturer's name hose number and tube material, this information must be included on the hose identification tag. Hose owners should have tags prepared and attached as needed to existing hoses.

d. Hose Inspection and Test Certification Sheet Form (Attachment #2) - "Hose Inspection and Test Certification" sheet will be filled out each time a hose is tested. The form will be filled out by Maintenance and will be filed by the owning department.

e. Hose Test Tag - A "Hose Test Tag" will be affixed to each hose by Maintenance indicating date of test. The hose test tag may be any of the following:

C 001585

CBY 3109676

USE AND CONTROL OF HOSES

area is loose or the reinforcement is exposed).

Kinks - for evidence of weak spot or kink, pick up hose every 2 feet. A weak spot will let the hose partially collapse when picked up in this manner.

Bulges.

Soft Spots - Check for soft spots by pressing with the thumb the area adjacent to the end connection for about two feet.

End connection damaged, internal liner, gaskets and "O" Rings.

Metal Hoses - metal hoses construction usually consists of a corrugated metal tube (much like a bellows) and a metal braid covering. They are extremely susceptible to damage by overstressing in tension, excessive bending, crushing and broken metal braid. The hose should be layed out full length and examined for the following defects which are all causes for hose rejection:

Metal braid broken.

Kinks or permanent deformation.

Overstressing damage - metal braid pattern is elongated or corrugations of tube have expanded.

End connection damaged - strands broken or braid loose at end connections.

2. Hydrostatic Test Procedure - (Non-Metal & Metal Hoses)

Lay the hose out full length and position on platform to permit easy movement under test pressure. The hose's end connections must be secured so they cannot fly off.

Fill hose with water and bleed all air by raising vent end of hose. (Chloride free water should be used for stainless steel hoses.)

C 001567
CBY 3109678

USE AND CONTROL OF HOSES

C. Group II Hoses

1. Purchase

Purchase of all Group II hoses shall be in accordance with the "L" Manual standards and shall be marked as outlined in Section C-2 of this procedure.

2. Identification and Records

Utility and steam hoses are not to be identified by a hose number and no records will be kept. Identification will be by hose color. Utility hoses are green, steam hoses are normally black, red is to be used normally for chemical transfer hoses and nitrogen hoses will be yellow. (added)

Important - Some utility and steam hoses in the plant may not conform to the colors as outlined above. In those cases hoses should be verified for the type of service before being used, no color exception will be made for nitrogen hose, and yellow hose will not be used in any other service.

a. Hose Identification - hoses (except for welding gas hoses) are to be marked or tagged when purchased as follows:

Utility Hoses - Monsanto Utility

Steam Hoses - Monsanto Steam

Nitrogen Hoses - Monsanto Nitrogen

b. Hose Inspection Tag - the inspection verification tag will be a band of vinyl color tap (Scotch #190A or equivalent) on each end of the hose next to coupling. The color code listed below will be used. If a hose does not have current coded tape on it, this hose is not to be used. The following colors will be applied upon completion of inspection.

January - Even Years - Brown
July - Even Years - White
January - Odd Years - Red
July - Odd Years - Green

C 001569

CBY 3109680

USE AND CONTROL OF HOSES

Hoses with damaged end connections can be repaired but but hoses must be hydrostatically tested to 375 psig after repair. Steam hoses fall under the Group II Hoses, and only require hydrostatic test of 250 psig after repairing.

NOTE: If a hose is to be used open ended only, the fitting connection on one end must be removed.

b. All hoses must have a current hose inspection tag or tape affixed prior to putting into service.

c. It is not required that hoses be automatically replaced at a specific age. The owning department may, however, chose to institute a regular replacement procedure (i.e. MHBA unloading hoses are replaced every 6 months).

D. Group III Hoses

Testing, inspection and record keeping for these hoses is not required. Group III hoses include those in automobile service and hoses in non-critical, low pressure laboratory applications. However, good common sense and safe practices and visual inspection should still be applied to these hoses. The items covered under "Hose Safety" apply to all hoses.

CBY 3109681

C 001571

DATE: _____ ATTACHMENT #1

STEAM HOSE HYDROTEST

HOSE LOCATION: _____

NUMBER OF HOSES TO TEST: _____

KEY FOR TEST RESULTS:

A PASS HYDROTEST AS TESTED

B PASS HYDROTEST AFTER TIGHTENING COUPLING BOLTS

X REJECTED DUE TO COUPLING LEAK

Y RUPTURED (NOTE LOCATION IN COMMENT)

Z VISUAL REJECTION (NOTE IF LEAKS OR BULGES)

NOTE: HOSES PASSING ARE TO BE TAPED WITH ORANGE TAPE MARKED EITHER ODD/EVEN YEAR.

NO.	PASS	FAIL	COMMENT

NO.	PASS	FAIL	COMMENT

CBY 3109683

C 001573

STEAM HOSE HYDROTEST

ATTACHMENT #2

PAGE 2

NO.	PASS	FAIL	COMMENT	NO.	PASS	FAIL	COMMENT

CBY 3109684

TOTAL TEST: NO. HOSES PASSING ______________ NO. HOSES FAILING ____________

ATTACHMENT #3

YEARLY HOSE TESTING REPORT

HOSE NO. (IF NEEDED)	HOSE DESCRIPTION	HOSE LOC.	SERVICE	TEST PRESSURE	WORKING PRESSURE	TEST DATE

CBY 3109685

IN PLANT RAIL CAR MOVING

PURPOSE

The purpose of this procedure is to define the responsibilities for moving rail cars within the Chocolate Bayou Plant.

SCOPE

This procedure applies to all rail car moving done within the Chocolate Bayou Plant excluding NTA Hopper Cars, that are moved with a special Cable System, and handjacking cars a few feet. The methods discussed within this procedure are:

1. Normal moves by railway switch engine
2. Special moves by railway switch engine
3. Other special moves

PROCEDURES AND RESPONSIBILITIES

I. Normal Move by Railway Switch Engine

Rail cars are routinely moved within the plant during the graveyard shift (2400-0800) Monday through Saturday. To get a car moved during this time, the following must be done:

1. Notify the Traffic Department of the need to move the car.
2. The Traffic Clerk will add the car to the switch list and the car will be moved by the railway switch engine.

NOTE: Notice must be given to the Traffic Department no later than 1200 hours for cars that require moving on the next graveyard shift.

II. Special Moves by the Railway Switch Engine

I. Notify the Distribution Loading Foreman of the need to move a car outside the regular switching time. This notice must be given at least 24 hours prior to the time the move is required.

2. The Distribution Department will notify the Traffic Department.

C 001576

3. The Traffic Department will make the request to the railway company.

CBY 3109686

IN PLANT RAIL CAR MOVING (Cont'd)

It is entirely up to the railway company whether or not they can make the move. In the event the railway company cannot make the move, a special move made by the Maintenance Department can be evaluated.

III. Other Special Switches

In the event that neither of the above methods can be used for moving a car, the following method can be used. This method will only be used where there is a high potential for significant business interruption, personnel or property loss if the car is not moved.

1. The department requiring the rail car to be moved will make the request to the Distribution Department-Loading Foreman. Information that must be supplied at the time of the request will include:

   a. The situation requiring the need for a special move
   b. The chemical to be handled
   c. Deadline before which the move must be made

2. The Distribution Department will review the request and determine its feasibility.

3. If the move is feasible, the Distribution Department will issue a work order to the Maintenance Department.

4. The Distribution Department will then initiate a job plan based on the Maintenance Standard Safety Procedure S10 , Emergency Spotting of Rail Cars, and a special vehicle permit to accomplish the move. The special permit must be signed by supervision up through the General Superintendent, Manufacturing/Maintenance of the requesting department, Distribution and Maintenance.

5. The Maintenance Department will perform the job as outlined in the Maintenance Standard Safety Procedure S 10 , Emergency Spotting of Rail Cars, and the Distribution Department will supply a flagman/brakeman. Under no circumstances will anyone be on the rail car while it is moving,

C 001577

CBY 3109687

IN PLANT RAIL CAR MOVING (Cont'd)

6. A member of supervision from the Distribution and Maintenance Departments will be present during the job.

ORIGINAL AUTHOR: L. C. PEELER

REVISED BY: J. M. Talbert
J. M. Talbert

APPROVED BY: F. L. Thompson
F. L. Thompson

APPROVED BY: G. E. Davenport
G. E. Davenport

CBY 3109688

C 001578

RAIL CAR LOADING/UNLOADING

PURPOSE

The purpose of this procedure is to define legal and safety requirements for protecting railway cars from movement during loading/unloading operation.

SCOPE

This procedure applies to all railway cars loaded or unloaded at the Chocolate Bayou Plant.

PROCEDURE AND RESPONSIBILITIES

It will be the responsibility of the department connecting the rail car to process piping to do the following prior to the connection being made:

1. Confirm the hand brake has been set by the railway company.
2. Place a derail at least 50 feet in front of the tank car being connected, to prevent another car from being pushed in from the main line.
3. Place "chocks" on the rail against the wheels of the car in such a fashion as to prevent accidental movement of the car in either direction.
4. Raise the blue flag that is installed on the track. This is a warning device for the railway company personnel to tell them a car is connected.

The reverse of the above procedure will be done when the car has been disconnected from process piping. The department responsible for connecting the rail car will also be responsible for disconnection of the car and removal of the precautions taken in steps 1 thru 4.

ORIGINAL AUTHOR: L. C. PEELER

REVISED BY: J. M. Talbert
J. M. TALBERT

APPROVED BY: F. L. Thompson
F. L. THOMPSON

APPROVED BY: G. E. Davenport
G. E. DAVENPORT

C 001579

CBY 3109689

RAIL CAR LOADING/UNLOADING

PURPOSE

The purpose of this procedure is to define legal and safety requirements for protecting railway cars from movement during loading/unloading operation.

SCOPE

This procedure applies to all railway cars loaded or unloaded at the Chocolate Bayou Plant.

PROCEDURE AND RESPONSIBILITIES

It will be the responsibility of the department connecting the rail car to process piping to do the following prior to the connection being made:

1. Confirm the hand brake has been set by the railway company.
2. Place a derail at least 50 feet in front of the tank car being connected, to prevent another car from being pushed in from the main line.
3. Place "chocks" on the rail against the wheels of the car in such a fashion as to prevent accidental movement of the car in either direction.
4. Raise the blue flag that is installed on the track. This is a warning device for the railway company personnel to tell them a car is connected.

The reverse of the above procedure will be done when the car has been disconnected from process piping. The department responsible for connecting the rail car will also be responsible for disconnection of the car and removal of the precautions taken in steps 1 thru 4.

ORIGINAL AUTHOR: L. C. PEELER

REVISED BY: J. M. Talbert
J. M. TALBERT

APPROVED BY: F. L. Thompson
F. L. THOMPSON

APPROVED BY: G. E. Davenport
G. E. DAVENPORT

C 001580

CBY 3109690

REQUEST FOR SOLID WASTE DISPOSAL

Date 8-28-74 Department AN Charge No. MWO 987741

Requester: R. Smith Advance Notice – Yes ☒ No ☐

DESCRIPTION: (Include type of material, estimated weight, volume or quantity) 4 (55 gal drums Fuel - Insulation Material contaminated with AN. (500 #)

DELIVERED BY: (Name) D. Brown with (Company) MIMI

SAFETY PRECAUTIONS: Chemical gloves + chemical goggles.

Authorized by: John Doe
ENVIRONMENTAL CONTROL CONTACT

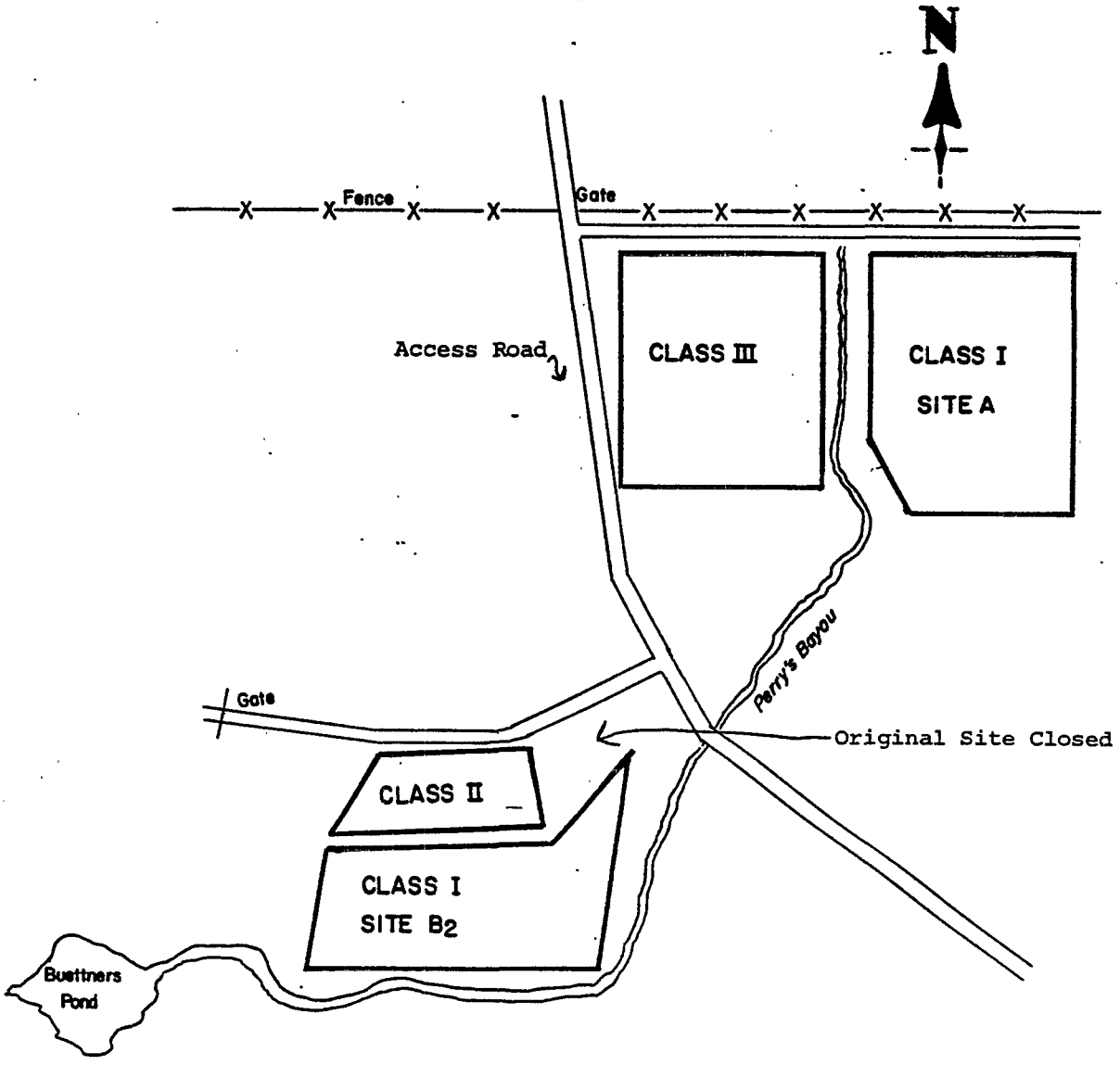
FOR ENVIRONMENTAL CONTROL USE:

Dispose of: Class 1 Site B2

MCB-272 (REV. 8/74)

CBY 3109691

C 001581



SOLID WASTE DISPOSAL SITE - AREA PLAN

C 001582

CBY 3109692

SOLID AND HAZARDOUS WASTE DISPOSAL

ATTACHMENT #1: EPA HAZARDOUS WASTE LISTS AND HAZARDOUS WASTE CODE NUMBERS

D. Designated EPA Hazardous Waste Materials: Discarded Commercial Chemical Products, Off-Specification Species, Containers, and Spill Residues Thereof.

The following materials are hazardous wastes if and when they are discarded or intend to be discarded:

(a) Any commercial chemical product or chemical intermediate having the generic name listed in tables below, or

(b) Any off-specification commercial chemical product or chemical intermediate which if it met specifications would have the generic name listed below, or

(c) Any container or inner lining removed from a container used to hold any of the listed materials unless triple rinsed to remove all residues, or

(d) Any residue or contaminated soil, water, or other debris resulting from the clean up of a spill of any of the materials listed below.

Acute Hazardous Wastes

CBY 3109693

HAZARDOUS WASTE	EPA HAZARDOUS WASTE NUMBER
Acetaldehyde, chloro-	P023
Acetamide, N-(aminothioxomethyl)-	P002
Acetamide, 2-fluoro-	P057
Acetic acid, fluoro-, sodium salt	P058
Acetimidic acid, N-[(methylcarbamoyl)oxy]thio-, methyl ester	P066
3-(alpha-acetonylbenzyl)-4-hydroxycoumarin and salts	P001
1-Acetyl-2-thiourea	P002
Acrolein	P003
Aldicarb	P070
Aldrin	P004
Allyl alcohol	P005
Aluminum phosphide	P006
5-(Aminomethyl)-3-isoxazolol	P007
4-Aminopyridine	P008
Ammonium picrate (R)	P009
Ammonium vanadate	P119
Arsenic acid	P010
Arsenic (III) oxide	P012
Arsenic (V) oxide	P011
Arsenic pentoxide	P011
Arsenic trioxide	P012
Arsine, diethyl-	P038
Azinidine	P054

HAZARDOUS WASTE	EPA HAZARDOUS WASTE NUMBER
Barium cyanide	P013
Benzenamine, 4-chloro-	P024
Benzenamine, 4-nitro-	P077
Benzene, (chloromethyl)-	P028
1,2-Benzenediol, 4-[1-hydroxy-2-(methylamino)ethyl]-	P042
Benzenethiol	P014
Benzyl chloride	P028
Beryllium dust	P015
Bis(chloromethyl) ether	P016
Bromoacetone	P017
Brucine	P018
Calcium cyanide	P021
Camphene, octachloro-	P123
Carbamimidoselenoic acid	P103
Carbon bisulfide	P022
Carbon disulfide	P022
Carbonyl chloride	P095
Chlorine cyanide	P033
Chloroacetaldehyde	P023
p-Chloroaniline	P024
1-(o-Chlorophenyl)thiourea	P026
3-Chloropropionitrile	P027
Copper cyanides	P029
Cyanides (soluble cyanide salts), not elsewhere specified	P030

C 001583

SOLID AND HAZARDOUS WASTE DISPOSAL

ATTACHMENT #1: EPA HAZARDOUS WASTE LISTS AND HAZARDOUS WASTE CODE NUMBERS

Acute Hazardous Wastes (Cont.'d)

HAZARDOUS WASTE	EPA HAZARDOUS WASTE NUMBER
Cyanogen	P031
Cyanogen chloride	P033
Dichlorophenylarsine	P036
Dieldrin	P037
Diethylarsine	P038
O,O-Diethyl S-[2-(ethylthio)ethyl] phosphorodithioate	P039
Diethyl-p-nitrophenyl phosphate	P041
O,O-Diethyl O-pyrazinyl phosphorothioate	P040
Diisopropyl fluorophosphate	P043
Dimethoate	P044
3,3-Dimethyl-1-(methylthio)-2-butanone, O-[(methylamino)carbonyl] oxime	P045
O,O-Dimethyl O-p-nitrophenyl phosphorothioate	P071
Dimethylnitrosamine	P082
alpha, alpha-Dimethylphenethylamine	P046
4,6-Dinitro-o-cresol and salts	P047
4,6-Dinitro-o-cyclohexylphenol	P034
2,4-Dinitrophenol	P048
Dinoseb	P020
Diphosphoramide, octamethyl-	P085
Disulfoton	P039
2,4-Dithiobiuret	P049
Dithiopyrophosphonic acid, tetraethyl ester	P109
Endosulfan	P050
Endothall	P088
Endrin	P051
Epinephrine	P042
Ethanamine, 1,1-dimethyl-2-phenyl-	P046
Ethanamine, N-methyl-N-nitroso-	P084
Ethyl cyanide	P101
Ethyleneimine	P054
Famphur	P097
Fluorine	P056
Fluoroacetamide	P057
Fluoroacetic acid, sodium salt	P058
Fulminic acid, mercury(II) salt (R,T)	P065
Heptachlor	P059
1,2,3,4,10,10-Hexachloro-6,7-epoxy-1,4,4a,5,6,7,8,8a-octahydro-endo,endo-1,4:5,8-dimethanonaphthalene	P051
1,2,3,4,10,10-Hexachloro-6,7-epoxy-1,4,4a,5,6,7,8,8a-octahydro-endo,exo-1,4:5,8-dimethanonaphthalene	P037
1,2,3,4,10,10-Hexachloro-1,4,4a,5,8,8a-hexahydro-1,4:5,8-endo, endo-dimethanonaphthalene	P060
1,2,3,4,10,10-Hexachloro-1,4,4a,5,8,8a-hexahydro-1,4:5,8-endo,exo-dimethanonaphthalene	P004
Hexachlorohexahydro-exo,exo-dimethanonaphthalene	P060
Hexaethyl tetraphosphate	P062
Hydrazinecarbothioamide	P116
Hydrazine, methyl-	P068
Hydrocyanic acid	P063
Hydrogen cyanide	P063
Hydrogen phosphide	P096
Isocyanic acid, methyl ester	P064
3(2H)-Isoxazolone, 5-(aminomethyl)-	P007
Mercury, (acetato-O)phenyl-	P092
Mercury fulminate (R,T)	P065
Methane, oxybis[chloro-	P016
Methane, tetranitro- (R)	P112
Methanethiol, trichloro-	P118
4,7-Methano-1H-indene, 1,4,5,6,7,8,8-heptachloro-3a,4,7,7a-tetrahydro-	P059
Methomyl	P066

HAZARDOUS WASTE	EPA HAZARDOUS WASTE NUMBER
2-Methyllaziridine	P067
Methyl hydrazine	P068
Methyl isocyanate	P064
2-Methyllactonitrile	P069
Methyl parathion	P071
alpha-Naphthylthiourea	P072
Nickel carbonyl	P073
Nickel cyanide	P074
Nickel(II) cyanide	P074
Nickel tetracarbonyl	P073
Nicotine and salts	P075
Nitric oxide	P076
p-Nitroaniline	P077
Nitrogen dioxide	P078
Nitrogen(II) oxide	P076
Nitrogen(IV) oxide	P078
Nitroglycerine (R)	P081
N-Nitrosodimethylamine	P082
N-Nitrosomethylvinylamine	P084
5-Norbornene-2,3-dimethanol, 1,4,5,6,7,7-hexachloro, cyclic sulfite	P050
Octamethylpyrophosphoramide	P085
Osmium oxide	P087
Osmium tetroxide	P087
7-Oxabicyclo[2.2.1]heptane-2,3-dicarboxylic acid	P088
Parathion	P089
Phenol, 2-cyclohexyl-4,6-dinitro-	P034
Phenol, 2,4-dinitro-	P048
Phenol, 2,4-dinitro-6-methyl-	P047
Phenol, 2,4-dinitro-6-(1-methylpropyl)-	P020
Phenol, 2,4,6-trinitro-, ammonium salt (R)	P009
Phenyl dichloroarsine	P036
Phenylmercuric acetate	P092
N-Phenylthiourea	P093
Phorate	P094
Phosgene	P095
Phosphine	P096
Phosphonic acid, diethyl p-nitrophenyl ester	P041
Phosphorodithioic acid, O,O-dimethyl S-[2-(methylamino)-2-oxoethyl]ester	P044
Phosphorofluoric acid, bis(1-methylethyl)-ester	P043
Phosphorothioic acid, O,O-diethyl S-(ethylthio)methyl ester	P094
Phosphorothioic acid, O,O-diethyl O-(p-nitrophenyl) ester	P089
Phosphorothioic acid, O,O-diethyl O- pyrazinyl ester	P040
Phosphorothioic acid, O,O-dimethyl O-[p-((dimethylamino)-sulfonyl)phenyl]ester	P097
Plumbane, tetraethyl-	P110
Potassium cyanide	P098
Potassium silver cyanide	P099
Propanal, 2-methyl-2-(methylthio)-, O-[(methylamino)carbonyl]oxime	P070
Propanenitrile	P101
Propanenitrile, 3-chloro-	P027
Propanenitrile, 2-hydroxy-2-methyl-	P069
1,2,3-Propanetriol, trinitrate- (R)	P081
2-Propanone, 1-bromo-	P017
Propargyl alcohol	P102
2-Propenal	P003
2-Propen-1-ol	P005
1,2-Propylenimine	P067
2-Propyn-1-ol	P102
4-Pyridinamine	P008

CBY 3109694

C 001584

SOLID AND HAZARDOUS WASTE DISPOSAL

ATTACHMENT #1: EPA HAZARDOUS WASTE LISTS AND HAZARDOUS WASTE CODE NUMBERS

Acute Hazardous Wastes (Cont.'d)

HAZARDOUS WASTE	EPA HAZARDOUS WASTE NUMBER
Pyridine, (S)-3-(1-methyl-2-pyrrolidinyl)-, and salts	P075
Pyrophosphonic acid, tetraethyl ester	P111
Selenourea	P103
Silver cyanide	P104
Sodium azide	P105
Sodium cyanide	P106
Strontium sulfide	P107
Strychnidin-10-one, and salts	P108
Strychnidin-10-one, 2,3-dimethoxy-	P018
Strychnine and salts	P108
Sulfuric acid, thallium(I) salt	P115
Tetraethyldithiopyrophosphate	P109
Tetraethyl lead	P110
Tetraethylpyrophosphate	P111
Tetranitromethane (R)	P112
Tetraphosphonic acid, hexaethyl ester	P062
Thallic oxide	P113
Thallium(III) oxide	P113
Thallium(I) selenite	P114
Thallium(I) sulfate	P115
Thiofanox	P045
Thiomidocarbonic diamide	P049
Thiophenol	P014
Thiosemicarbazide	P116
Thiourea, (2-chlorophenyl)-	P026
Thiourea, 1-naphthalenyl-	P072
Thiourea, phenyl-	P093
Toxaphene	P123
Trichloromethanethiol	P118
Vanadic acid, ammonium salt	P119
Vanadium pentoxide	P120
Vanadium(V) oxide	P120
Warfarin	P001
Zinc cyanide	P121
Zinc phosphide (R,T)	P122

Hazardous Wastes

HAZARDOUS WASTE	EPA HAZARDOUS WASTE NUMBER
Acetaldehyde (I)	U001
Acetaldehyde, trichloro-	U034
Acetamide, N-(4-ethoxyphenyl)-	U187
Acetamide, N-9H-fluoren-2-yl-	U005
Acetic acid, ethyl ester (I)	U112
Acetic acid, lead salt	U144
Acetic acid, thallium(I) salt	U214
Acetone (I)	U002
Acetonitrile (I,T)	U003
Acetophenone	U004
2-Acetylaminofluorene	U005
Acetyl chloride (C,R,T)	U006
Acrylamide	U007
Acrylic acid (I)	U008
Acrylonitrile	U009
Alanine, 3-[p-bis(2-chloroethyl)amino] phenyl-, L-	U150
Amerole	U011
Aniline (I,T)	U012
Auramine	U014
Azaserine	U015
Azirino(2',3':3,4)pyrrolo(1,2-a)indole-4,7-dione, 6-amino-8-[((aminocarbonyl) oxy)methyl)-1,1a,2,8,8a,8b-hexahydro-8a-methoxy-5-methyl-,	U010
Benz[j]aceanthrylene, 1,2-dihydro-3-methyl-	U157
Benz[c]acridine	U016
3,4-Benzacridine	U016
Benzal chloride	U017
Benz[a]anthracene	U018
1,2-Benzanthracene	U018
1,2-Benzanthracene, 7,12-dimethyl-	U094
Benzenamine (I,T)	U012
Benzenamine, 4,4'-carbonimidoylbis(N,N-dimethyl-	U014
Benzenamine, 4-chloro-2-methyl-	U049
Benzenamine, N,N'-dimethyl-4-phenylazo-	U093
Benzenamine, 4,4'-methylenebis(2-chloro-	U158
Benzenamine, 2-methyl-, hydrochloride	U222
Benzenamine, 2-methyl-5-nitro	U181
Benzene (I,T)	U019
Benzeneacetic acid, 4-chloro-alpha-(4-chlorophenyl)-alpha-hydroxy, ethyl ester	U038
Benzene, 1-bromo-4-phenoxy-	U030
Benzene, chloro-	U037
1,2-Benzenedicarboxylic acid anhydride	U190
1,2-Benzenedicarboxylic acid, bis(2-ethylhexyl)] ester	U028
1,2-Benzenedicarboxylic acid, dibutyl ester	U069
1,2-Benzenedicarboxylic acid, diethyl ester	U088
1,2-Benzenedicarboxylic acid, dimethyl ester	U102
1,2-Benzenedicarboxylic acid, di-n-octyl ester	U107
Benzene, 1,2-dichloro-	U070
Benzene, 1,3-dichloro-	U071
Benzene, 1,4-dichloro-	U072
Benzene, (dichloromethyl)-	U017
Benzene, 1,3-diisocyanatomethyl- (R,T)	U223

CBY 3109695

001585

SOLID AND HAZARDOUS WASTE DISPOSAL

ATTACHMENT #1: EPA HAZARDOUS WASTE LISTS AND HAZARDOUS WASTE CODE NUMBERS

Hazardous Wastes (Cont.'d)

HAZARDOUS WASTE	EPA HAZARDOUS WASTE NUMBER
Benzene, dimethyl-(I,T)	U239
1,3-Benzenediol	U201
Benzene, hexachloro-	U127
Benzene, hexahydro- (I)	U056
Benzene, hydroxy-	U188
Benzene, methyl-	U220
Benzene, 1-methyl-1-2,4-dinitro-	U106
Benzene, 1-methyl-2,6-dinitro-	U106
Benzene, 1,2-methylenedioxy-4-allyl-	U203
Benzene, 1,2-methylenedioxy-4-propenyl-	U141
Benzene, 1,2-methylenedioxy-4-propyl-	U090
Benzene, (1-methylethyl)- (I)	U055
Benzene, nitro- (I,T)	U169
Benzene, pentachloro-	U183
Benzene, pentachloro-nitro-	U185
Benzenesulfonic acid chloride (C,R)	U020
Benzenesulfonyl chloride (C,R)	U020
Benzene, 1,2,4,5-tetrachloro-	U207
Benzene, (trichloromethyl)-(C,R,T)	U023
Benzene, 1,3,5-trinitro- (R,T)	0234
Benzidine	U021
1,2-Benzisothiazolin-3-one, 1,1-dioxide	U202
Benzo[j,k]fluorene	U120
Benzo[a]pyrene	U022
3,4-Benzopyrene	U022
p-Benzoquinone	U197
Benzotrichloride (C,R,T)	U023
1,2-Benzophenanthrene	U050
2,2'-Bioxirane (I,T)	U085
(1,1'-Biphenyl)-4,4'-diamine	U021
(1,1'-Biphenyl)-4,4'-diamine, 3,3'-dichloro-	U073
(1,1-Biphenyl)-4,4'-diamine, 3,3'-dimethoxy-	U091
(1,1'-Biphenyl)-4,4'-diamine, 3,3'-dimethyl-	U095
Bis(2-chloroethoxy) methane	U024
Bis(2-chloroisopropyl) ether	U027
Bis(dimethylthiocarbamoyl) disulfide	U244
Bis(2-ethylhexyl) phthalate	U028
Bromine cyanide	U246
Bromoform	U225
4-Bromophenyl phenyl ether	U030
1,3-Butadiene, 1,1,2,3,4,4-hexachloro-	U128
1-Butanamine, N-butyl-N-nitroso-	U172
Butanoic acid, 4-[Bis(2-chloroethyl)amino] benzene-	U035
1-Butanol (I)	U031
2-Butanone (I,T)	U159
2-Butanone peroxide (R,T)	U160
2-Butenal	U053
2-Butene, 1,4-dichloro- (I,T)	U074
n-Butyl alcohol (I)	U031
Cacodylic acid	U136
Calcium chromate	U032
Carbamic acid, ethyl ester	U238
Carbamic acid, methylnitroso-, ethyl ester	U178
Carbamide, N-ethyl-N-nitroso-	U176
Carbamide, N-methyl-N-nitroso-	U177
Carbamide, thio-	U219
Carbamoyl chloride, dimethyl-	U097
Carbonic acid, dithallium(I) salt	U215
Carbonochloridic acid, methyl ester (I,T)	U156
Carbon oxyfluoride (R,T)	U033
Carbon tetrachloride	U211
Carbonyl fluoride (R,T)	U033
Chloral	U034
Chlorambucil	U035
Chlordane, technical	U036
Chlornaphazine	U026
Chlorobenzene	U037

HAZARDOUS WASTE	EPA HAZARDOUS WASTE NUMBER
1-(p-Chlorobenzoyl)-5-methoxy-2-methylindole-3-acetic acid	U245
4-Chloro-m-cresol	U039
1-Chloro-2,3-epoxypropane	U041
2-Chloroethyl vinyl ether	U042
Chloroform	U044
Chloromethyl methyl ether	U046
beta-Chloronaphthalene	U047
o-Chlorophenol	U048
4-Chloro-o-toluidine, hydrochloride	U049
Chromic acid, calcium salt	U032
Chrysene	U050
Creosote	U051
Cresols	U052
Cresylic acid	U052
Crotonaldehyde	U053
Cumene (I)	U055
Cyanogen bromide	U246
1,4-Cyclohexadienedione	U197
Cyclohexane (I)	U056
Cyclohexanone (I)	U057
1,3-Cyclopentadiene, 1,2,3,4,5,5-hexachloro-	U130
Cyclophosphamide	U058
2,4-D, salts and esters	U240
Daunomycin	U059
DDD	U060
DDT	U061
Decachlorooctahydro-1,3,4-metheno-2H-cyclobuta[c,d]-pentalen-2-one	U142
Dieldrin	U062
Diamine (R,T)	U133
Diaminotoluene	U221
Dibenz[a,h]anthracene	U063
1,2:5,6-Dibenzanthracene	U063
1,2:7,8-Dibenzopyrene	U064
Dibenz[a,i]pyrene	U064
1,2-Dibromo-3-chloropropane	U066
Dibutyl phthalate	U069
S-(2,3-Dichloroallyl) diisopropylthiocarbamate	U062
o-Dichlorobenzene	U070
m-Dichlorobenzene	U071
p-Dichlorobenzene	U072
3,3'-Dichlorobenzidine	U073
1,4-Dichloro-2-butene (I,T)	U074
Dichlorodifluoromethane	U075
3,5-Dichloro-N-(1,1-dimethyl-2-propynyl) benzamide	U192
Dichloro diphenyl dichloroethane	U060
Dichloro diphenyl trichloroethane	U061
1,1-Dichloroethylene	U078
1,2-Dichloroethylene	U079
Dichloroethyl ether	U025
2,4-Dichlorophenol	U081
2,6-Dichlorophenol	U082
2,4-Dichlorophenoxyacetic acid, salts and esters	U240
1,2-Dichloropropane	U083
1,3-Dichloropropene	U084
1,2:3,4-Diepoxybutane (I,T)	U085
1,4-Diethylene dioxide	U108
N,N-Diethylhydrazine	U086
O,O-Diethyl-S-methyl-dithiophosphate	U087
Diethyl phthalate	U088
Diethylstilbesterol	U089
1,2-Dihydro-3,6-pyradizinedione	U148
Dihydrosafrole	U090
3,3'-Dimethoxybenzidine	U091

CBY 3109696

C 001586

SOLID AND HAZARDOUS WASTE DISPOSAL

ATTACHMENT #1: EPA HAZARDOUS WASTE LISTS AND HAZARDOUS WASTE CODE NUMBERS

Hazardous Wastes (Cont.'d)

HAZARDOUS WASTE	EPA HAZARDOUS WASTE NUMBER
Dimethylamine (I)	U092
Dimethylaminoazobenzene	U093
7,12-Dimethylbenz[a]anthracene	U094
3,3'-Dimethylbenzidine	U095
alpha,alpha-Dimethylbenzylhydroperoxide (R)	U096
Dimethylcarbamoyl chloride	U097
1,1-Dimethylhydrazine	U098
1,2-Dimethylhydrazine	U099
2,4-Dimethylphenol	U101
Dimethyl phthalate	U102
Dimethyl sulfate	U103
2,4-Dinitrotoluene	U105
2,6-Dinitrotoluene	U106
Di-n-octyl phthalate	U107
1,4-Dioxane	U108
1,2-Diphenylhydrazine	U109
Dipropylamine (I)	U110
Di-N-propylnitrosamine	U111
Ethanal (I)	U001
Ethanamine, N-ethyl-N-nitroso-	U174
Ethane, 1,2-dibromo-	U067
Ethane, 1,1-dichloro-	U076
Ethane, 1,2-dichloro-	U077
1,2-Ethanediylbiscarbamodithioic acid	U114
Ethane, 1,1,1,2,2,2-hexachloro-	U131
Ethane, 1,1'-[methylenebis(oxy)]bis[2-chloro-	U024
Ethanenitrile (I, T)	U003
Ethane,1,1'-oxybis- (I)	U117
Ethane, 1,1'-oxybis[2-chloro-	U025
Ethane, pentachloro-	U184
Ethane, 1,1,1,2-tetrachloro-	U208
Ethane, 1,1,2,2-tetrachloro-	U209
Ethanethioamide	4U218
Ethene, 1,1,2-trichloro-	U227
Ethene, chloro-	U043
Ethene, 2-chloroethoxy-	U042
Ethene, 1,1-dichloro-	U078
Ethene, trans-1,2-dichloro-	U079
Ethene, 1,1,2,2-tetrachloro-	U210
Ethanol, 2,2'-(nitrosoimino)bis-	U173
Ethanone, 1-phenyl-	U004
Ethanoyl chloride (C,R,T)	U006
Ethyl acetate (I)	U112
Ethyl acrylate (I)	U113
Ethyl carbamate (urethan)	U238
Ethyl 4,4'-dichlorobenzilate	U038
Ethylenebis(dithiocarbamic acid)	U114
Etylene dibromide	U067
Ethylene dichloride	U077
Ethlene oxide (I,T)	U115
Ethylene thiourea	U116
Ethyl ether (I)	U117
Ethylidene dichloride	U076
Ethylmethacrylate	U118
Ethyl methanesulfonate	U119
Ferric dextran	U139
Fluoranthene	U120
Formaldehyde	U122
Formic acid (C,T)	U123
Furan (I)	U124
2-Furancarboxaldehyde (I)	U125
2,5-Furandione	U147
Furan, tetrahydro- (I)	U213
Furfural (I)	U125
Furfuran (I)	U124
D-Glucopyranose, 2-deoxy-2(3-methyl-3-nitrosoureido)-	U206

HAZARDOUS WASTE	EPA HAZARDOUS WASTE NUMBER
Glycidylaldehyde	U126
Guanidine, N-nitroso-N-methyl-N'nitro-	U163
Hexachlorobenzene	U127
Hexachlorobutadiene	U128
Hexachlorocyclohexane (gamma isomer)	U129
Hexachlorocyclopentadiene	U130
Hexachloroethane	U131
Hexachlorophene	U132
Hexachloropropene	U243
Hydrazine (R,T)	U133
Hydrazine, 1,2-diethyl-	U086
Hydrazine, 1,1-dimethyl-	U098
Hydrazine, 1,2-dimethyl-	U099
Hydrazine, 1,2-diphenyl-	U109
Hydrofluoric acid (C,T)	U134
Hydrogen fluoride (C,T)	U134
Hydrogen sulfide	U135
Hydroperoxide, 1-methyl-1-phenylethyl- (R)	U096
Hydroxydimethylarsine oxide	U136
2-Imidazolidinethione	U116
Indeno(1,2,3-cd)pyrene	U137
Indomethacin	U245
Iron dextran	U139
Isobutyl alcohol (I,T)	U140
Isosafrole	U141
Kepone	U142
Lasiocarpine	U143
Lead acetate	U144
Lead phosphate	U145
Lead subacetate	U146
Lindane	U129
Maleic anhydride	U147
Maleic hydrazide	U148
Malononitrile	U149
Melphalan	U150
Mercury	U151
Methacrylonitrile (I,T)	U152
Methanamine, N-methyl- (I)	U092
Methane, bromo-	U029
Methane, chloro- (I,T)	U045
Methane, chloromethoxy-	U046
Methane, dibromo-	U068
Methane, dichloro-	U080
Methane, dichlorodifluoro-	U075
Methane, iodo-	U138
Methanesulfonic acid, ethyl ester	U119
Methane, tetrachloro-	U211
Methane, trichlorofluoro-	U121
Methanethiol (I,T)	U153
Methane, tribromo-	U225
Methane, trichloro-	U044
Methane, trichlorofluoro-	U121
Methanoic acid (C,T)	U123
4,7-Methanoindan, 1,2,4,5,6,7,8,8-octachloro-3a,4,7,7a-tetrahydro-	U036
Methanol (I)	U154
Methapyrilene	U155
Methyl alcohol (I)	U154
Methyl bromide	U029
1-Methylbutadiene (I)	U186
Methyl chloride (I,T)	U045
Methyl chlorocarbonate (I,T)	U156
Methylchloroform	U226
3-Methylcholanthrene	U157
4,4'-Methylenebis(2-chloroaniline)	U158
2,2'-Methylenebis(3,4,6-trichlorophenol)	U132
Methylene bromide	U068

CBY 3109697

C 001587

SOLID AND HAZARDOUS WASTE DISPOSAL

ATTACHMENT #1: EPA HAZARDOUS WASTE LISTS AND HAZARDOUS WASTE CODE NUMBERS

Hazardous Wastes (Cont.'d)

HAZARDOUS WASTE	EPA HAZARDOUS WASTE NUMBER
Methylene chloride	U080
Methylene oxide	U122
Methyl ethyl ketone (I,T)	U159
Methyl ethyl ketone peroxide (R,T)	U160
Methyl iodide	U138
Methyl isobutyl ketone (I)	U161
Methyl methacrylate (I,T)	U162
N-Methyl-N'-nitro-N-nitrosoguanidine	U163
4-Methyl-2-pentanone (I)	U161
Methylthiouracil	U164
Mitomycin C	U010
5,12-Naphthacenedione, (8S-cis)-8-acetyl-10-[(3-amino-2,3,6-trideoxy-alpha-L-lyxo-hexopyranosyl)oxy]-7,8,9,10-tetrahydro-6,8,11-trihydroxy-1-methoxy-	U059
Naphthalene	U165
Naphthalene, 2-chloro-	U047
1,4-Naphthalenedione	U166
2,7-Naphthalenedisulfonic acid, 3,3'-[(3,3'-dimethyl-(1,1'-biphenyl)-4,4'diyl)]-bis (azo)bis(5-amino-4-hydroxy)-,tetrasodium salt	U236
1,4-Naphthoquinone	U166
1-Naphthylamine	U167
2-Naphthylamine	U168
alpha-Naphthylamine	U167
beta-Naphthylamine	U168
2-Naphthylamine, N,N -bis(2-chloro-methyl)-	U026
Nitrobenzene (I,T)	U169
p-Nitrophenol	U170
2-Nitropropane (I)	U171
N-Nitroso-n-butylamine	U172
N-Nitrosodiethanolamine	U173
N-Nitrosodiethylamine	U174
N-Nitroso-N-propylamine	U111
N-Nitroso-N-ethylurea	U176
N-Nitroso-N-methylurea	U177
N-Nitroso-N-methylurethane	U178
N-Nitrosopiperidine	U179
N-Nitrosopyrrolidine	U180
5-Nitro-o-toluidine	U181
1,2-Oxathiolane, 2,2-dioxide	U193
2H-1,3,2-Oxazaphosphorine, 2-[bis(2-chloro- ethyl)amino]tetrahydro-, oxide 2-Oxirane (I,T)	U058
Oxirane, 2-(chloromethyl)-	U115
Paraldehyde	U041
Pentachlorobenzene	U182
Pentachloroethane	U183
Pentachloronitrobenzene	U184
Pentachlorophenol	U185
1,3-Pentadiene (I)	U242
Phenacetin	U186
Phenol	U187
Phenol, 2-chloro-	U188
Phenol, 4-chloro-3-methyl-	U048
Phenol, 2,4-dichloro-	U039
Phenol, 2,6-dichloro-	U081
Phenol, 2,4-dimethyl-	U082
Phenol, 4-nitro-	U101
Phenol, pentachloro-	U170
Phenol, 2,3,4,6-tetrachloro-	U242
Phenol, 2,4,5-trichloro-	U212
Phenol, 2,4,6-trichloro-	U230
1,10-(1,2-phenylene)pyrene	U231
Phosphonic acid, Lead salt	U137
Phosphorodithioic acid, 0,0-diethyl-, S-methylester	U145
Phosphorous sulfide (R)	U087
Phthalic anhydride	U189
2-Picoline	U190
Pronamide	U191
1-Propanamine (I,T)	U192
1-Propanamine, N-propyl- (I)	U194
Propane, 1,2-dibromo-3-chloro-	U110
Propanedinitrile	U066
Propane, 2-nitro- (I)	U149
Propane, 2,2'oxybis[2-chloro-	U171
1,3-Propane sultone	U027
1-Propanol, 2,3-dibromo-, phosphate (3:1)	U193
1-Propanol, 2,3-epoxy-	U235
1-Propanol, 2-methyl- (I,T)	U126
2-Propanone (I)	U140
2-Propenamide	U002
Propene, 1,3-dichloro-	U007
1-Propene, 1,1,2,3,3,3-hexachloro-	U084
2-Propenenitrile	U243
2-Propenenitrile, 2-methyl- (I,T)	U009
2-Propenoic acid (I)	U152
2-Propenoic acid, ethyl ester (I)	U008
2-Propenoic acid, 2-methyl-, ethyl ester	U113
2-Propenoic acid, 2-methyl-, methyl ester (I,T)	U118
Propionic acid, 2-(2,4,5-trichlorophenoxy)-	U162
n-Propylamine (I,T)	U233
Propylene dichloride	U194
Pyridine	U083
Pyridine, 2-[(2-(dimethylamino)-2-thenyle-mino)]-	U196
Pyridine, hexahydro-N-nitroso-	U155
Pyridine, 2-methyl-	U179
4(1H)-Pyrimidinone, 2,3-dihydro-6-methyl-2-thioxo-	U191
Pyrrole, tetrahydro-N-nitroso-	U164
Reserpine	U180
Resorcinol	U200
Saccharin and salts	U201
Safrole	U202
Selenious acid	U203
Selenium dioxide	U204
Selenium disulfide (R,T)	U204
L-Serine, diazoacetate (ester)	U205
Silvex	U015
4,4'-Stilbenediol, alpha,alpha'-diethyl-	U233
Streptozotocin	U089
Sulfur hydride	U206
Sulfuric acid, dimethyl ester	U135
Sulfur phosphide (R)	U103
Sulfur selenide (R,T)	U189
2,4,5-T	U205
1,2,4,5-Tetrachlorobenzene	U232
1,1,1,2-Tetrachloroethane	U207
1,1,2,2-Tetrachloroethane	U208
Tetrachloroethylene	U209
2,3,4,6-Tetrachlorophenol	U210
Tetrahydrofuran (I)	U212
Thallium(I) acetate	U213
Thallium(I) carbonate	U214
Thallium(I) chloride	U215
Thallium(I) nitrate	U216
Thioacetamide	U217
Thiomethanol (I,T)	U218
Thiourea	U153
Thiram	U219
Toluene	U244
Toluenediamine	U220
Toluene diisocyanate (R,T)	U221

CBY 3109698

C 001588

SOLID AND HAZARDOUS WASTE DISPOSAL

ATTACHMENT #1: EPA HAZARDOUS WASTE LISTS AND HAZARDOUS WASTE CODE NUMBERS

Hazardous Wastes (Cont.'d)

HAZARDOUS WASTE	EPA HAZARDOUS WASTE NUMBER	HAZARDOUS WASTE	EPA HAZARDOUS WASTE NUMBER
O-Toluidine hydrochloride	U222		
1H-1,2,4-Triazol-3-amine	U011		
1,1,1-Trichloroethane	U226		
1,1,2-Trichloroethane	U227		
Trichloroethene	U228		
Trichloroethylene	U228		
Trichloromonofluoromethane	U121		
2,4,5-Trichlorophenol	U230		
2,4,6-Trichlorophenol	U231		
2,4,5-Trichlorophenoxyacetic acid	U232		
sym-Trinitrobenzene (R,T)	U234		
1,3,5-Trioxane, 2,4,5-trimethyl-	U182		
Tris(2,3-dibromopropyl) phosphate	U235		
Trypan blue	U236		
Uracil, 5[bis(2-chloromethyl)amino]-	U237		
Uracil mustard	U237		
Vinyl chloride	U043		
Xylene (I)	U239		
Yohimban-16-carboxylic acid, 11,17-dimethoxy-18-[(3,4,5-trimethoxybenzoyl)oxy]-, methyl ester,	U200		

CBY 3109699

C 001589

SOLID WASTE DISPOSAL

PURPOSE

To define the responsibilities and procedures related to the disposal of the plant solid wastes.

POLICY

The disposal of the plant solid wastes will be done in accordance with the requirements set out by the Texas Water Quality Board and will be consistent with Monsanto policies regarding health, safety, and housekeeping.

SCOPE

Solid wastes are definied as those solid and semisolid materials that are not salvageable for reasons of a contaminated condition or composition and, therefore, must be disposed of. The waste will consist of catalyst, process sludge, miscellaneous containers, equipment, lumber, concrete, glass, etc. This procedure applies to solid wastes only and is intended to be used in conjunction with O&P Procedures No. GP-0304 and SP-029 relating to salvage and scrap materials respectively.

RESPONSIBILITIES

CBY 3109700

The Environmental Control Department is responsible for regulating the disposal of the plant solid wastes to assure compliance with requirements of the Texas Water Quality Board regulations. The Environmental Control Department must maintain records on the quantity, character, classification, and disposal location of all Class I and Class II wastes (See Attachment #3). These records must be kept for three (3) years and be available for inspection by the Texas Water Quality Board. At the option of the TWQB, an annual report may be requested summarizing this information.

The waste generator will be responsible for developing the data necessary for Environmental Control to obtain the waste classification. Environmental Control will obtain a waste classification from the TWQB for wastes routinely sent out for off-site disposal.

Environmental Control will insure that waste leaving the plant is disposed of in a site authorized, registered, or permitted by the Health Resources Department or the TWQB.

C 001590

Solid waste disposal can be subdivided into off-site disposal and on site disposal.

RESPONSIBILITIES (cont'd)

On-Site Disposition of Solid Wastes

1. The waste must be segregated in the following manner before it can be accepted for disposal:

   Process Sludges
   Contaminated Solids
   Inert Uncontaminated Solids
   Asbestos Insulation (Greater than 1% asbestos)

   (See Attachment #3 for explanation of each category)

2. Prior approval for solid waste disposal must be obtained from Environmental Control Day Supervision during regular hours (0800-1630, Monday - Friday). The Night Supervisor will perform these responsibilities on off-shifts. However, every effort should be made for disposal on day shift. When large volumes (more than one dump truck load) of wastes are to be disposed of, three (3) working days notice will be necessary for site preparation to receive the material.

3. A "Request for Solid Waste Disposal" form (Attachment #2) must be completed by the supervisor requesting disposal and the form must accompany the person disposing of the waste. The form will be turned over to the Environmental Control Board Processor. He will direct the person to the proper site (See Attachment #1) for disposal. Waste will not be sent to the disposal area without the completed "Request for Solid Waste Disposal" form. It is required that the description of the material (estimated weight, volume, or quantity) be indicated on the form. Blank copies of the "Request for Solid Waste Disposal" form are in Stores, stock MCB #272 (Revised 8/6/74).

4. Environmental Control will not accept solid waste while the plant is in area II or area III of the Hurricane Alert.

5. In order to enter the disposal site area, the person must sign the admission register and obtain a key to the disposal site gate from the Environmental Control Board Processor.

6. When leaving the area, the gate must be closed and locked. The admission register, in the Environmental Control, control house must be signed, indicating your time in and out of the area. The key must be returned to the control house.

AUTHOR: L. C. Peeler CBY 3109702 001592

APPROVED BY: F. C. Himes

APPROVED BY: G. E. Davenport

CLASS III WASTE - 2. Wood, insulation (excluding 1% asbestos insulation), etc. that is not contaminated should be placed in the dumpster at the Solid Waste Disposal area.

* Only empty and decontaminated drums that have contained MEA, TEG, DMF, Ionol, TBC, Petromeen OS-8, Unicor, Dowtherm 1 & 2, VP-1, DPO, Crude DPO, Polyflow 100, lube oil, N-Propanol, Antifoam, and Sterox cleaning solvent will be accepted for disposal. Closed-top drums (bunghole) which have been decontaminated may be accepted by Environmental Control supervision with prior approval. The unit generating a drum that cannot be decontaminated will jointly work with Environmental Control towards ultimate disposal of the drum. All open-top decontaminated drums should be sent to Stores as described in SP-029.

AUTHOR: S. Z. Chamberlain
S. Z. Chamberlain

APPROVED BY: F. C. Himes
F. C. Himes

APPROVED BY: G. E. Davenport
G. E. Davenport

C 001593

CBY 3109703

WASTE SEGREGATION GUIDELINES

In-plant solid waste will be disposed of concurrently at three (3) separate disposal sites within the designated Solid Waste Disposal Area. Class I, II and III sites are designated (See Attachment #2 for physical location) for disposal in accordance with the Texas Water Quality Board registration.

The waste material must be segregated in the following manner:

CLASS I WASTE - All waste materials, not classified as Class II or III, normally including all industrial solid wastes in liquid form and all hazardous wastes.

1. Process Sludge - Various sludges and semi-liquid waste, catalyst in a liquid or slurry state.

2. Contaminated Solids - Spent, dry solids catalyst of various types. Miscellaneous contaminated discards such as molecular sieves, silica gel, shell dirt, process piping, containers, drums*, pumps, valves, insulation materials, polyethylene, wood, gasket material.

3. Asbestos Insulation - Insulation containing greater than 1% asbestos will be delivered to Environmental Control in sealed plastic bags for disposal. Only the asbestos insulation, not the tarpaper or metal wrapping, will be accepted for disposal. The handling of the asbestos insulation in the plant should follow OSHA and EPA standards.

CLASS II WASTE - Organic and inorganic industrial solid waste that is readily decomposable in nature and contains no hazardous waste materials. This includes the plant trash.

CLASS III WASTE - Essentially inert and essentially insoluble induatrial solid waste, usually including materials such as rock, brick, glass, dirt, certain plastics and rubber, etc. that are not readily decomposable.

CBY 3109704

1. Inert Uncontaminated Solids - Concrete, glass, brick, discarded road materials and other miscellaneous inert solids.

C 001594

MONSANTO PROCEDURE MANUAL

DISTRIBUTION

Plant Manager (Jones)
Project Director,Mfg. (Frizzell)
General Superintendent (Hagood)
Employee Relations Supv. (Malfitano)
Employee Realations Representative (Watkins)
Benefits Representative (Sebesta)

[redacted] & Loss Superintendent (Wilbeck) (3)
Safety Supervisor (Satsky)

Plant Security (Captain)
Industrial Hygienist (Lindberg)

Plant Accounting Superintendent (Wall)
Area Accounting Prop.& Maint. (Clemons)
Data Processing Manager (Attra)
Accounts payable Supervisor (Kelly)

Mamager of PT (Yeretsky)
PT Group Supervisor (Graham)
PT Group Supervisor (Saunders)

General Superintendent (Gray)
MTS Superintendent (Ingersoll)
Plt.Engineering Superintendent (Fisher)
Projects Group Supervisor (Isadore)
Projects Group Supervisor (Pickett)
Central Files (Knight) (2)
General Maintenance Superintendent (Osburn)
General Maintenance Group Foreman (3)
Stores Superintendent (Ingersoll)
Stores Supervisor (Loving)
Maintenance Shop 4 (2)
Maintenance Shop 5
Maintenance Shop 6
Maintenance Shop 7
I&E Superintendent (Stultz)
I&E Group Foreman
I&E Specialist (Williams) (SPM)
Contract Group Foreman
Shop #1 (EAP & SP Only)
Shop #1-I&E (EAP & SP Only)

NTA/IDA Superintendent (Steinhauser)
NTA/IDA Group Foreman (Purdom)
NTA/SAB Tech. Superintendent (Silver)
IDA TSD Supervisor (Goodnight)
Resins/Formalin/DPO Superintendent (Louvet
Formalin/DPO Group Foreman
Formalin/DPO Shift Foreman

Production Coord.Superintendent (Ogens)
Manager Env.Affairs & Tech. (Guilliams)
Env.Affairs & Tech.Superintendent (McCurl
Superintendent Mfg. & Services (Ceyanes)

Pruchasing Buyer (Reed)
Utilities Superintendent (Atkins)
Utilities Group Foreman (Goza)
Utilities Shift Foreman
EU & Site Dev.Superintendent (Blake)
Dist.Operations Superintendent (Harlan)
Distribution Group Foreman (Menard)
Distribution Shift Foreman (2)
Distribution Production Spec. (Jolly)
Night Supervisors
AN & E.C. Mfg.Superintendent (Silva)
AN Group Foreman
AN Shift Foreman
Control Lab Superintendent (Meade)
Lab Group Foreman (Faulkner) (2)
Env.Control Group Foreman (Strickland)
Env.Control Shift Foreman

Manager,Mfg.Guest Companies (Murrell)
SAB Superintendent (Hamilton)
SAB Group Foreman (Mathews)
SAB Production Planner (SPM)
Technical Superintendent (Fouts)
Sorbic Superintendent (Turner)
Sorbic Group Foreman (Williams)
Sorbic Shift Foreman
Sorbic Maint.Coord. (Walters)
NTA/SAB Mfg. Spec. (Seals)
MHBA mfg.Superintendent (Ochsner)
MHBA Group Foreman (King)
MHBA Shift Foreman
MHBA Process Specialist

CBY 3109705

Monsanto

FROM (-LOCATION-PHONE) Erich Birch - Chocolate Bayou Plant - Ext.4747

DATE : April 21,1986 cc.

SUBJECT : PROCEDURE MANUAL REVISIONS

REFERENCE :

TO : Attached Distribution

Attached are updates for your SAFETY PROCEDURE MANUAL:

SP-013 has been revised. Please remove the old copies from your manual and insert the revised copies.

SP-013 - SOLID AND HAZARDOUS WASTE DISPOSAL

Pages 1-13 of 13

Attachment #1 - Pages 1-3 of 3
Attachment #2 - Pages 1-3 of 3
Attachment #3 - Pages 1-2 of 2
Attachment #4 - Pages 1-1 of 1
Attachment #5 - Pages 1-1 of 1

Erich Birch

EMB/sk

Attachments

CBY 3109706

C 001596

IN - 10 (REV. 8'77)

SOLID AND HAZARDOUS WASTE DISPOSAL

I. PURPOSE

This procedure defines solid and hazardous waste responsibilities within the Plant and explains the manner in which waste related activities must be conducted to comply with State and Federal environmental regulations and Monsanto Company guidelines.

II. POLICY

Waste storage, processing, disposal and by-product sales will be done in accordance with the rules and regulations of the Texas Water Commission (TWC), and the U.S. Environmental Protection Agency (EPA), and the U.S. Department of Transportation (DOT). In addition, all practices and procedures must be consistent with Monsanto's commitment to protecting the environment and must conform to Monsanto's guidelines regarding health, safety, and housekeeping.

III. SCOPE

This procedure covers the classification, storage, processing, transportation, and disposal of solids and hazardous waste generated at the Chocolate Bayou Plant. For waste materials that are recoverable, reusable, or otherwise subject to salvage, this procedure must be used in conjunction with General Procedures and Safety Procedures on salvage and scrap materials (GP-0304 and SP-029). Waste materials generated off-site by contractors doing Monsanto related work are generally the responsibility of the owner/operator of the site where the wastes are generated. Any exceptions must be approved by Environmental Affairs and Technology to insure compliance with all applicable regulations and policies.

DEFINITIONS

Definitions presented below consist of summaries of established legal definitions.

Solid Waste - Any garbage, refuse, sludge, or any other solid, liquid, semi-solid, or contained gaseous material which:

1. is discarded or accumulated, stored, or treated prior to being discharged; or,

C 001597

CBY 3109707

hazardous waste as defined by EPA.

Class II Waste - Any solid waste or combination of industrial solid wastes which cannot be described as Class I or Class II as defined.

Class III Waste - Inert and insoluble solid waste, usually including but not limited to materials such as rock, brick, glass, dirt, and certain plastics and rubber, etc., that are not readily decomposable.

Responsibilities

A. Waste Generator[a]

1. Complete Side 1 of the "Request for Solid Waste Disposal" form (see Attachment #3) and submit to Environmental Control.

2. Arrange for sampling and analysis of the waste if required for the hazardous/nonhazardous determination or to provide data necessary for the safe handling, treatment, storage, transport or disposal of the waste.

3. Properly decontaminate or package waste when applicable. All drums, piping, or other equipment which may be sold as metal scrap must be decontaminated and tagged prior to delivery to Environmental Control or the salvage yard.

4. For on-site waste disposal the generator weigh the waste and transport it to the proper treatment, storage, or disposal unit as directed by Environmental Control.

5. For off-site disposal the generator must:

   a. Obtain a TF-837 or TSA (temporary shipping authorization) from the

---

[a]Waste generator is the party responsible for generating the waste and can include manufacturing departments, Maintenance, Utilities, PT, Environmental Control, and contractors.

C 001599

CBY 3109709

e. Insure that contractor operations in environmental control areas meet regulatory and Monsanto requirements.

4. For off-site waste disposal:

a. Arrange for an approved transporter and outside disposal agency to handle the waste.

b. Prepare and sign the TWC Waste Shipping Control Ticket (Uniform Hazardous Waste Manifest) and shipping papers.

c. Inspect trucks after loading to insure that EPA and DOT regulations on waste packaging, labeling, and placarding have been met.

d. Initiate follow-up actions on overdue, unreturned manifest originals (white copy).

C. Environmental Affairs and Technology

1. Provide assistance to Environmental Control and other units in interpreting solid waste regulations as they apply to classifying waste materials or carrying out this procedure.

2. Obtain TWC waste code numbers and amend the CB/TWC Solid Waste Registration when it is necessary to dispose of new waste materials.

3. Obtain environmental permits needed for the generation, treatment, storage, and disposal of solid and hazardous wastes.

4. Direct and coordinate efforts to reduce or recover hazardous wastes.

5. Develop and implement training programs on hazardous waste regulations, procedures, and emergency response.

D. Control Laboratory CBY 3109711

1. Insure that waste samples are analyzed by EPA approved methods and that analytical results are properly documented.

C 001601

ignitability, corrosivity, reactivity, incompatibility with other wastes or materials of construction of hazardous waste handling equipment, and potential health hazards.

3. Sampling and analysis of wastes must be done using procedures specified in EPA Publication SW-846 (copies are available in the Control Laboratory and in Environmental Affairs and Technology). Environmental Affairs and Technology will maintain an updated copy of a CB Plant hazardous waste sampling and analysis plan specifying procedures and minimum sampling frequencies for routine wastes.

4. All waste samples must be accompanied by "chain of custody" forms. Completed "chain of custody" records will be returned to the Control Laboratory for filing. Copies of the forms will be attached to analytical data kept at Environmental Control by Environmental Affairs and Technology.

5. Hazardous waste analyses must be up dated whenever a process modification or other changes which could affect waste composition occur.

6. Records on the results of waste analyses will be maintained by the Control Laboratory. Copies of waste analytical results will be available in Environmental Control and Environmental Affairs and Technology.

7. Each waste must be assigned a TWC waste code number (currently registered waste code numbers for the CB Plant are shown in Attachment #2) and each hazardous waste must be assigned one or more EPA waste code numbers (EPA waste code numbers commonly used at CB are shown in Attachment #1). Environmental Affairs and Technology will register new wastes when necessary and will provide assistance in selecting and verifying applicable code numbers (Ext. 4507).

C 001603

CBY 3109713

8. The waste generator should provide Environmental Control with at least 1 day's advance notice. Additional time may be required to arrange for off-site disposal or

2. Wastes will not be accepted for landfill disposal while the Plant is in Area II or Area III of a hurricane alert.

3. Salvageable materials (piping, empty drums, scrap metal, etc.) must be decontaminated and tagged by the waste generator before delivery to Environmental Control. Materials which are eligible for the salvage yard will not be accepted for disposal.

4. Prior to loading a waste the truck on trailer must be weighed and then reweighed after loading so that the weight of waste can be noted on side 1 on the Request for Solid Waste Disposal form. (This form should be weigh stamped or a weigh stamped card should be stamped to the form).

5. At the waste disposal area the Solid Waste Disposal Processor will instruct the driver where to dump the waste and will record the location. Entry to the Solid Waste Disposal Area without authorization of the Solid Waste Processor is prohibited.

D. Off-Site Disposal (Class I Wastes)

1. Upon receiving notification and the Request for Solid Waste Disposal form, Environmental Control will arrange for an approved transporter and disposer to handle the waste and prepare the TWC Manifest.

2. The generator is responsible for insuring that there is a TF 837 or an up-to-date TSA (corporate shipping authorizations) available for the particular waste material. If the waste material is not already listed on the outside disposal contract the generator will have to execute a "Schedule A" to the contract for the particular waste.

3. When the transporter arrives at the Plant he will report to Distribution to have his truck weighed and the weight stamped on a weight card.

C 001605

4. The transporter will then be directed to Environmental Control, where directions will

CBY 3109715

2. Process related wastes and contaminated materials must not be placed in Plant trash dumpsters. Each unit is responsible for enforcing this rule for their dumpster.

3. Units generating process related Class II wastes may be required to dispose of these materials off-site. Environmental Control will assist in making arrangements for an outside firm to receive the waste. Once the disposal process is established for a routine waste the generating unit will be responsible for day-to-day contacts with the transporter and disposer. The unit will be required to submit information to Environmental Control on quantity of each type of waste disposed of and the location of the disposal site for each waste load. This data is needed because it must be reported to the State.

F. Sale/Disposal of Empty Drums

Approved empty drums will be sold to an outside drum reprocessor. Non-approved empty drums will be crushed and sold as metal scrap or buried in the on-site Class I landfill.

1. The generator must:

a) Decontaminate all empty drums by triple rinsing with a suitable solvent. (Steam or water may be used if it is effective in removing the residue in the drum),

b) Tag the drum as decontaminated,

c) Complete a "Request for Solid Waste Disposal" form including a description of what was in the drum prior to decontamination, and

d) Deliver the drums to the Solid Waste Processor in Environmental Control unless there is a large number of drums. In the event that the generator has a truck load or more of drums, Environmental Control may elect to have them picked up by the drum reprocessor at the unit where they were generated.

CBY 3109717 C 001607

SOLID AND HAZARDOUS WASTE DISPOSAL

H. Hazardous Waste Emergenices

Hazardous waste emergencies will be handled in accordance with the Chocolate Bayou RCRA* Hazardous Waste Emergency and Contingency Plan. Copies of this Plan are located in Environmental Control,

Safety, Night Supervisor's office, and Environmental Affairs and Technology.

Original Author: S. Z. Chamberlain

Revised By: M. T. Wagner
M. T. Wagner

Approved By: R. E. Guilliams
R. E. Guilliams

Approved By: R. N. Jones
R. N. Jones

C 001609

CBY 3109719

SOLID AND HAZARDOUS WASTE DISPOSAL

Attachment 1: EPA Hazardous Waste Codes Commonly Used at Chocolate Bayou

A. EPA Code Nubmers for Hazardous Characteristics

HAZARDOUS CHARACTERISTIC	EPA HAZARDOUS WASTE NUMBER
Ignitability	D001
Corrosivity	D002
Reactivity	D003
EP Toxicity	
arsenic	D004
barium	D005
cadmium	D006
chromium	D007
lead	D008
mercury	D009
selenium	D010
silver	D011

B. EPA Code Numbers for Hazradous Wastes from Non Specific Sources

HAZARDOUS WASTE	EPA HAZARDOUS WASTE NUMBER
The following spent halogenated solvents: tetrachlorethylene, methylene chloride, trichloro-ethylene, 1,1,1-trichloroethane, chlorobenzene, 1,1,2-trichloro-1, 2,2-trifluorethane, ortho-dichlorobenzene, and trichloro-fluoromethane; and the still bottoms from the recovery of these solvents.	F002
The following spent non-halogenated solvents: xylene, acetone, ethyl acetate, ethyl benzene, ethyl ether, methyl isobutyl ketone, n-butyl alcohol, cyclohexanone, and methanol; and still bottoms from the recovery of these solvents.	F003
The following spent non-halogenated solvents: toluene, methyl ethyl ketone, carbon disulfide, isobutanol, and pyridine; and the still bottoms from the recovery of these solvents.	F005

C 001610

CBY 3109720

SOLID AND HAZARDOUS WASTE DISPOSAL

HAZARDOUS WASTE	EPA HAZARDOUS WASTE NUMBER
Formaldehyde	U122
Furfural	U125
Hydrazine	U133
Hydrofluoric Acid	U134
Hydrogen Sulfide	U135
Mercury	U151
Methanol	U154
Methylene Chloride	U080
Methyl ethyl ketone	U159
Methyl isobutyl ketone	U161
Napthalene	U165
Phenol	U188
Pyridene	U196
Toluene	U220
Xylene	U239

CBY 3109722

C 001612

SOLID AND HAZARDOUS WASTE DISPOSAL

Attachment 2: TWC WASTE CODE NUMBERS AUTHORIZED FOR USE AT THE CHOCOLATE BAYOU PLANT

A. TWC Waste Code Numbers for On-Site Disposal*

WASTE NAME	DESCRIPTION	CLASS	WASTE CODE NUMBER
Refractory Process Wastewater	All liquid waste materials disposed of in the AN ponds	I-H	909520
Process Sludge	Miscellaneous sludges, polymer, coke, off-spec chemicals, etc.	I-H I	949690 149690
Biological Sludge	Wastewater treatment sludge	I	249890
Raw Water Sludge	Water treatment (utilities) sludge	III	340150
ent Catalyst	All discarded catalyst materials	I-H I	970210 170210
Bulk Solids	Piping, empty drums, process equipment, hoses, cans, etc.	I	170770
Miscellaneous Discards	Filter cartridges, column packing, molecular sieves, silica gel, contaminated shell, dirt, concrete, etc.	I-H I	979720 179720
Miscellaneous Inert Solids	Noncontaminated shell, dirt, concrete, bricks, etc.	III	370510
Insulation Containing Asbestos	All insulation containing greater than 1% asbestos	I	179390
Biodegradable Wastewater	All liquid waste materials disposed of in the biological treatment system	I-H	906680

C 001613

CBY 3109723

SOLID AND HAZARDOUS WASTE DISPOSAL

Attachment 2: TWC WASTE CODE NUMBERS AUTHORIZED FOR USE AT THE CHOCOLATE BAYOU PLANT

A. TWC Waste Code Numbers for On-Site Disposal*

WASTE NAME	DESCRIPTION	CLASS	WASTE CODE NUMBER
Miscellaneous Plant Trash	Office trash & garbage (trash dumpsters)	II	279760
Wood Scrap	Noncontaminated wood scraps	III	380200
Carbon Absorbent	Spent activated carbon	II	280810
Zinc phosphate	Celite zinc wastes	II	200290
Insulation Containing asbestos	Insulation containing greater than 2% asbestos	I	179390
Crotonaldehyde	Crotonaldehyde with <5% acetone and 5% water	I-H	9123210
Methanol and Water	Methanol contaminated with <40% water and <2% sorbic acid	I-H	909640
PCB Contaminated	Wastes contaminated with PCB (Polychlorinated biphenyls) including transformers, transformer oil, rags, drums, etc.	I	179430
Industrial Wastewater containing organic compounds	Wastewater containing MEA (0.86%), methanol (500 ppm), Ethanol (400 ppm)	I	109080

*For wastes not listed, call Environmental Affairs & Technology (Ext. 4507).

C 001614

CBY 3109724

SOLID AND HAZARDOUS WASTE DISPOSAL

Attachment 2: TWC WASTE CODE NUMBERS AUTHORIZED FOR USE AT THE CHOCOLATE BAYOU PLANT

B. TWC Waste Code Numbers for Off-Site Disposal*

WASTE NAME	DESCRIPTION	CLASS	WASTE CODE NUMBER
Miscellaneous	Office trash & garbage (trash dumpsters	II	279760
Wood Scrap	Noncontaminated wood scraps	III	380200
Carbon Absorbent	Spent activated carbon	II	280810
Zinc phosphate	Celite zinc wastes	II	200290
Insulation Containing Asbestos	Insulation containing greater than 2% asbestos	I	179390
Crotonaldehyde	Crotonaldehyde with <5% acetone and 5% water	I-H	912320
Methanol and Water	Methanol contaminated with <40% water and <2% sorbic acid	I-H	909640
PCB Contaminated Material	Wastes contaminated with PCB (Polychlorinated biphenyls) including transformers, transformer oil, rags, drums, etc.	I	179430
Industrial Wastewater Containing Organic Compounds	Wastewater containing MEA (0.86%), methanol (500 ppm), Ethanol (400 ppm)	I	109080

*For wastes not listed call Environmental Affairs (Ext. 4507).

C 001615

CBY 3109725

SOLID AND HAZARDOUS WASTE DISPOSAL

ATTACHMENT #4: TYPICAL WASTE DISPOSAL CONTRACT SCHEDULE A FORM

SCHEDULE A

TO WASTE DISPOSAL AGREEMENT BETWEEN MONSANTO COMPANY AND _____ DATED _____

CODE NUMBER	
GENERAL DESCRIPTION OF WASTE	
MONSANTO POINT OF ORIGIN	Chocolate Bayou Plant
QUANTITY (MIN./MAX.) (IF ANY)	
TERM OF AGREEMENT	
DELIVERY SCHEDULE	Infrequent
METHOD OF DISPOSAL (Check One)	☐ Incineration ☐ Hazardous Waste Landfill ☐ Other: _____ ☐ Contractor's Election
CONTRACTOR'S FACILITY	
FEE	
EXPOSURE AND HANDLING PRECAUTIONS	
ADDRESS FOR NOTICES	FOR MONSANTO: FOR CONTRACTOR:

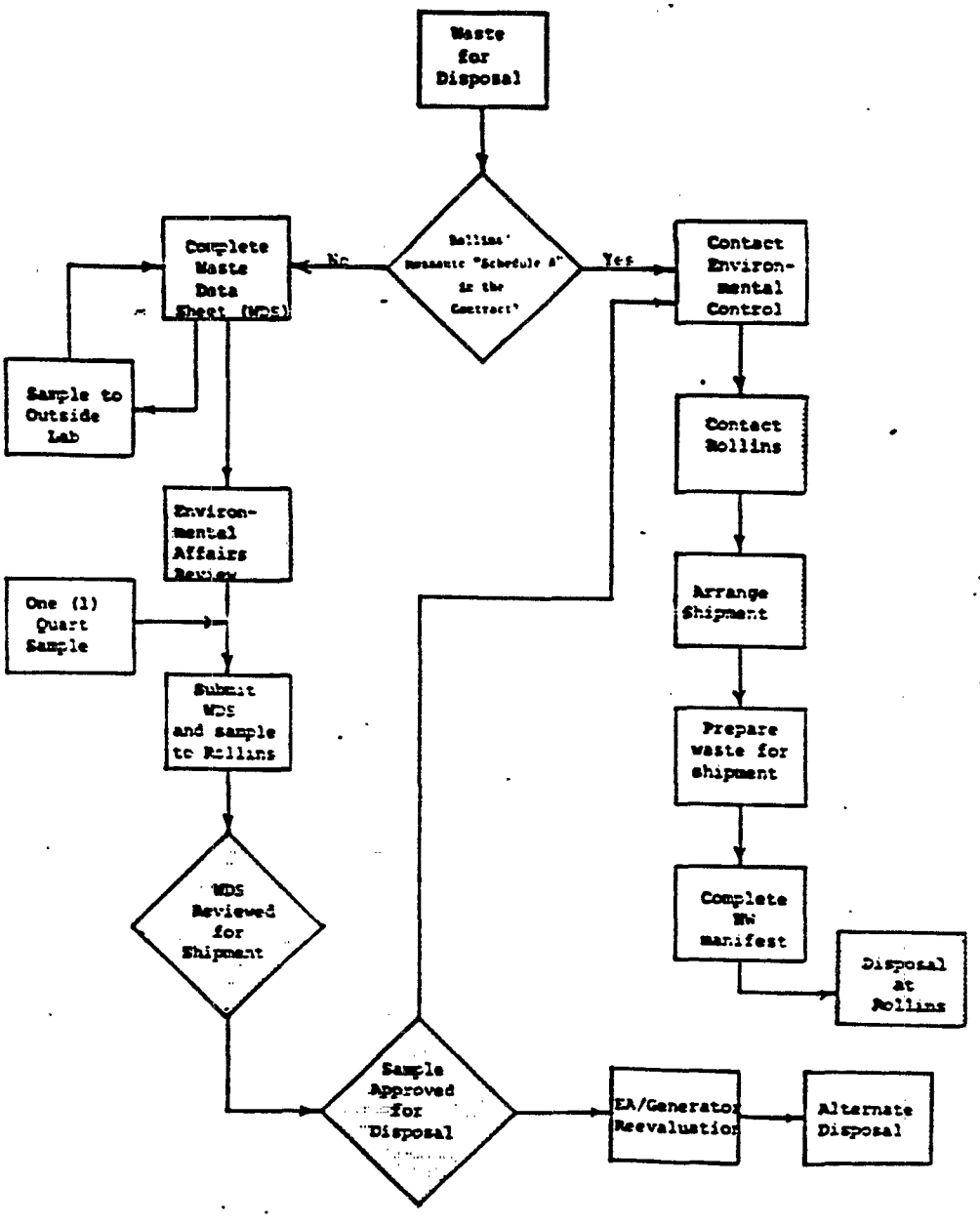
CBY 3109726

C 001616

SOLID AND HAZARDOUS WASTE DISPOSAL

ATTACHMENT 5

DECISION DIAGRAM FOR WASTE DISPOSAL AT ROLLINS



CBY 3109727

C 001617

SOLID AND HAZARDOUS WASTE DISPOSAL

ATTACHMENT #3: REQUEST FOR SOLID WASTE DISPOSAL

Side 1

REQUEST FOR SOLID WASTE DISPOSAL

(This form must be completed prior to any on-site disposal or shipment of materials off site for disposal)

Solid Waste Disposal Request Form No. _____

To Be Filled Out by Person Requesting Disposal

Date: _____ Department: _____ Charge No: _____

Requestor: _____ Advance Notice ☐ Yes ☐ No

Process generating waste: _____

Weight: (You must have this form weigh stamped): _____

Waste Description, Attach analysis if available (a laboratory analysis may be required by Env. Control if available data is insufficient to properly classify or dispose of waste)

Name of Waste Stream _____

Description _____

Organic ☐ Inorganic ☐ Mixture of organic & inorganic ☐

pH _____ flash point _____ °F

Key Components	Conc: % or ppm	Analytical Technique Used

(Attach Additional List if Necessary)

EPA Hazard Coce(s): _____

TDWR Waste Code: _____

Safety Precautions: _____

Health Hazard Information: _____

MCB-325

CBY 3109728

C 001618

USE OF VACUUM TRUCKS

PURPOSE:

This policy and procedure defines the methods and responsibilities necessary to provide control of vacuum truck usage in the plant from the viewpoint of both safety and long-term economy.

POLICY:

The Environmental Control Department will dispatch all vacuum trucks. Tank trucks hauling material to be disposed of will be cleared by the Environmental Control Department functioning through Production Coordination Scheduling and adhering to the unit procedure for that material.

The requesting or originating department must declare the material to be hauled as either a waste or a usable material and as meeting certain requirements as defined further in the procedure. Disposition of all waste material will be determined by the Environmental Control Department prior to scheduling the vacuum truck.

All vacuum truck operations should be confined to the hours normally scheduled, 0800 through 1600 Tuesday and Friday. Scheduling vacuum trucks outside of the normal schedule must be approved by the Manufacturing Superintendent of the requesting department and the Manufacturing Superintendent of Environmental Control. Requests made outside the normal working hours for vacuum trucks must be approved by the Manufacturing Superintendent of the requesting department and Environmental Control on-call person. These approvals are necessary to control plant costs. Specific vacuum truck operations which begin during the scheduled hours, Tuesday and Friday, can continue beyond these hours without additional approval.

PROCEDURE:

Attachments 1 and 2 indicate various jobs which may be routinely handled by vacuum trucks under this policy. Materials listed in Attachment 1 are those that have initially been determined to be handled with air in vacuum trucks. Materials listed in Attachment 2 may be handled in vacuum trucks only when the following conditions have been met:

CBY 3109730

C 001620

USE OF VACUUM TRUCKS

RESPONSIBILITIES:

Environmental Control Department

1. Maintain records of vacuum truck transfers as shown on Attachment #3.

2. Dispatch vacuum trucks for routine jobs on a first in-first out request basis unless an emergency warrants a change. Request trucks through the vacuum truck company dispatcher for jobs needed outside of the regularly scheduled hours.

3. Maintain an up-to-date listing of "approved" vacuum truck users with inputs from user department.

4. Environmental Control Shift Foreman will determine disposition of vacuum truck wastes.

5. Evaluate job plans for approval anytime material is to be pressured into a vacuum truck. Pressuring material from a vessel into a vacuum truck is defined as using air, N_2 or some other gas as a motive force or having a liquid head elevation greater than 50 feet above ground level.

6. Perform a monthly safety check of the "in-plant" vacuum truck and perform a safety check for all vacuum trucks called into the plant. (Attachment #5)

7. Review vacuum truck invoices daily to insure proper charges.

CBY 3109732

REQUESTING DEPARTMENT

1. Determine the composition of material, its hazardous properties, origin, flash point and when truck is needed.

2. Implement the safe handling techniques described in the Procedure. Attachment #4 is included as a guideline on flammability restraints. For chemical compatibility restraints, refer to the Chocolate Bayou "Safety Guide" booklet, pages 7-9.

3. Provide written notification of requested changes in the "approved" user list to the Environmental Control Department.

4. Obtain proper approval for special jobs not included on Attachments #1 and #2 approved lists.

5. Obtain appropriate approvals for the use of a vacuum truck on overtime.

C 001622

USE OF VACUUM TRUCKS

APPROVED MATERIALS FOR HANDLING WITH AIR IN VACUUM TRUCKS

SOURCE DEPT.	EQUIPMENT	NORMAL MATERIAL
AN	Chemical Sump	*Acid & Water
	Sump Tanks 31T7	*Catalyst, Sand, Polymer, H_2O
Distribution ..	Tar Pump	Tar
	AN Firewall	AN & Water
	Phenol Sump (2) and Phenol Tank Firewalls	Phenol & Water
	Caustic Sump	Dilute Caustic
	Barge Slip	Water & Oil
	Storage Tanks (Cleaning)	Water, Soap, Oil Emulsion
	Miscellaneous Lines & Non-Toxic Material With Flash Points above 125°F	Miscellaneous
Environmental.. Control	Plant Outfall & North/ South Ditch Traps	Oil, Scum & Water
	334/336 Lifting Stations	Miscellaneous Oil & Water Sludg
	Miscellaneous Pipeway	Miscellaneous Organics & Water
	334P7 Sump	Skimmed Oil
	336P4 Sump & Ponds	Oil & Sludge
	336P6 Sump & Ponds	Oil & Sludge
General Plant..	Process Sewers	Trash, Mud & Water (Check for hazardous materials is required
	Septic Tanks	Water & Sewage

CBY 3109734

* If material has an obnoxious odor, handle with special precautions and notify Environmental Control.

C 001624

USE OF VACUUM TRUCKS

APPROVED MATERIALS FOR HANDLING WITH AIR IN VACUUM TRUCKS

SOURCE DEPT.	EQUIPMENT	NORMAL MATERIAL
Utilities	Miscellaneous Equipment	Use Lubricating Oil
	Acid Storage Tanks	Dilute Acid & Sludge
	Chemline Storage Tank	Chemline Sludge & Water
	Boiler Acidizing Material	Spent Ammoniated EDTA
	350T15 Sump	Water & Oil

CBY 3109736

* If material has an obnoxious odor, handle with special precautions and notify Environmental Control.

C 001626

USE OF VACUUM TRUCKS

APPROVED MATERIALS FOR HANDLING WITH INERT GAS IN VACUUM TRUCKS

SOURCE DEPT.	EQUIPMENT	NORMAL MATERIAL
Distribution	Miscellaneous Organics with Flash Points Below 125°F.	Miscellaneous Organics
Environmental Control	334T6	C_6, HVR Oil
	Wet Well	Skimmed Oil & Bottom Sludge
Fire Training	SNIFO Tanks	SNIFO
Phenol	67T16	Waste Oil
	67T8	AMS Waste Oil
Sorbic Acid	49T707	*Oxo Alcohol

* If material has an obnoxious odor, handle with special precautions and notify Environmental Control.

C 001627 CBY 3109737

MONSANTO COMPANY

VACUUM TRUCK SERVICE RECORD

Date: _____

Dispatcher Name _____

Requesting Supervisor _____

Time Truck Requested _____
Time Truck Arrived _____
Time Truck Needed _____
Time Truck Released _____

Clean Truck Required
☐ Yes ☐ No
If NO, truck last carried _____

Helper Required
☐ Yes
☐ No

Personnel Safety Equipment Required for this job:

☐ Hard Hat ☐ Safety Glasses ☐ Goggles
☐ Face Shield ☐ Slicker Suit Top ☐ Rubber Boots
☐ Chemical Gloves ☐ Slicker Suit – 2 Piece ☐ Other

NOTE: Goggles, chemical gloves and hard hat are minimum safety requirements when unloading and washing out any vacuum truck.

Name of Material _____

Material on "Approved" List No. _____

Originating Vessel Name and Number _____

Disposition of Material _____

Vacuum truck tank to have ☐ air, ☐ nitrogen in it while being loaded.

Vacuum truck tank to be emptied with .. ☐ air, ☐ nitrogen.

Name of Truck Driver _____

Name of Person Releasing Truck _____

Comments _____

The personnel safety equipment checked above is available and is to be used by the driver and helper while loading, unloading and washing out, and the truck is equipped with fire extinguisher, relief valve and grounding cable.

Signed (Vacuum Truck Driver): _____

The personnel safety equipment checked above is adequate for the job at hand.

Signed (Using Unit Representative) _____ Unit Chg. No. _____

THE UNIT USING A VACUUM TRUCK WILL PROVIDE JOB SUPERVISION REQUIRED AND BE RESPONSIBLE FOR DRIVER'S SAFETY WHILE IN UNIT.

C 001628

CBY 3109738

USE OF VACUUM TRUCKS

GUIDE FOR PERMITTED VACUUM TRUCK USE

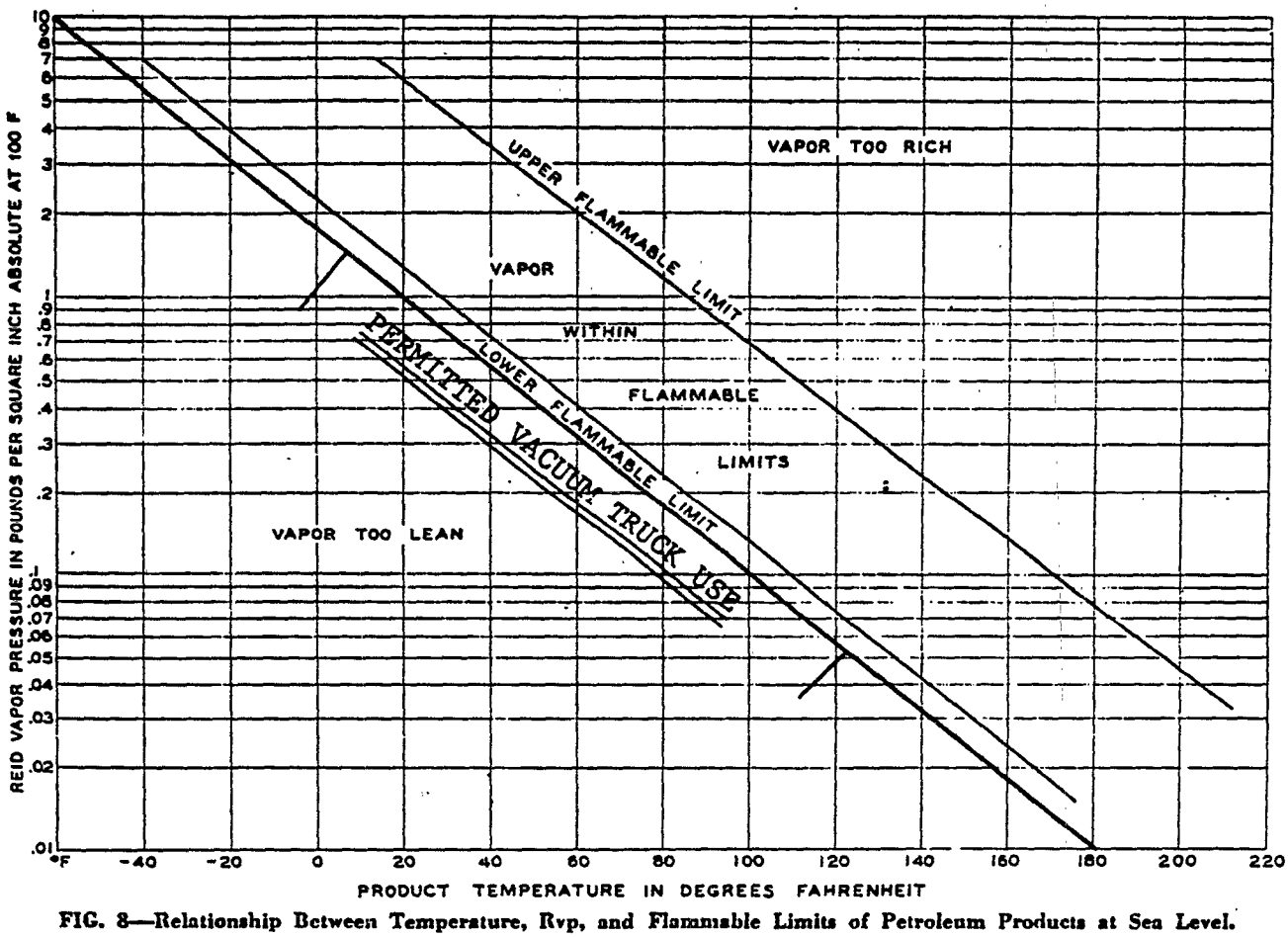


FIG. 8—Relationship Between Temperature, Rvp, and Flammable Limits of Petroleum Products at Sea Level.

Ref: API RP 2003, 2nd Ed., Sept. 1967

Attachment #4, "Guide for Permitted Vacuum Truck Use", will be used as the basis for deciding if vacuum trucks are safe for special jobs not included in Attachments #1 or #2.

C 001629

CBY 3109739

USE OF VACUUM TRUCKS

VACUUM TRUCK SAFETY EQUIPMENT CHECK SHEET

		STATUS	
		Regular	Call-In
* 1.	Pressure Relief Valve on Truck	_____	_____
* 2.	Fire Extinguisher on Truck	_____	_____
3.	General Condition of Hoses	_____	
4.	Working Condition of Truck Lights	_____	
5.	Condition of Tank Drain Valves (With Liquid or Pressure on Tank)	_____	
6.	Purge Connection Available on Tank	_____	
* 7.	Ground Cable	_____	_____
* 8.	Wheel Chocks	_____	_____
* 9.	Chemical Gloves for Driver & Helper	_____	_____
*10.	Chemical Goggles for Driver & Helper	_____	_____
*11.	Face Shield for Driver & Helper	_____	_____
*12.	Hard Hat for Driver & Helper	_____	_____
*13.	Safety Glasses for Driver & Helper	_____	_____
*14.	Slicker Suit for Driver & Helper	_____	_____
*15.	Rubber Boots for Driver & Helper	_____	_____
16.	High Level Shut-Off Valve	_____	
17.	Pressure/Vacuum Gauge	_____	
*18.	Float Gauge	_____	
*19.	Truck Clean (Check by Opening Manway)	_____	_____
20.	Overall Condition of Truck:	_____	_____

_____

_____

Ask Driver & Helper some arbitrary safety question, such as "How do you summon first aid, what do you do when fire alarm sounds, do you understand when the personal protective equipment should be used, etc.?"

Inspected By: _____ Foreman _____ *Processor

Driver's Name: _____ Helper's Name: _____

Truck Number: _____ Date: _____

* Complete for Call-In

CBY 3109740

DISTRIBUTION:
Original to Environmental Control Group Foreman
Carbon Copy to Environmental Control Mfg. Supt/Purchasing Supt.

C 001630

FIRE WATER USAGE

PURPOSE

Define criteria and approval method for non-emergency fire water use.

POLICY

The purpose of the fire water system is to provide emergency fire suppression and spill control capability. Use of the fire water system for non-emergency situations will be allowed only under strict approval and control as defined in the following procedure. Use of the fire water system will not be allowed when it is determined that 1) its use will detract from the system capability in emergencies or 2) where other provisions can be made with reasonable planning and preparation.

PROCEDURE

1. The department requesting use of fire water for non-emergency situations will submit the request to the Safety Department in writing via the requesting department's general superintendent. The request will define a) reason and justification, b) usage duration and control methods, c) alternatives, d) impact on Utilities' capability during proposed usage.

2. The Safety Department will review the request and if justified, give approval.

3. The requesting department will then propose a specific work plan incorporating any restraint or control criteria and communication seemed necessary by the Safety Department.

4. Non-emergency fire water use will be immediately ceased when the fire/spill alarm sounds and will not be resumed until the Safety Department has given approval to do so.

5. All communication for non-emergency fire water use related to starting and stopping fire water pumps with Utilities will be via the Safety Department.

AUTHOR: C. A. Coburn
C. A. Coburn

APPROVAL: J. S. Hagood
J. S. Hagood

APPROVAL: G E Davenport
G. E. Davenport

CBY 3109741

C 001631

ISOLATION AND DECONTAMINATION OF PLANT EQUIPMENT

PURPOSE

The purpose of this procedure is to provide for a consistent approach to decontaminating and isolating equipment by establishing guidelines, defining responsibility, and outlining techniques of decontamination and isolation available.

POLICY

To insure the safety of personnel performing maintenance or other work by requiring that equipment and facilities to be inspected, repaired or modified, be isolated from the operating plant, and decontaminated to the maximum practical extent prior to starting the work. Isolation and decontamination should result in the ability to perform work with a minimum amount of risk of personal injury, using a practical degree of personal protective equipment.

DEFINITIONS

Isolation is the separation, blinding, or blocking of all lines or other connections leading into the piece of equipment so there is no possibility of leakage or accidental flow of contaminants from associated equipment into that system during or following decontamination. When valves are used for isolation the valve handle must be secured in the safe position with a chain or special bracket so that the valve cannot be accidentally opened or moved to any degree to allow leakage.

Decontamination is removal of chemicals until there is no reasonable possibility of an explosive, flammable or otherwise harmful (skin contact or inhalation) concentration of chemicals remaining. A system will be considered to be contaminated until positive checks have been made to verify that it has been:

1. Drained and purged free of all chemicals, liquid flushings, or vapors which may be flammable, explosive, or otherwise harmful on skin contact or inhalation;

2. All toxic vapors will be purged down to the threshold limit value (TLV) or lower.

RESPONSIBILITY

CBY 3109742

The overall safety responsibility for preparing for and carrying out repair work on process equipment rests jointly with Production and Maintenance.

In the planning stage of each job, the Operations and Maintenance

C-001632

ISOLATION AND DECONTAMINATION OF PLANT EQUIPEMENT (Cont'd)

Determine what the exposure of the personnel performing the work will be in terms of potential hazards. Communicate potential hazards to those performing the work. — Production

Where isolation and/or decontamination can not be achieved, Maintenance Safety and Production supervision jointly assess risk and define required protective equipment and safety precautions.

DISCUSSION

Decontamination and isolation are important and highly technical safety functions in all process operations. Selection of the appropriate method of isolation and decontamination can not be totally proceduralized except in special cases. Those persons involved in preparing equipment for Maintenance are responsible for exercising good judgment in carrying out isolation and decontamination to minimize the potential of personnel injury or equipment damage. Preparations should involve the following points:

A. Planning For Isolation and Decontamination

Each department will be responsible for developing and maintaining decontamination plans and isolation diagrams (blind lists) on equipment and systems where applicable. Depending on the complexity of the equipment, the actual plan will vary in detail. A checklist-type format can prove valuable for communication of the status of both isolation and decontamination when these activities are extended over multiple shifts. Isolation and blinding lists should be checked periodically for completeness with special emphasis on small connections and other easily overlooked tie-ins to other process equipment, instruments, or test equipment.

Preparation of a work plan or written procedure for isolation and decontamination of any piece of equipment, or system, should include consideration of the following aspects of the job:

1. Contaminants and Level of Decontamination

What are the contaminants to be removed from the system? To what level can the system be practically decontaminated based on the work to be performed and exposure level of the personnel?
What is the nature of the material: volatile, water soluble, sludge, granular, etc.?
What are its relative hazards: toxic, corrosive, flammable pyrophoric, radioactive, etc.?

C 001634 CBY 3109744

locations be separated for confirmation?
In equipment where we have past decontamination experience what conditions can we expect when decontamination is complete?
Is testing done at the points least likely to be decontaminated?
If entry is planned the oxygen level must be verified.
Can deposits of sludge release contaminants after tests have been completed?
Must the system be purged during vapor testing?

B. Decontamination

1. Degree of Decontamination

The level of decontamination is measured by the concentration of chemicals remaining in the equipment when it is cleared for Maintentance Work. The targeted level of decontamination for the various chemicals that may be encountered is zero. The maximum acceptable is based on the safety of personnel performing the work.

When flammable chemicals are involved, the maximum level of decontamination is one where the flammable, when exposed to air, produces a mixture which is too lean to burn. To increase the assurance that a flammable mixture cannot exist when "hot work" is being performed, the level sought is one too low to register flammables on a combustible gas test instrument.

When toxic chemicals are involved, the maximum level permissible is the threshold limit value (TLV). A toxic chemical is one which is capable of incapacitating personnel within minutes of exposure. TLV limits are conditions workers may be repeatedly exposed to every eight hour working day without harm. Portable vapor test devices which measure toxic chemical concentration in the ppm range should be used in testing. Consideration should be given to the degree of actual exposure of the personnel performing the work in determining the maximum level of decontamination.

When corrosive chemicals are involved the target is complete removal of the chemical and the diluted flushings from the system. A corrosive chemical is one which will produce burns immediately on contact.

When vessel entry is planned following decontamination, tests will be made to insure the system is free from harmful concentrations of chemicals and contains adequate oxygen (20% by volume) with a continous fresh air supply.

ISOLATION AND DECONTAMINATION OF PLANT EQUIPMENT (Cont'd)

equipment while flammables are present. Condensation of steam can also create a vacuum that could suck the equipment in or draw air into the system.

Water Washing:	Used on chemicals that are water soluble or used as a carrier for loose solids trapped in the system. Can be used to "float" oils from low places in equipment. Is often used in flushing large quantities of hydrocarbons or solids from equipment prior to final decontamination with steam or nitrogen. When decontaminating by water washing consideration should be given to the amount of flow through the system to insure adequate control and mixing. Following water washing, systems are normally drained or blown free of liquid to insure all contaminated water has been removed. Static electricity charges can produce sparks during washings.
Mechanical Cleaning	If large concentrations of sludge, scale or polymer are present, mechanical cleaning with high pressure jets such as those generated in line "moles" or Butterworth cleaning devices may be required prior to using conventional decontamination techniques. Static electricity charges can produce sparks during cleaning.
Chemical Cleaning	Used when the cleaning agents dissolve or suspend the solids or other contaminants present and carry them from the system.
Purging	When steam or water cannot be used, systems may be freed of vapor-type contaminants by purging with inerts such as nitrogen. Over a period of time the nitrogen will sweep vapor contaminants from the system while maintaining an inert atmosphere; denying the entry of oxygen and preventing the potential formation of an explosive mixture. Frequently,

CBY 3109748

C 001638

ISOLATION AND DECONTAMINATION OF PLANT EQUIPMENT (Cont'd)

C. Isolation

1. Degree of Isolation

A properly isolated system is one in which there is no possibility of in-leakage of gas, vapor or other materials from associated equipment during or after the decontamination process.

The techniques used to prevent chemicals from contaminating a system either undergoing decontamination or maintenance vary from the most positive isolation techniques - blinding or pipe spool removal; to the least positive - a closed secured or unsecured block valve.

The seriousness of the consequences of any leakage into the system undergoing maintenance determines the degree of isolation required. Hot work, vessel entry, and work on systems which contain highly toxic, corrosive, or otherwise hazardous materials will normally require the most positive isolation techniques available to insure the safety of those performing the work (refer to SP-019 for Fire and Vessel Entry Permits).

2. Isolation Methods CBY 3109750

Methods of isolation available with considerations for the application of each are:

Line Disconnect:	The most positive means of isolation. Involves disconnecting lines, removing valves or sections of pipe, and when necessary, blinding the open ends of these lines. Is carried out after the line has been depressured and de-inventoried to the extent that flanges can be safely opened.
Blinding	The most common positive method of isolation. Involves installation of a blank plate (blind) between flanges to block any leakage. Blinds are inserted with a gasket on the side which requires a positive seal. Where venting is desirable to prevent pressure accumulation, spacers are installed.
Double Block and Bleed	The most positive use of valves to isolate. The open bleed between the closed valves prevents accumulation of pressure that may force leakage into

C 001640

ISOLATION AND DECONTAMINATION OF PLANT EQUIPMENT (Cont'd)

isolation, involves inserting plugs, sealing plates into the line or equipment opening. Inflatable bags are not to be used unless no other alternatives to stoppling exist. Where the consequences of failure or leakage of the stopple device are serious, special purging precautions may be required. (See SP-023)

3. Securing Valves

To insure the integrity of an isolated system; i.e., that none of the valves used in the isolation can be accidently opened or moved to any degree to allow leakage, the isolation valves must be secured in a safe position. The method used to secure valve handles should accomplish two purposes:

a. It should restrain the handle's movement to the extent that it cannot be opened through vibration, accidental manual operation, or through accidental striking against the handle.

b. It should clearly identify the valve to be one being used for isolation of a specific item of equipment.

Preventing valve movement is accomplished by restraining the valve handle with a chain or special bracket. Production secures the valves while the equipment is being isolated. Where the valve's movement is critical in terms of job safety, the effectiveness of the valve "Lockout" should be tested by attempting to move the valve. Caution should be exercised as some valve designs such as globe valves can be unseated with a minimum of handle movement.

Valves used for isolation purposes will be equipped with an Isolation/Lockout tag (attachment I) to prevent accidental operation. The tag will be yellow with black lettering.

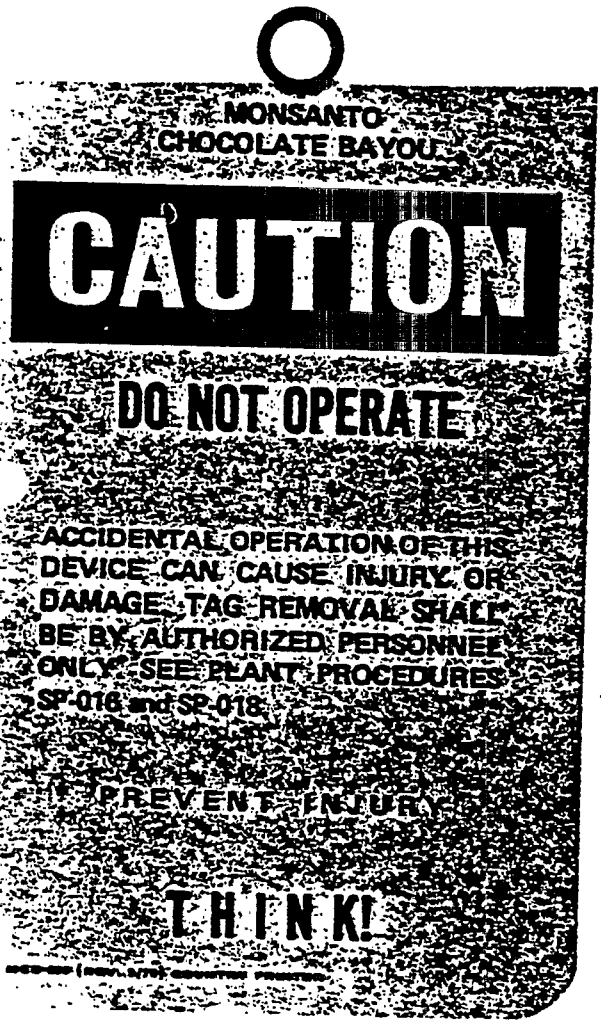
Locks are not required to secure valves being used for isolation; however, they may be used, if necessary, by Production or Maintenance personnel.

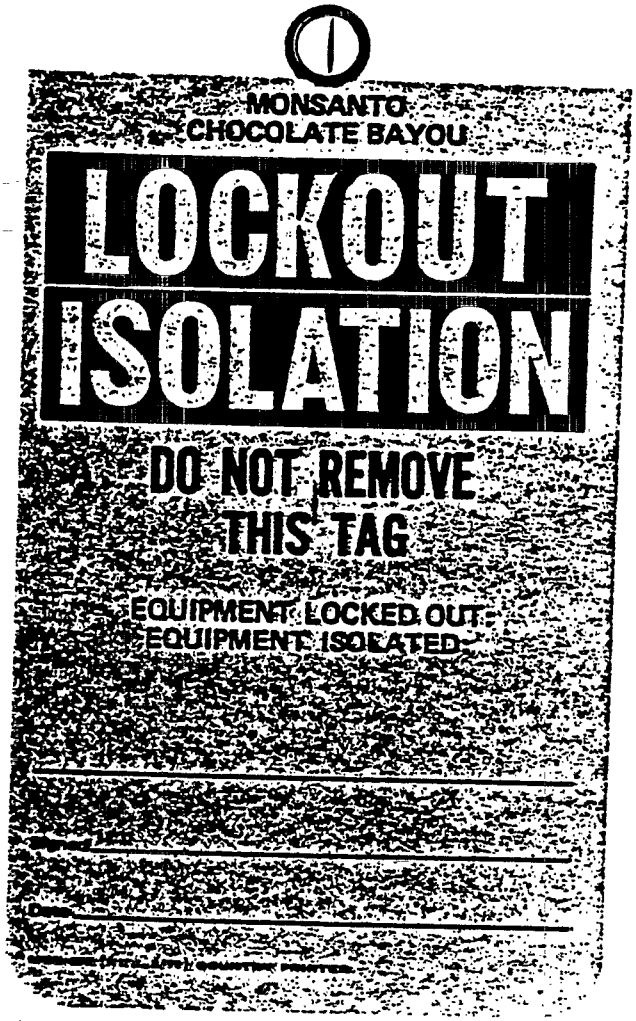
REFERENCES

C 001642

Purging Principles and Practice; American Gas Association, 1954.

CBY 3109752





C 001644

CBY 3109754

REMOVAL OF EQUIPMENT FROM OPERATING UNITS FOR REPAIR

PURPOSE

To describe the requirements for removing equipment from operating units for repair. Equipment removed from the area for maintenance will be cleaned and tagged by operating personnel. Tagging is required on all equipment leaving the area in which it is installed regardless of service.

PROCEDURE

1. Operating personnel will decontaminate equipment prior to repair or servicing. The Fire-Entry Permit Procedure will be followed where applicable.

   Methods of cleaning and decontaminating will vary and will be determined by Operations.

2. Prior to removing equipment from an operating area, the equipment will be tagged by Operations. The tag will include the following information. See Exhibit A.

   a. Equipment Indentification
   b. Date Cleaned
   c. How Cleaned
   d. Comments
   e. Signature of Foreman
   f. Chemical Service

   "Comments" should include statements and suggestions for safe handling during the repair.

3. Maintenance will not accept equipment for removal from an operating area unless it is tagged.

4. Office Services will stock and issue appropriate tags.

AUTHOR: D. M. Powledge
D. M. Powledge

APPROVED BY: W. H. Collier
W. H. Collier

APPROVED BY: G. E. Davenport
G. E. Davenport

C 001645

CBY 3109755

MONSANTO
CHOCOLATE BAYOU

LOCKOUT ISOLATION

DO NOT REMOVE THIS TAG

EQUIPMENT LOCKED OUT:
EQUIPMENT ISOLATED:

Signed _____

Date _____

MCB-1230 (REV. 3/75) COUNTRY PRINTER

MONSANTO
CHOCOLATE BAYOU

CAUTION

DO NOT OPERATE

ACCIDENTAL OPERATION OF THIS DEVICE CAN CAUSE INJURY OR DAMAGE. TAG REMOVAL SHALL BE BY AUTHORIZED PERSONNEL ONLY. SEE PLANT PROCEDURES SP-016 and SP-018.

PREVENT INJURY

THINK!

MCB-1255 (REV. 3/75) COUNTRY PRINTER

C 001652

CBY 3109762

LIGHTING PANEL LOCKOUT TAPE

Red Letters

Yellow Background

ELECTRICAL LOCKOUT

TO BE REMOVED ONLY BY

NAME DATE

SEE PLANT PROCEDURES SP-018 & SP-016. REV. 5/78

Black Letters

CBY 3109763

9/13/82 C.R. Murrell

C 001653

MOBILE LIFTING EQUIPMENT SAFETY

PURPOSE

The purpose of this procedure is to establish a safety quideline to operating all mobile lifting equipment.

SCOPE

This procedure covers all Maintenance personnel (Monsanto and Contract) performing this function and all motor cranes, carry deck cranes, (Cranes, go-devils, cherry pickers). This procedure does not cover forklifts, manual hoists or line trucks.

RESPONSIBILITY

It is the responsibility of the Maintenance Foreman to insure that all operators of the equipment are thoroughly trained in the operation of the equipment and the contents of this procedure. It is the responsibility of each person performing this function to follow the guidelines.

GENERAL SAFETY

1. Go-Devils and Cherry Pickers will be driven at a safe operating speed. This means that the operator must be confident he is in complete control of the vehicle at all times. Operating speed, therefore, will be reduced to allow for weather, road conditions, congested areas, etc. When moving mobile equipment through congested areas sound horn at appropriate intervals to alert everyone in the area to the presence of the equipment.

   If the equipment is not furnished with a back up alarm continuous short horn blasts should be used when operating in reverse. It is the sole responsibility of the operator to use good judgment and run this equipment in a safe manner at all times.

2. The following safety rules apply to all go-devils and cherry pickers that have removable cage type platforms installed on the rear.

   A. No more than three men may ride in a cage platform at one time.

   B. Men must stand on floor decking or platforms and use handrails.

   C. Sitting on handrails is not permitted.

   D. Riding on mobile equipment in any other manner than listed above is prohibited.

CBY 3109764

3. DO NOT operate machines with worn, broken or frayed cables. Visually inspect cables frequently and replace any damaged cables.

B. Operations

REVISED 1. Outriggers should be set before lifting. Outriggers on cherry pickers should be lowered to grade until weight is removed from tires and machine leveled to safely handle the weight it was designed for.

2. Do not pull loads sideways with boom. Booms are not designed for pulling loads in this manner and may collapse if used as such.

REVISED 3. Avoid working with extreme high boom position. When determining required boom angle, consideration should be given to a sudden load release which might cause the boom to recoil over the cab.

4. NEVER leave the machine with a load suspended in the air. Cooling brakes or a malfunction may allow the load to lower on personnel and/or equipment.

5. Watch the flagman at all times. If you must look in another direction, stop operations immediately.

6. Keep boom at least 10' away from all overhead power lines and electrical apparatus. See SP-022.

7. Keep hands free of oil and/or grease.

8. Do not move any load until directed to do so by flagman. NEVER anticipate the flagman's signal.

REVISED 9. Keep load as low as possible at all times.

C. Servicing

1. Check hydraulic fluid for adequate level for safe operations.

2. Make all adjustments to brakes and clutches promptly. Make sure all guards are replaced after completing adjustments.

3. Stop all operations before lubricating, cleaning, and/or making adjustments. Be sure floors and footpedals are free of oil, grease and mud. Replace all guards after completion of work. Remove tools and store in proper place.

CBY 3109766

C 001656

SCAFFOLD SAFETY RULES AND PRACTICES

PURPOSE

The purpose of this procedure is to describe the safety requirements for construction and use of all scaffolds within the plant.

SCOPE

This procedure applies to all scaffolding erected at the Chocolate Bayou Plant whether tubular scaffold structures, or special scaffolds erected in unique shapes and supported from Plant structures.

RESPONSIBILITY

It is the responsibility of the Monsanto Maintenance Foreman and Monsanto Contractor Supervisor to see that all scaffolds meet the established standards of Monsanto. It is the responsibility of each person erecting and/or using these scaffolds to inspect all material used and make sure that it is of good quality and that scaffold construction is in compliance with the requirements outlined in this procedure and OSHA Regulation #1910.28, including further explanation of safety rules.

CBY 3109768

PROCEDURE

The following safety guideline for erecting and/or using scaffolds is provided:

1. Inspect all materials for constructing scaffolds for defects. Repair or discard all defective material. The strength of rusted material is unknown.

2. Scaffolds must built large enough to provide space for personnel to perform all required work safely.

3. Adequate sills and base plates must be used, especially in areas that are not concrete, and on grating other than steel.

4. Keep scaffolds plum and level at all times. Do not force braces to fit. Level scaffold until all braces fit easily and securely.

5. Use adjusting screws instead of blocks for adjusting uneven grades, do not extend over 12".

6. Scaffolds must be provided with a safe means of access (built-in ladders, attached (ladder) or access from adjoining platforms or landings. Scaffold ladders should be located to allow direct access to scaffold deck and avoid overhead obstructions and adjacent obstructions that would require unsafe acts to gain access.

SCAFFOLD SAFETY RULES AND PRACTICES

intermediate levels of 25' on tubular scaffolds.

16. DO NOT ATTEMPT to use scaffolds as material hoist towers or for mounting derricks without first determining the load and stresses.

17. One-fourth inch proof coil-chains are recommended for swinging scaffolds. These scaffold chains are proof tested at 2350#; the safe working load is 1175#. The chains should be tested annually. The workmen on swinging scaffolds shall be protected by a safety belt, attached to a lifeline. The lifeline shall be securely attached, but not to the scaffold.

18. Care must be exercised to insure that all bolts, wing nuts, and clamps are properly installed and tightened.

19. If work is being performed above a scaffold, overhead protection for worker on scaffold must be provided.

20. Erected scaffolds must not prevent or hinder access to safety equipment. HANDLE ALL ROLLING SCAFFOLDS WITH ADDITIONAL CARE.

21. All castor brakes MUST be applied when not in motion.

22. DO NOT RIDE rolling scaffolds while in motion.

23. Removal of all material and equipment from platforms should be accomplished when work is complete. Loose items should be put in a container on the deck while work is in progress.

24. DO NOT attempt to move a rolling scaffold without sufficient help. Watch for overhead obstructions and holes in pads.

25. Drawings and specifications for all frame scaffolds over 125' in height above the base plates shall be designed by a Registered Professional Engineer.

26. Scaffold shall be tied to and securely braced at intervals not to exceed 30 ft. horizantally and 26 ft. vertically. While erecting and dismantling scaffold a minimum of (2) scaffold boards must be used while the deck above is being installed.

27. All planking shall be scaffold grade quality lumber.

28. The Monsanto Contractor Foreman will inspect the scaffold yard monthly for damaged or unsafe items and order replacements.

As in any written procedure, every situation cannot be covered. Each person must inspect each situation to make sure all safety hazards have been corrected.

CBY 3109770

MOBILE LIFTING EQUIPMENT AND INSULATED BUCKET TRUCK WORK NEAR HIGH VOLTAGE LINES

PURPOSE

The purpose of this procedure is to establish safety guidelines for any work in close proximity* to energized power lines and to define responsibilities for special permits that may be required.

SCOPE

This procedure covers all Monsanto personnel and any Contractors performing this function.

RESPONSIBILITY

The following guidelines should be used to assure the safe performance of work in close proximity* to energized power lines and to define responsibilities for special permits.

I. CRANES, CHERRY PICKERS, OR OTHER HEAVY EQUIPMENT

Cranes, cherry pickers, or other heavy equipment which must be operated in close proximity to power lines are the responsibility of the owning department where the work is to be performed. It is the responsibility of the owning department to communicate with the Utilities Department and determine the need for outages and/or special permits. The owning department has responsibility for initiating any special permits which are required. At least 24 hours notice will be required.

II. INSULATED ELECTRICAL BUCKET TRUCKS

Insulated electrical bucket trucks or other equipment to be used in performing electrical work on pole lines which are part of the Plant Electrical Distribution System along Utility right-of-ways are the responsibility of the Utilities Department.

The need for power line outages and/or special permits will be determined by the Utilities Department. Special permits for this type work will be initiated by the Utilities Department. Jobs of this type must be cleared through the Utilities Department prior to the start of the job. Coordination and communication of outages which affects the operation of adjacent units will be the responsibility of the Utilities Department.

CBY 3109772

MOBILE LIFTING EQUIPMENT AND INSULATED
BUCKET TRUCK WORK NEAR HIGH VOLTAGE LINES

III. INSULATED ELECTRICAL BUCKET TRUCKS

Insulated Electrical Bucket Trucks or other equipment to be used in performing electrical work within any Department, outside the Electrical Distribution System right-of-way shall be the responsibility of the Owning Department. Outages and/or special permits will be initiated by the Owning Department.

IV. ANY EQUIPMENT

Any equipment to be used in performing "Hot Work" on electrical systems must be approved according to Plant Procedure SP-024 which applies to any "Hot Work".

GENERAL SAFETY

If lift is to be made near energized power lines after preceeding guidelines have been completed, the following safety rules will apply.

1. Position rig as far from Electrical Distribution lines as particular circumstances will allow.

2. If a crane must operate within contact distance of energized lines, the following precautions must be observed:

   A. Contact Monsanto Instrument and Electrical group to install adequate ground.

   B. Personnel on ground must be kept at least 10 feet away from lifting equipment, and rig must be barricaded on all four sides with barricade tape.

   C. If contact is accidentally made with energized lines, operator must remain on rig until boom is cleared or lines de-energized.

   D. Lifts near energized lines should be made during day light hours, if at all possible.

* Close proximity is defined as during execution of the "planned" lift, no part of boom or load will be within 10 feet of energized power lines. This lift will be executed under a job plan which takes into account conditions or circumstances which could cause this 10 foot rule to be violated. If mechanical failure of load or boom could place either load or boom within 10 foot envelope, the line must be isolated or a safety audit must be performed before approval for job is given.

MOBILE LIFTING EQUIPMENT AND INSULATED BUCKET TRUCK WORK NEAR HIGH VOLTAGE LINES

Original Author: J. B. Green

AUTHOR: R. L. Hockin

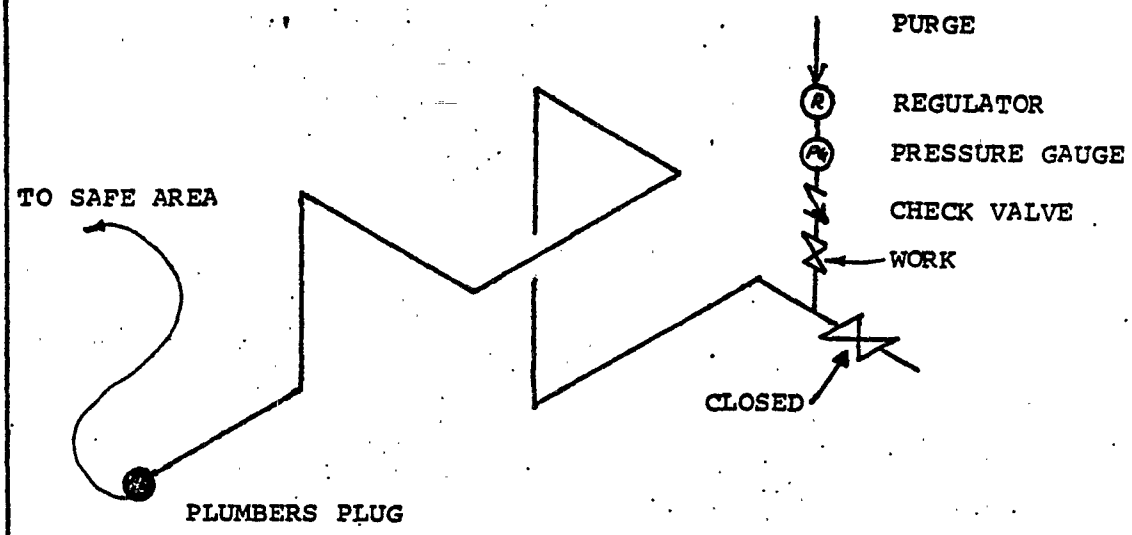
APPROVED BY: H. C. Clark

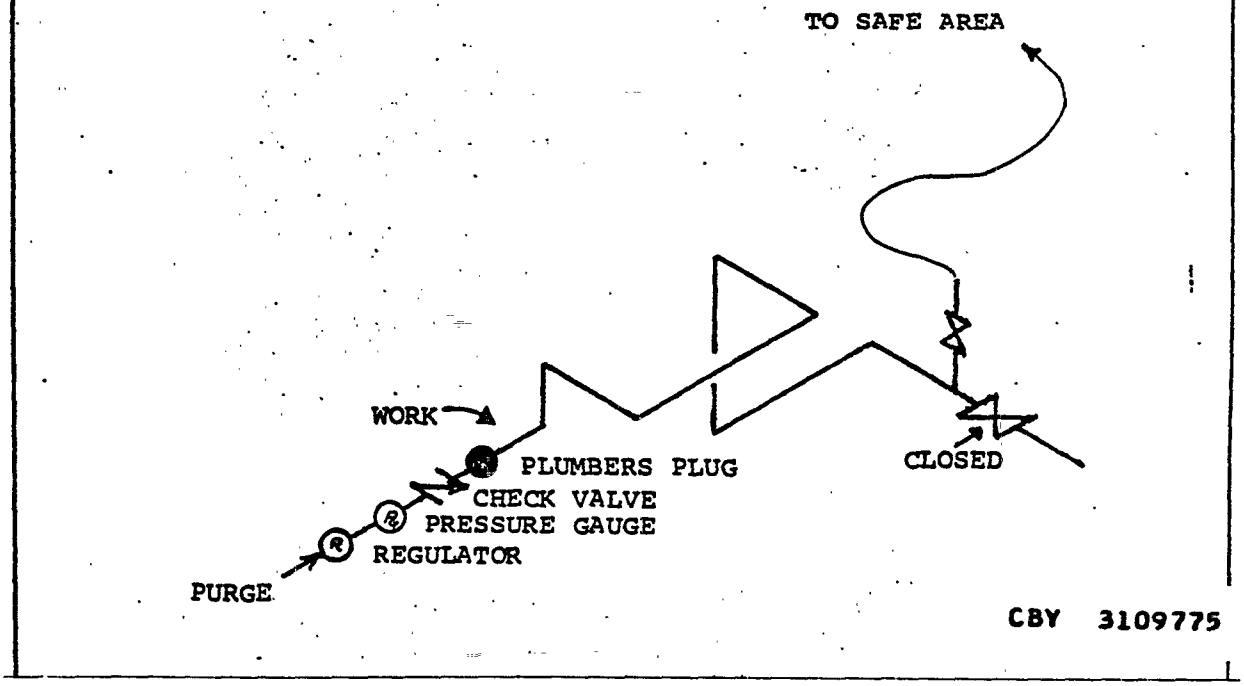
APPROVED BY: G. E. Davenport

CBY 3109774

ATTACHMENT #1

PLUMBERS PLUGS





PLUMBERS PLUGS

D. If a special elastomer is required, contact MTS for specifications.

II. Installation

A. Inside surface of pipe and the surface of the plumbers plug must be free from all foreign matter for proper seating.

B. After inserting the plumbers plug into the pipe, the wing nut must be tightened as much as possible (by hand). The plumbers plug must then be pushed, pulled and moved from side to side (by hand) to insure a proper seat has been made. If the plumbers plug slips or moves, it must be re-tightened. The above procedure shall be followed until the plug does not move.

C. Due to heat transfer through metal, welding shall be executed no closer than 6" from the elastomer of the plumbers plug.

III. Safe Pressure and Regulation of this Procedure

A. Do not exceed 10 PSI on standard plumbers plug.

B. A Fisher-type 630 (or comparable) regulator must be used to regulate pressure.

C. A 0-30 PSI pressure gauge must be used to insure purge flow. If the pressure gauge indicates more than 10PSI, purge valve should be closed and all valves in the system checked for leakage.

D. For high pressure applications, in excess of 10 PSI, A.T.D. W. 1000 PSI plumbers plug must be used.

IV. Purging of Pipe System

A. Inlet of purging media (nitrogen or inert gas) shall be located as close to the work as possible. (See Attachemet 1)

B. Purge flow must be confirmed. Confirmation of flow can be accomplished by:

1. Pressure gauge indication

2. Safety vapor test of exit gases.

CBY 3109776

PLUMBERS PLUGS

PURPOSE

The purpose of this procedure is to define safety guidelines for use of the plumbers plugs. A plumbers plug is an isolation device used on piping systems which are impractical to fully decontaminate.

SCOPE

This procedure covers the selection and installation of plumbers plugs and the use and regulation of the purge gas.

RESPONSIBILITY

It is the responsibility of the Maintenance Foreman and the Monsanto Contractor Foreman to insure that all personnel know and follow these guidelines.

PROCEDURE

I. Elastomer Selection

A. Services in which the standard off-the-shelf plumbers plug (Neoprene Seal) are used are:

Acetone	Paraffin
Acrylonitrile	Phosphoric Acid - 85%
Ammonia, Anhydrous	Snifo-Snifon (Fuel Oil)
Formaldehyde-Formalin	Sodium Hydroxide (10%-50%)
Mercaptan	Tertiary Butyl Catechol
Methanol	Triethylene Glycol
Nitrogen	Water & Steam not over 300°F
Oil, Lube	

Two Suppliers of these plugs are:

1. McMaster-Carr Supply Company, Model 2P6440

2. Texas Mill Supply, Inc., Model A-0900

CBY 3109777

B. All plumbers plugs are to be tagged as to elastomer material. A metal tag attached securely to the plug shall be used.

C. Unless the elastomer material is definitely known, do not use the plumbers plug in any service.

PLUMBERS PLUGS

AUTHOR: Charlie Rutan

APPROVED BY: W. H. Collier
W. H. Collier

APPROVED BY: G E D
G. E. Davenport

CBY 3109778

GUIDELINES FOR WORK ON ENERGIZED ELECTRICAL CIRCUITS

The purpose of this procedure is to establish guidelines that should be followed before working on energized circuits.

DEFINITION

Hot work is generally defined as any action performed on circuits of 277 V to ground or higher (480 3-phase). The use of test equipment on energized circuits is not considered hot work.

PROCEDURE

A. A job requiring hot work will require a Special Fire Permit.

B. The following are situations that are generally classified as hot work:

1. Changing or modifying energized circuit continuity.
2. Tightening of energized connections.
3. Removal of top cover of an explosion proof housing when the primary side of the breaker is still energized or any other situations where a conductive metal is moved in close proximity to an energized circuit.

C. A job plan should be developed by the Maintenance planner which will include the following:

1. Analysis of personnel safety hazards, and equipment required.
2. Identification of risk and communication of adverse consequences to other parties not directly involved who could be affected if the job did not go according to plan.
3. Identification of all other alternate methods to accomplish the job objective.
4. Identification of preventive and continuing actions that would insure a minimum loss to equipment and production if the job does not proceed according to plan.

CBY 3109779

5. A written step-by-step job plan as precautions for insulation of surrounding energized conductors, etc.

RESPONSIBILITIES

A. Maintenance Planner - Development of job plan according to this procedure.

B. Maintenance Foreman - Execution of job plan, except on off-hours where he may also develop the plan. He will also initiate the process of obtaining the Special Permit at least 24 hours before the job.

C. Maintenance Supervisor - Review and approval of the job plan method, preventive and contingency plans, safety considerations and other alternates available.

D. Maintenance Superintendent - Oral approval will signify the work is necessary, the method practical, and the prescribed precautions, when taken are adequate. He determines the need for and approves any other contingency plans.

E. Superintendent, Maintenance - Oral approval will signify that the work is necessary, the method practical, and the prescribed precautions, when taken are adequate. He determines the need for and approves any other contingency plans.

AUTHOR R E Guilliams
R. E. Guilliams

APPROVED BY W. B Collier
W. H. Collier

APPROVED BY G, E Davenport by WHC
G. E. Davenport

CBY 3109780

PLANT-WIDE GAS CYLINDER REGULATOR AND MANIFOLD SAFETY

PURPOSE

The purpose of this procedure is to provide a guide for the handling of vendor supplied gas cylinders, regulators, and manifolds in a safe and proper manner. Every specific use cannot be covered. Therefore, it may be necessary to review a specific case (example chlorine or other toxic gas) for further safety consideration.

SCOPE

This procedure covers the use, storing, inspection, and handling of gas cylinders, regulators and manifolds. This is intended for use with bottled gas cylinders which range in size from those used by the lab and I&E for instrument gases to any gas cylinder used by the plant.

RESPONSIBILITY

It is the responsibility of the department foremen to insure that all people who may use cylinders, regulators, and manifolds are properly trained in this area.

It is Store's responsibility to check all incoming cylinders for:

(1) The identification tag naming the gas contained.
(2) Full, in use, empty tags applied to cylinder.
(3) Obvious visual abnormalities of cylinder.

It is necessary for each person, having a need for this type equipment, to follow the directions carefully.

It will be the responsibility of the department foremen to review this procedure at least annually with their personnel.

PROCEDURE

Handling Cylinders

1. Accept only cylinders approved for use in the interstate commerce for transportation of compressed gas, stamped with DOT or ICC spec identification.

2. Do not remove or change numbers or marks stamped on cylinders.

CBY 3109781

PLANT-WIDE GAS CYLINDERS
REGULATOR, AND MANIFOLD SAFETY

3. Combined storage of oxygen and flammable gas cylinders should be avoided where practical. When necessary to store 25 cylinders or more of a flammable gas, at least 25' of clearance shall be maintained to buildings housing personnel, cylinders of oxygen, or items which should be protected from a fire exposure. In cases where the required clearance cannot be realized, the presence of a separating fireproof partition will suffice. Cylinders kept on oxygen and acetylene cutting racks are specifically excepted.

4. Acetylene and liquified flammable gas cylinder shall be stored with the valve up.

5. To prevent rusting, cylinders stored in the open should be protected from direct contact with the ground.

6. Cylinders should not be stored near sources of heat, such as radiators and furnaces.

7. Cylinder storage should be planned so that cylinders will be used in the order in which they are received from the supplier.

8. Empty, in use, and full cylinders should be plainly identified to avoid confusion.

9. Group together cylinders which have held the same contents.

10. Storage rooms for cylinders containing flammable gases should be ventilated to prevent the accumulation of explosive concentration of gas. No source of ignition should be permitted.

11. Cylinders should be stored with the valves closed and the protection caps in place.

12. Cylinders should be stored in such a fashion as to prevent accidental tipping over of the cylinders.

Using Cylinders

1. Hoses are not permitted in any bottled gas system except as a temporary connection from a low pressure system (200 psig or less).

CBY 3109783

PLANT-WIDE GAS CYLINDERS
REGULATOR, AND MANIFOLD SAFETY

Close the valve and take the cylinder outdoors, well away from any source of ignition. A regulator attached to the valve may be used temporarily to stop a leak through the valve seat. If the leak occurs at a fuse plug or other safety device, take the cylinder outdoors, well away from any source of ignition, open the cylinder valve slightly, and permit the flammable gas to escape slowly, tag the cylinder plainly. Post warnings against approaching with sources of ignition. Promptly notify the supplier and follow his instructions for returning the cylinder.

12. Do not permit sparks, molten metal, electric currents, excessive heat or flames to come in contact with the cylinder or attachments.

13. Never use oil or grease as a lubricant on valves or attachments of oxygen cylinders. Keep oxygen cylinders and fittings away from oil and grease and do not handle such cylinders or apparatus with oily hands, gloves or clothing.

14. Never use oxygen as a substitute for compressed air in pneumatic tools, in oil preheating burners, to start internal combustion engines, or to dust clothing. Use it only for the purpose for which it is intended.

15. Never bring cylinders into tanks or unventilated rooms.

16. Do not fill cylinders, attempt to mix gases in a compressed gas cylinder, or to use it for purposes other than those intended by the supplier.

17. Check valves are to be installed on both the fuel gas and O_2 cylinders of single welding units at the point where the torch hose connects to the pressure regulator it is also adviseable to install check valves on the hoses at the point where the torch is connected.

Regulators

1. High pressure cylinders (Above 200 PSIG) which are used inside building must have a pressure regulator screwed directly into the cylinder outlet valve.

CBY 3109785

PLANT-WIDE GAS CYLINDER
REGULATOR, AND MANIFOLD SAFETY

d. Release the pressure-adjusting screw on the regulator to its limit -- turn it counter-clockwise until it is loose.

e. Open cylinder valve slightly to let the hand on the high pressure gauge move up slowly. On an oxygen cylinder, gradually open the cylinder valve to its full limit, but on an acetylene cylinder, make no more than 1 1/2 turns of the valve spindle.

8. Regulators provided should be designed to withstand full cylinder pressure upstream and downstream of the regulator or the downstream side of the regulator must be provided with a suitable relief valve. It should be noted that the regulator can malfunction and full cylinder pressure can be experienced on the low pressure side of the regulator and the downstream system. If the downstream side of the regulator or the downstream system cannot withstand full cylinder pressure relief provisions must be made.

.9. Regulators and associated gauges and relief valves should be maintained in excellent working condition at all times. All regulators must have inlet and outlet pressure gauge.

10. The pressure adjusting screws should always work freely. If it is necessary to force the adjusting screw, the regulator should be replaced or repaired.

Manifolds

Bottled Gas Systems in Building

1. Low pressure manifolds (200 PSIG or Lower) for gases which are not toxic are permitted in all laboratory or experimental areas. However, piping access should follow a path outside of office areas or areas which normally house people.

2. High pressure manifolds (Above 200 PSIG) for gases which are not toxic are permitted in experimental or out buildings which are physically detached from office areas or areas which normally house people. High pressure manifolds are permitted in laboratory or experimental areas which are housed with offices or areas which normally house people only if piped directly into a hood or enclosed ventilated area.

CBY 3109787

PLANT WIDE GAS CYLINDER, REGULATOR, AND MANIFOLD SAFETY SPECIAL CONSIDERATIONS

Breathing Air

1. The Production Department clerk ordering "breathing air" will be responsible for specifying "breathing air" as opposed to "compressed air" when ordering cylinders.

2. Stores' receiving clerk will be responsible for notifying the Safety Department of the delivery of an air cylinder that is to be used as "breathing air".

3. The Safety Department will be responsible for testing each incoming "breathing air" cylinder for:

    1. Oxygen Content
    2. Flammability
    3. Odor
    4. Condition

    Safety will affix a tag certifying the quality. No cylinder of (breathing air) is to be used without Safety Department identification label.

4. When outside contractors are using their own breathing air, the Monsanto foreman directing the job must call upon the Safety Department to test their cylinders for oxygen content.

Fire

If a gas cylinder leak should be ignited, a spray of water should be applied to cool the cylinder. Cylinders exposed to a fire should be cooled with a spray of water or removed from the area. It is not necessary to extinguish the burning cylinder until the cylinder gas pressure is practically depleted. The burning (or leaking) cylinder should be carried to a remote location in an upright position and allowed to empty.

Identification

No cylinder will be accepted by Stores or Raw Material Section unless identified with appropriate markings.

No employee will use any cylinder from any source without proper identification.

CBY 3109789

PROCUREMENT AND HANDLING OF RADIOACTIVE MATERIALS AND X-RAY PRODUCING EQUIPMENT

PURPOSE

This procedure outlines requirements for procuring and handling radioactive materials and x-ray producing equipment.

POLICY

Procurement and handling of radioactive materials and x-ray producing equipment will conform to the Texas Regulations for Control of Radiation.

LICENSING

Authority to possess and use radioactive materials and x-ray producing equipment is granted to Monsanto Company, Texas City, by the State of Texas. The "Texas Regulations" require the naming of a Radiation Safety Officer (RSO), and of the principal users (Isotope Committee) of the materials in application for radioactive material licenses.

Members of the Isotope Committee are as follows:

Radiation Safety Officer - John E. Fox - Loss Prevention Department, Texas City; 1st alternate, Royal Benson; 2nd alternate, Frank Bryant.

Chocolate Bayou Radiation Safety Officer - James C. Edwards; first alternate, Jackie Gaul.

RESPONSIBILITIES

Persons using radioactive materials or x-ray producing equipment or owning Departments of nuclear devices responsible for knowing and complying with the safety requirements applicable to their use.

The RSO is responsible for assuring that Monsanto meets its obligations to the State for the safe and proper handling of radioactive materials and x-ray equipment at Texas City and Chocolate Bayou.

The Isotope Committee is responsible for ordering the materials and for training and supervising others in their use.

The Chocolate Bayou Radiation Safety Officer (RSO) is administratively responsible for monitoring the presence, storage, and use of radioactive materials and x-ray equipment at the Chocolate Bayou Plant.

The RSO will review, approve, and monitor activities that require plant personnel to handle radioactive materials or x-ray equipment.

PROCUREMENT AND HANDLING OR RADIOACTIVE MATERIALS AND X-RAY PRODUCING EQUIPMENT

MTS (Night Superintendants on off-hours) will arrange for the services of contract radiographers making equipment inspections and insure compliance with this procedure.

The Maintenance Contractor Foreman will insure that radiographers reporting to prime contractors comply with this procedure.

The CED Construction Engineer will insure that contract radiographers working on CED Projects comply with this procedure.

Stores Shipping and Receiving Clerk is responsible for notifying the RSO upon the arrival or shipping or radioactive materials.

PROCEDURE

A. Procurement

1. Requests for radioactive materials or x-ray equipment will be directed to the RSO. He will arrange for the materials thru the Texas City RSO.

2. The Texas City RSO will obtain the materials and be responsible for monitoring their handling until receipt by the Chocolate Bayou RSO is confirmed.

3. Material received at the plant shall not be opened or removed from Stores until checked by the RSO.

4. The Chocolate Bayou RSO will log-in radioactive material entering the plant and the location stored. He will log material out of the plant and monitor their handling until received by the Texas City RSO.

B. Storage

1. The RSO will assure that radioactive materials are stored in properly labeled and shielded containers secured against unauthorized access or removal.

2. Sealed sources shall be shielded to reduce the radiation level to a maximum of 10 mr/hr at the surface and a maximum of 5 mr/hr at 12 inches.

CBY 3109792

PROCUREMENT AND HANDLING OF RADIOACTIVE MATERIALS AND X-RAY PRODUCING EQUIPMENT

C. Handling and Use

1. Use of radioactive materials for plant tests in operating units require approval by the RSO.

2. Personnel using radioactive materials or x-ray producing equipment shall have been trained by the RSO, or a member of the Isotope Committee.

3. The RSO will log radioactive material in and out of storage including the name of the person responsible for their use and the proximate location of use.

4. The person using the materials will conform to the job plan and maintain physical custody of the materials until they are returned to storage.

5. Sealed sources used in fixed devices shall be installed, placed in operation, or removed only with the approval of the RSO.

6. Vessels using sealed sources may not be entered until the source holder has been locked in the shielded position or removed. The owning department is responsible for maintaining this control. It may be necessary to call the RSO or Safety to verify that the shield is in the proper position.

7. For x-ray equipment owned and/or operated by Monsanto, the installation, operation and repair plans, and any modification to the installation must be approved by the RSO.

8. No repairs or attempted repairs shall be made to nuclear sources. If there is doubt as to whether or not a source is performing properly, contact the RSO.

Added - 9. All radioactive catalysts must be handled in accordance with workplans which have been approved by the RSO.

D. Contract Radiographers

1. Contract radiographers must follow the requirements of the "Texas Regulations" including the wearing of film badges and dosimeters in pocket chambers. The RSO will maintain up-to-date copies of the "Texas Regulations".

2. Radiation areas must be posted and barricaded off in accordance with the "Texas Regulations".

3. The Monsanto Supervisor responsible for the contract radiographers performance will assure that the contractor is knowledgeable of safety precautions and that they are followed.

4. The Truck Gate Security Officer will notify the Safety Department upon the arrival of contract radiographers as to the contractor's name and location of the work. He will also report departures from the plant.

5. The Monsanto Supervisor will advise the Safety Department prior to changing locations of contract radiographers from one operating area to another.

6. The Monsanto Supervisor will notify operating departments within 600 feet of the actual work of the risk of stray radiation interfering with process instruments.

7. Source strength shall be limited to maximums of 50 curies for Ir 192 and 35 curies for Cobalt 60. Use of stronger sources will require RSO approval.

8. Sources of radiation should be removed from the plant any time the contract personnel leave. The Monsanto Supervisor must obtain Safety Department approval to leave a source in the plant in the radiographers absence.

E. Radiation Monitoring

1. The Safety Department shall maintain a map showing the location of all radiation detectors, sealed sources in fixed devices.

2. If radioactive materials are involved in a fire or explosion a radiation survey will be made by the Safety Department or RSO before personnel will be permitted to begin investigative and restoritive activities.

3. Film badges shall be worn at all times by personnel handling radioactive materials or x-ray equipment and by any other person likely to receive doses of radiation in excess of that permitted in part 21.105 of the "Texas Regulations". These badges will be issued by and returned to the Industrial Hygiene Department.

4. Areas using unsealed radioactive materials shall be surveyed as necessary by the person using the material and shall be monitored semi-annually by the RSO.

PROCUREMENT AND HANDLING OF RADIOACTIVE MATERIALS AND X-RAY PRODUCING EQUIPMENT

5. All fixed devices using sealed sources and all x-ray producing equipment shall be surveyed by the RSO for radiation profile upon installation and semi-annual thereafter.

6. All sealed sources shall be "wipe tested" at six month intervals by the RSO.

Added - 7. All catalyst burial sites will be surveyed, at six month or less intervals, by the RSO.

F. Disposal

Revise - 1. The disposal of all radioactive sources will be handled by the RSO. (See attachment #1)

Added - 2. The burial of radioactive catalyst waste will be handled in an approved burial site, with the guidance and approval of the RSO.

Added - 3. The Environmental Control Department has the responsibility for the upkeep and maintenance of the burial sites, according to the Texas Regulations for Control of Radiation.

G. Records

1. Copies of purchase orders and receipts of all radioactive materials and x-ray equipment.

2. Monthly total of each radioactive material in the Texas City and Chocolate Bayou Plants.

3. Disposal records.

4. Radiation profile on each fixed device utilizing a sealed source and x-ray producing machine taken immediately after installation.

5. Location of radioactive materials and x-ray equipment.

6. Film badge records.

7. Semi-annual wipe test of all sealed sources.

PROCUREMENT AND HANDLING OF RADIOACTIVE MATERIALS AND X-RAY PRODUCING EQUIPMENT

8. Semi-annual monitor survey of x-ray equipment.

9. Investigation reports of radioactive spills or excess personnel exposure to radiation.

Added - 10. Location and survey results of radioactive waste burial sites.

The Safety Department at Chocolate Bayou will maintain the log of receipts, storage, use, and return of radioactive materials as indicated above.

AUTHOR: J C Edwards

APPROVED BY: Allsey
Safety Department

APPROVED BY:

APPROVED BY:

PROCUREMENT AND HANDLING OF RADIOACTIVE MATERIALS AND X-RAY PRODUCING EQUIPMENT

ATTACHMENT #1

RADIOACTIVE MATERIALS DISPOSAL REQUEST

Date_____ Location of Material_____

Approximate volume and composition_____

Curie activity of each radioactive element_____

External radiation_____

Container to be saved or destroyed_____

Disposal requested by_____

FINAL DISPOSAL

Place of disposal_____

Method of disposal_____

Disposed by_____

Date_____ Radiation Safety Officer_____

CBY 3109797

CRANE BASKETS, PERSONNEL TRANSPORTATION

PURPOSE

This procedure defines the conditions under which crane baskets may be used for personnel transportation and the safety precautions which must be taken.

SCOPE

This procedure applies to all Monsanto and contractor personnel performing work for the Maintenance Department.

DISCUSSION

Temporary access facilities available at Chocolate Bayou include portable ladders, stairs, platforms, scaffolds, cherry picker baskets and crane baskets. The crane basket may be used for personnel transportation only when other more conventional means are not practical. Examples are as follows: Where other means of access provide a greater hazard than crane basket utilization or where economics and/or timing have a significant safety or financial impact.

PROCEDURE

The following safety precautions must be taken before personnel are permitted to ride or work from crane baskets.

A Safety Audit will be conducted prior to execution of work which is to include completion of the suspended personnel work basket authorization form (Attachment #1).

Personnel will be transported only in crane baskets designed for that purpose and approved by Monsanto Personnel. (Engineering, Maintenance and M.T.S.)

Riding on loads is strictly prohibited. Exceeding basket design load is strictly prohibited.

A tag line/lines will be used. (2)

A test lift is required consisting of four (4) times the intended load including the swing radius.

If a hydraulic crane is being used, the boom hoist cylinders and boom extension, or crowd cylinder, should be protected by pilot operated check valves. This will protect against sudden loss of fluid if a hydraulic hose should fail.

CBY 3109798

CRANE BASKETS, PERSONNEL TRANSPORTATION (CONT'D)

RESPONSIBILITIES (CONT'D)

The Maintenance Supervisor or Monsanto Contractor Supervisor will assure himself that no practical means of temporary access, other than the crane baskets is available and that the personnel lift will be accomplished safely. He will also communicate the need to use the crane basket to the Maintenance Superintendent.

The department requesting the job will be responsible for initiating the safety audit.

AUTHOR: J. M. Harris
J. M. Harris

APPROVED BY: G. J. Wilbeck
G. J. Wilbeck

APPROVED BY: M. B. Gray
M. B. Gray

APPROVED BY: R. N. Jones
R. N. Jones

CBY 3109800

SUSPENDED PERSONNEL WORK BASKET AUTHORIZATION

I _____ as Maintenance Superintendent do approve the use of a suspended work basket at _____ (LOCATION) on _____ (DATE). The use of the basket will be in accordance with SP-027 for crane baskets suspended from cranes.

Is there a way less hazardous? _____

APPROVAL SIGNATURES		
IMMEDIATE FOREMAN	MAINTENANCE SUPT. (GENERAL)	M.T.S.
MAINTENANCE SUPERVISOR	SAFETY	MAINT. ENGR.

OPERATOR's NAME		BADGE NUMBER	
EQUIPMENT NUMBER	MAKE	MODEL	CAPACITY
SERIAL NUMBER	DATE OF LIFT	TIME OF LIFT	
WEATHER CONDITIONS		SOIL CONDITIONS	
ARE MATS NECESSARY?	ARE OVERSIZED OUTRIGGERS NECESSARY	TOTAL LIFT WEIGHT (Blocks, Shackles, and Lift Devices)	
TOTAL LIFT ELEVATION	TOTAL BOOM AND JIB LENGTH (Total on Machine at Time of Lift)		
WILL JIB ACTUALLY BE USED?	BOOM ANGLE	DISTANCE FROM LOAD CENTER TO CENTER PIN	
MANUFACTURERS RATED CAPACITY FROM CHART WITH THESE PARAMETERS			
TEST LIFT WITH REQUIRED WEIGHT & SWING MADE			
COMMENTS			

CBY 3109801

ORIGINAL ISSUE 6/25/71 By _____	REVISED 9/10/85 By J.M. Harris	PAGE 1 OF 1
	REVEIWED / / By	ATTACHMENT#1

SCRAP MATERIALS DISPOSITION

PURPOSE

The purpose of this procedure is to define the responsibilities and objectives related to the disposition of scrap materials.

POLICY

All unwanted materials classified as scrap and not having any value greater than routine scrap and can feasibly be handled will be made available to Monsanto employees prior to disposition. Additionally, certain materials will be classified as scrap but because of their value potential, will require special handling and disposition; i.e., alloys. These materials will not be offered to Monsanto employees prior to disposal. Further, specific items such as unserviceable vehicles may be deemed as scrap and offered for sale to Monsanto employees.

SCOPE

This procedure applies to the disposition of all materials classified as scrap except those items that cannot be adequately and sufficiently decontaminated (see Safety Procedure 013 for disposal instructions).

RESPONSIBILITIES

The Stores Superintendent will be responsible for the overall operation of the Scrap and Salvage Yard.

Individuals generating the scrap (primarily maintenance foreman and contractor supervision foreman) will be responsible for segregating and delivering the scrap materials to the Salvage Yard. The owning unit will be responsible for the decontamination and tagging (Decontamination Tag, MCB 041B) of equipment that has been in hazardous service prior to delivery to the Salvage Yard.

The Purchasing Agent is responsible for advertising any special scrap, e.g. vehicles, available to employees and for obtaining the best sales price for all scrap materials sold to junk dealers.

The Safety Department (Security Force) is responsible for opening and closing the Scrap Yard when it is opened for employees. They are also responsible for maintaining records of items removed.

CBY 3109802

STATIC GROUNDING & BONDING OF HYDROBLASTING EQUIPMENT AND OTHER PORTABLE EQUIPMENT

PURPOSE

The purpose of this procedure is to establish a method for grounding hydroblasting equipment and other portable equipment to prevent a static build-up.

SCOPE

This procedure covers static grounding of all hydrocleaning equipment and other non-electrical portable or mobile equipment capable of generating static electricity.

RESPONSIBILITY

1. It is the responsibility of the department or contract personnel performing the work or using the equipment to make the ground connections.

2. It is the responsibility of Production Supervision to see that hydroblasting equipment and other portable or mobile equipment capable of generating static electricity is grounded. Production, after checking that ground wires are connected on hydroblasting equipment, will contact the Safety Department for resistance check before work is begun. Other portable or mobile equipment, capable of generating static electricity, that has a ground wire attached will not normally require a resistance check by the Safety Department unless the integrity of the gound is questionable.

3. It is the responsibility of the Safety Department to make a resistance check of all hydrocleaning equipment before work is begun or equipment is put in service. Resistance checks are to be made, at the request of Production, on non-electrical portable or mobile equipment.

4. It is the responsibility of the I&E Department to determine the proper method of grounding this equipment.

PROCEDURE

1. Care should be exercised when connecting and disconnecting ground and bonding connections as it is possible that a spark could be

generated when they are connected or disconnected. The person making the connect or disconnect should be sure that there are no combustibles in the area where the connections are to be connected or disconnected. A statement should be included on the Fire & Entry Permit that grounds are going to be connected since connecting the ground could generate a spark.

2. All non-electrical portable equipment, such as air blowers, diesels, pneumatic motors, etc. (excluding hand tools), will be grounded before being used or placed in service. A resistance check is not normally required unless the integrity of the ground is questionable.

3. All hydrocleaning equipment will have the truck grounded. The lance will normally be grounded to the truck thru the steel braid in the hose. The Safety Department will make a resistance check from the lance to the ground. If the resistance is too high or if there is not a steel braid in the hose, the lance is to be bonded to the vessel. (See Attachement)

   NOTE: The bond wires are comparatively large because of mechanical considerations, but a bond resistance of 1 megohm or less is entirely adequate to dissipate the static build-up.

   CAUTION: It appears to be impossible to eliminate all sources of ignition from hydroblasting. The only safe way to eliminate ignition is to eliminate the fuel, air, or both. The water droplets breaking away from the main stream can themselves create sparks.

4. The vessel being hydroblasted shall be grounded. If unsure that the vessel is grounded, contact the I&E Department to check that the vessel is grounded.

References: American Petroleum Institute Bulletin API RP 2015, "Recommended Practice for Cleaning Petroleum Storage Tanks"

American Petroleum Institute Bulletin API RP 2003, "Recommended Practices against Ignitions Arising Out of Static, Lightning and Spray Currents"

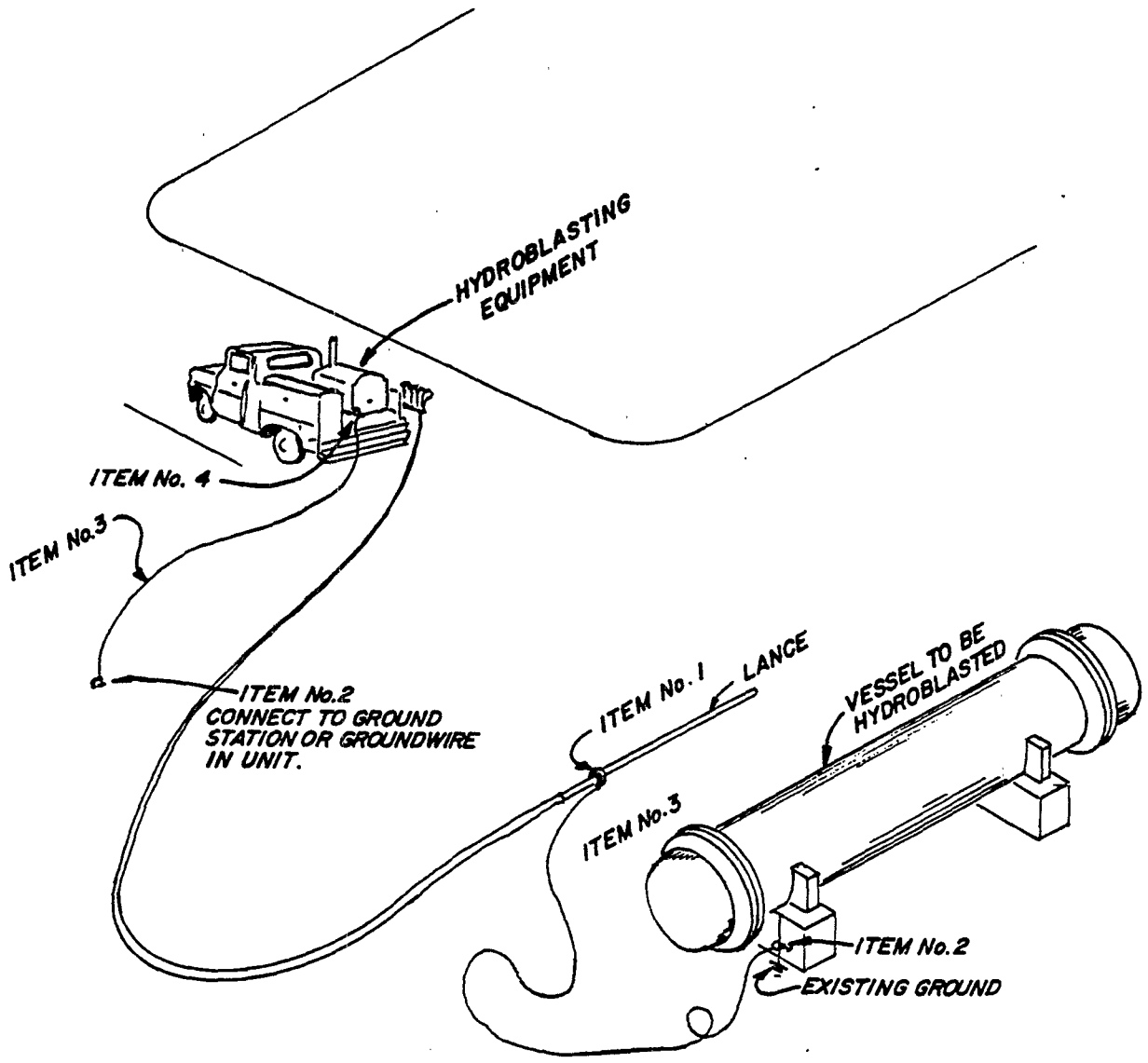
AUTHOR: J. E. Crabtree — J. E. Crabtree

APPROVED BY: G. E. Davenport

APPROVED BY: W. H. Collier

CBY 3109805

ITEM No.	DESCRIPTION
1	T & B CLAMP No. 3847
2	T & B CLAMP No. 31217
3	No. 6 WELDING CABLE (MIN. SIZE)
4	T & B LUG No. 71005



CBY 3109806

HYDROCLEANING

PURPOSE:

The purpose of this procedure is to establish guidelines that must be followed before and during high pressure water cleaning of Plant equipment.

SCOPE:

This procedure shall apply to all In-Plant, (including Salt Dome), high pressure water cleaning.

POLICY:

All high pressure water cleaning nozzles are spark-producing tools requiring a Fire Permit to operate. All high pressure water cleaning equipment shall be inspected and tested periodically and written information on the unit's hydrostatic test provided to Monsanto.

DEFINITION:

High pressure water cleaning is generally defined as "hydrocleaning", tube lancing, shotgun blasting and line moling, inclusive.

PROCEDURE:

Request for hydrocleaning will be submitted through the General Maintenance Group or the Night Supervisors.

The execution of hydrocleaing jobs shall be conducted by outside contractors specializing in this type of work who have supplied Monsanto with written information on the unit's (pump, hoses, PSV and piping), current hydrostatic test.

All contractor hydrocleaning equipment shall be tested as a unit in January and July of each year. Each unit shall have a visible metal inspection tag mounted on the unit indicating date and test pressure.

The test pressure shall be 10,000psi, or the unit's maximum operating pressure whichever is less.

CBY 3109807

PROCEDURE (cont'd)

The decontamination checklist (Attachment #1) and the hydrocleaning checklist (Attachment #2) must be completed in order to do the job on a regular Fire Permit.

A "special permit" will be issued if hydrocleaning requires vessel entry by the operator, if applicable items of Attachment #1 and Attachment 2 cannot be completed, or if unusual hazards are associated with a job.

The hydrocleaning equipment (Truck and nozzle) shall be statically grounded as per SP #30.

Prior to the start of hydrocleaning plant equipment, all hoses and fitting shall be inspected to assure they are in good condition. Upon assembly of the hydrocleaning unit, the work area will be cleared of personnel and the pressure brought up on the system slowly to 10,000psi or the unit's maximum operating pressure whichever is less and held for five minutes with no leaks.

Maximum working pressure shall be 2,000 psi for columns and 7,500 psi for all other equipment without approval from Operations and Maintenance manufacturing superintendents.

RESPONDIBILITIES:

Operations: The owning department of the equipment to be hydrocleaned will be responsible to see that;

1. The equipment is ready for cleaning
2. All applicable items on the decontamination checklist are completed
3. The appropriate permits are issued.
4. Any departmental safety precautions have been reviewed with the Contractor and the Maintenance supervisor.
5. The decontamination checklist is completed.
6. The equipment is clean following hydrocleaning by inspection.

Contractor: The Contractor performing the hydrocleaning will be responsible for:

1. Understanding and complying with all the requirements of the hydrocleaning checklist (Attachment #2).
2. The equipment being used to have a dump valve on the nozzle handle that will react in 3/4 of a second or less, a relief valve and pressure gauge at the pump and trigger guards.

RESPONSIBILITIES (cont'd)

3. A qualified and experienced nozzle operator.
4. Testing of equipment at the job site.

Maintenance: The Monsanto Maintenance Supervisor in charge of the hydrocleaning job is responsible for:

1. The general welfare and safety of the Contractor.
2. Insure that the Contractor is in compliance with hydro testing precedure.
3. The signing of all permits required for the Contractor to perform his duties.
4. Insuring that the Contractor understands and complies with all of the requirements on the hydrocleaning checklist.
5. Notifying the owning department when the hydrocleaning job is ready for inspection.
6. Installation of any scaffolding required for hydrocleaning.

AUTHOR: R. D. Brown
R. D. Brown

APPROVED BY: J. S. Hagood
J. S. Hagood

APPROVED BY: G. E. Davenport by N. B. Clin
G. E. Davenport

CBY 3109809

DECONTAMINATION CHECKLIST FOR HYDROCLEANING

This checklist covers all types of hydrocleaning that does not require a vessel entry by the operator, but personal judgement must be used in issuing permits.

EQUIPMENT NO. Date/Int.

1. Equipment is decontaminated, chained, and tagged out. _____
2. For lancing exchanger tube side inlet, outlet line is blinded and vapor tested for flammables. _____
3. For exchanger with CTW on shell side, block inlet and outlet, purge with N_2 and vapor test for flammables. _____
4. For exchanger with hydrocarbons normally on shell side, the inlet and outlet must be blinded and shell side vapor tested for flammables. _____
5. For reboiler with steam on shell side, inlet and outlet blocked, shell purged with N_2 and vapor tested for flammables. _____
6. For reboiler with hydrocarbons normally on shell side, the inlet and outlet must be blinded and shell side vapor tested for flammables. _____
7. Process piping to be line moled must be disconnected or open on one end and blinded at all other connections. _____
8. Piping to be line moled has no pressure from steaming, N_2, or water purgings. _____
9. Piping to be line moled must be vapor tested for flammables at as many points along the line as possible. _____

Any job that cannot comply with all applicable items of this checklist will require a special permit.

CBY 3109810

HYDROCLEANING

CONTRACTOR HYDROCLEANING CHECKLIST

JOB NO. _____ EQUIPMENT NO. _____ UNIT _____

JOB SCOPE _____ FIRE SPILL CODE _____

HYDROBLAST CO. _____ SUPERVISOR _____ DATE _____

THIS FORM IS TO BE FILLED OUT BY CONTRACT SUPERVISOR AND RETURNED TO MONSANTO MAINTENANCE FOREMAN PRIOR TO STARTING JOB.

	DATE/INITIAL
Equipment is decontaminated, chained, tagged out and tested for flammables as verified by operations.	
Nozzle operator experienced	
Contractor, employees shown location of nearest shower/ eyebath.	
Contractor, employees have hard hats, safety glasses or goggles, face shields, rubber boots, slicker suits, and rubber gloves.	
Truck located to minimize ignition source exposure and blockage of fire lanes.	
Hydrocleaning equipment has inspection tag and has been inspected and pressure tested as per SP-31.	
Hydrocleaning equipment has a dump valve on the nozzle handle that will react in 3/4 of a second or less.	
Hydrocleaning equipment is grounded as per SP-30.	
Hydrocleaning truck is chocked.	
Area is barricaded a minimum of 15 ft. and no one is allowed in the area except hydrocleaning personnel.	
BACK SHIELD in place where applicable.	
Scaffolding installed to Maintenance Standards where applicable and verified by Maintenance.	
Contractor employee informed of injury reporting requirements, fire/spill alarm requirements, engines are off if to be left unattended, what permits are required, maximum operating pressures, no lunches in area, no sleeping, no smoking, and any other safety information deemed necessary including tampering with nozzle triggers to prevent automatic closing will not be permitted.	

TESTING AND OPERATION OF FUME HOODS

PURPOSE

To define the procedure to be followed for normal operation and testing the draft of fume hoods.

SCOPE

This procedure outlines the equipment, test procedure, and minimum allowable standards to follow in testing hoods for their proper functioning. Operating guidelines are presented to insure safe performance between inspections. A hood (fume hood) is any forced draft enclosure or vent used to remove fumes or vapors. This procedure does not include exhaust systems used for welding.

RESPONSIBILITIES

Each owning department is responsible for testing, proper operation and repair of their own hoods. The Control Laboratory will assist in initial training of other department personnel in the procedure to be followed for testing hoods. Each department will maintain a written record of their test results. Stores will stock the test labels.

PROCEDURE

1. All hoods in categories B and C below must be checked a minimum of once every three months. Category A hoods twice per year. Hood-owning departments will be responsible for maintaining proper test interval for their hoods. If work being conducted in a hood is suspected of having an adverse affect on the function of the hood motor, testing frequency must be increased.

2. Minimum flow rates for hoods are as follows:

   A. 65 FPM for nuisance materials, i.e., oil bath vent hoods, etc.
   B. 100 FPM for corrosive or moderately toxic materials. This is the typical laboratory hood used for most chemical analyses.
   C. 150 FPM for highly toxic materials. (TLV less than or equal to 10 ppm.) Contact Industrial Hygiene if TLV data are not available.

3. The draft on hoods is checked with an Alnor Velometer Type 3002 (Alnor Instrument Co., Div. of Illinois Testing Laboratories, Inc., Chicago, IL). A velometer will be kept by the Control Lab for use throughout the plant. The PT/OR Lab also has an instrument.

TESTING AND OPERATION OF FUME HOODS

- Work should always be at least 6" from the plane of the sash; optimum worker positioning is 3" from the plane of the sash (9" total separation). Heavy vapors will flow back out of a hood from in front of equipment placed too near the front.
- Strong drafts interfere with air flow patterns into hoods. Air flow from A/C registers, circulating fans, etc. should not blow directly across into the hood opening. Adjacent hoods can interfere with each other's performance.
- Adequate fresh air makeup must be provided for proper operation of any exhaust system.
- Equipment, piping, etc., should not prevent normal closure of the hood door. The door glasses are safety glass and should be available for use as normal shielding or hood closure in case of spill.

AUTHOR: W. W. Klemme

REVISED BY: H. L. Kirkpatrick

APPROVED BY: J. S. Hagood

L. C. Peeler

APPROVED BY: G. E. Davenport

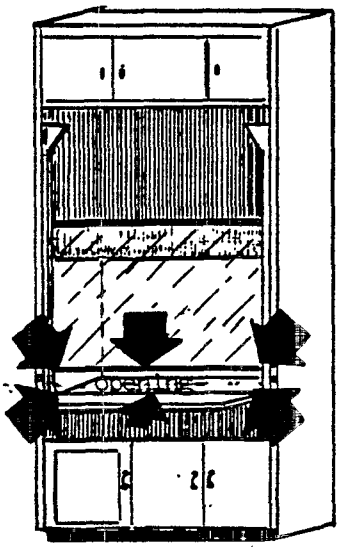
CBY 3109814

HLK/sm

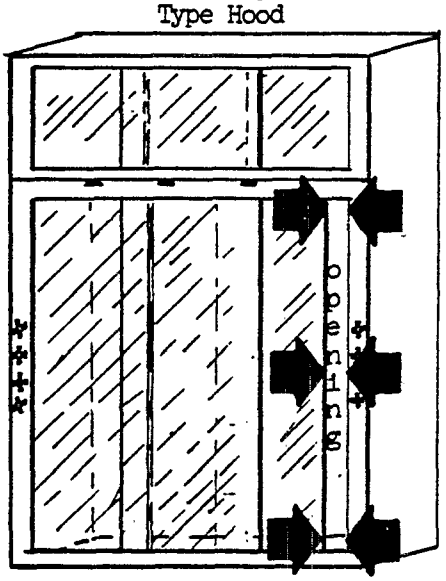
ORIGINAL ISSUE 8/4/77 By W.W. Klemme	REVISED 8-14-81 By H. Kirkpatrick	PAGE 3 OF 3	
	REVEIWED / / By	ATTACHMENT	

TYPE OF HOODS AND POINTS OF TESTING

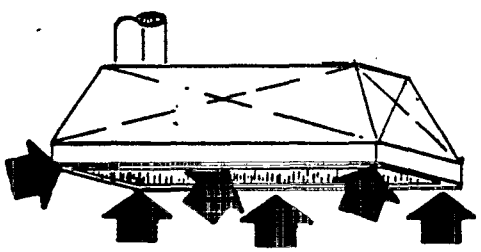
Normal Laboratory Bench Type Hood



Normal Laboratory Walk-In Type Hood



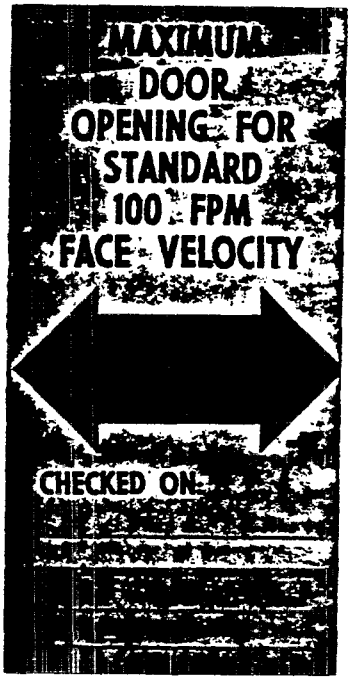
Oil Bath Vent Hood Type



Points of Test

CBY 3109815

ORIGINAL ISSUE 8 /4 /77 By W. W. Klemme	REVISED 8 /14 /81 By H. Kirkpatrick	PAGE 1 OF 1	
	REVEIWED / / By	ATTACHMENT 1	



Note: 150, 100 and 65 FPM labels are stocked in Stores.

CBY 3109817

CORROSION - INSPECTION OF PROCESS EQUIPMENT & TANKAGE

Maintenance is responsible for:

- Providing manpower and equipment to make vessels ready for inspection.
- Execution of any needed repair in accordance with plant standards, codes and accepted engineering practice.

DEFINITION

An inspection is defined as a visual inspection of internal and external surfaces by MTS with supportive non-destructive examination as required.

PROCEDURE

MTS and Operations will agree on what equipment needs periodic corrosion-inspection.

MTS will set inspection frequencies and get Operation's concurrence on frequencies.

A monthly status report on inspections will be issued by MTS to the Operations Planner. This report will serve as a guideline for scheduling inspections and planning shutdowns.

MTS will inspect the equipment, issue inspection reports and update inspection records.

MTS will issue a quarterly report of past due inspections.

FRP Equipment

Fiberglass reinforced plastic (FRP) equipment requires special considerations as outlined in attachments 2 and 3.

Requirements for the use of FRP equipment are:

1. Selection of FRP for new equipment must be approved by MTS engineer.
2. FRP will not be used for
   a. lethal service
   b. flammables stored above ground
3. All FRP equipment design will be reviewed by a Monsanto equipment design specialist.

CBY 3109818

C 001708

CORROSION - INSPECTION OF PROCESS EQUIPMENT & TANKAGE

FRP Equipment Cont'd

4. All FRP equipment design will be purchased per CED standards for FRP equipment.

5. Each new FRP vessel must pass an acoustic emission (AE) test at the fabricator's shop and again in the field after erection. MTS is responsible to conduct the AE tests.

6. Each FRP vessel must pass an AE test and be internally inspected on a regularly scheduled basis (not to exceed two years).

7. Special considerations must be given to FRP vessels located above grade when contents can cause chemical or thermal burns.

AUTHOR: R. E. MCGUIRE

APPROVED BY: H. C. CLARK

APPROVED BY: G. E. DAVENPORT

CBY 3109820

C 001710

SUBJECT: VESSEL AND STORAGE TANK INSPECTION PROGRAM

ABSTRACT

In recent months, at least three serious and costly incidents of equipment failure have occurred -- two in Monsanto and one in another company. These failures highlight the need to reexamine our practices and procedures for inspection of vessels and storage tanks.

The seriousness of the situation requires that every location throughout the corporation take appropraite steps to inspect and monitor existing equipment.

RECOMMENDATIONS

1. A master list of all vessels and storage tanks should be established.

2. Establish an inspection frequency for each equipment item on the master list. The frequency is to be based on all available experience and data; however, the maximum recommended interval between inspections should not exceed that in Appendix D of this Tecfact.

3. The time interval for future inspections should be based on the findings of the current inspection. This frequency and associated activities should be continuously reviewed and altered, based on the findings in each subsequent inspection. The dates for the next inspection should be set after the current inspection and noted on future inspection lists.

4. All equipment on the master list should be inspected in accordance with the established frequency.

5. Equipment failures which could result in personnel injury or fatalities, and the condition of which is uncertain must receive the highest priority for early inspection.

6. Inspection results should be recorded and kept current. A suggested equipment data information sheet/card is attached.

CBY 3109821

7. Deficiencies discovered as a result of inspections must be corrected as necessary. Corrections may consist of repairs, modifications, additional instrumentation and controls or complete replacement.

DISCUSSION

All Monsanto locations have some types of preventive maintenance and safety inspection programs. Monsanto's total experience with catastrophic tank failures for structural or operational use reasons is very good. Recent failure of two water treatment/waste heat recovery systems, the near failure of a diamine storage tank and several other failures in industry, including the sulfuric acid storage tank failure reported by S&PP in November, 1977, indicate the necessity to review and strengthen our inspection programs.

Appendices A, B, and C are forms containing suggested information for this program. Appendix D "Critical Ratings" should assist locations in determining vessel inspection frequencies. It is recognized that formal inspection programs exist in many locations. The attached forms are suggested for use at your location.

The "what kind" and "how to" specifics of inspection methods and techniques and the correction of deficiencies should be established by location technical personnel with assistance of CED specialists, where appropriate, and are not covered in this Tecfact.

Additional information or assistance on the above recommendations can be obtained by contacting George Ostroot, S&PP Manager Property Loss Control.

Questions concerning "what kind" and "how to" should be directed to R. B. Puyear, CED Manager Materials Technology Section.

DISTRIBUTION U.S. & INT'L:
Manufacturing Management, Directors of Personnel, Location Managers, Personnel Managers, Safety Engineers, Division Research Management, Branch Directors, Engineering Managers, CED Construction Personnel Professional and Technical, Supplemental Safety Engineers, S&PP.

Copies for supplemental distribution are available upon request to S&PP, St. Louis.

C 001712 CBY 3109822

ENGINEERING TECHNOLOGY & SERVICES

TECHNICAL BRIEFS

NO: 30-66-244
DATE: December 11, 1979
DIST: List 480 Tab 489

RECOMMENDED PRACTICE FOR USE OF FRP EQUIPMENT

J. R. Middleton
S. I. Proctor

Fiber reinforced plastic (FRP) equipment has been involved in a number of incidents over the past months and years ranging in severity from nuisance to sudden rupture and nearly catastrophic discharge of the contents of a large tank. This situation has been the cause for concern and procedures have been instituted within CED to insure that FRP equipment installed on current or future projects will be properly selected, designed, fabricated and inspected.

However, not all new FRP equipment is installed by CED. A significant number of items are installed by the plants as replacement for existing equipment or as part of small, plant-run construction projects. For this equipment, we recommend that the following procedure be observed. These are similar to the present CED practices:

1. Selection of FRP as a material of construction will be made by or reviewed in detail with a qualified materials specialist at the time of initial materials selection and again if changes are made to the process which affect temperature or composition of the process fluids handled by the equipment. (The CED Engineering Technology Department will provide assistance if requested.)

2. FRP equipment will not be used in those applications involving:

   a. lethal service

   b. flammable materials stored above ground.

3. All FRP equipment designs will be prepared or reviewed by an equipment design specialist. (ACM department in CED will assist if requested.)

C 001713

CBY 3109823

Tech Brief 30-66-244

4. All FRP equipment should be purchased in accordance with current CED standards. Deviations from these standards should require specific approval by FRP equipment design specialists. In those situations where the deviation might affect chemical resistance of the equipment, the concurrence of the materials specialist approving the materials selection should also be required.

5. In addition to the other inspection requirements, all FRP vessels should be inspected by acoustic emission in the fabricator's shop and again in the plant after erection and piping connections have been completed.

6. All FRP equipment should be inspected on a regularly scheduled basis. The schedule should include both visual inspection and acoustic emission test (but not necessarily concurrently). Inspection frequency will be dictated by such factors as severity of service and consequence of failure.

7. When FRP equipment is used with fluids which can cause chemical or thermal burns to personnel, every effort should be made to locate those vessels at grade elevation. If location above grade is needed, protective devices (such as catch-pans) should be used for safety.

For assistance, contact one of the following:

For Engineering Technology support: R. B. Puyear, 694-6660, GC, F4WD

For ACM support: B. G. Earnheart, 694-6067, GO, F3WA

CBY 3109824

FROM (NAME-LOCATION-PHONE): E. N. Brasfield - G4NE - 3707

DATE: June 6, 1979

SUBJECT: FRP Vessels

REFERENCE:

TO: L. D. Shayer - F4WA

cc: H. C. Clark - G4NK
W. Dmytryszyn - G4WA
C. Downing - G4NE
R. W. Flint - G4NE
R. G. Potter - G4NA
F. E. Reese - G4NH
Manufacturing Management Council
MCI Plant Managers

We have now received the June status report on MCI Plants Vessel Inspection Program, which contains the latest update on our FRP Vessel Testing. Based on this input, and other discussions, we are removing our ban on new FRP Vessel installation in MCI facilities, subject to the following conditions.

1. That new FRP Vessels pass tests (acoustical emission, visual and dimensional inspection) at the factory to assure compliance with our vessel specifications prior to shipment. It is our understanding CED has an existing program already in place which does these tests. Testing of vessels purchased by the Plants will be the Plants responsibility.

2. That new FRP Vessels pass a test (acoustical, emission, and visual inspection) after installation, with all piping and equipment connections completed, and just before being placed in service. Obviously this would be a joint CED/Plant effort to be accomplished during water batching.

3. That valving, bypass piping, or other facilities be provided on new FRP Vessels to permit removing them from service for inspection, without incurring a Plant shutdown.

4. That each MCI Plant performs an inspection (acoustical, emission and visual inspection) at least every two (2) years on each FRP Vessel. More frequent inspection may be necessary on more severe service and the Plant will be responsible for evaluating that need.

CBY 3109825

I think with these four steps of control built into our procedures, that FRP Vessels can be safely used.

In addition, the above points reflect the added expense necessary to use FRP Vessels, and I assume you will build this total life cycle cost into your original materials selection decisions, when comparing FRP Vessels with those of other materials.

Earl N. Brasfield

E. N. Brasfield

ENB/lw

CBY 3109826

FILE

MONSANTO PROCEDURE DISTRIBUTION

12/19/83

Plant Manager (Davenport)
Project Director, Mfg. (Frizzell)

General Superintendent (Hagood)
Employee Relations Supervisor (Colbert)
Employee Relations Representative (Watkins)
Benefits Representative (Sebesta)
Management/Development (Steele)

Safety & Loss Prev.Superintendent (Usrey)
Safety Engineer (Brown)
Safety Engineer (Coburn)
Plant Security (Captain)
Industrial Hygienist (Gaul)

Plant Accounting (Wall)
Area Accounting Prop.& Maint. (Jackson)
Data Processing Manager (Attra)

Manager of PT (Yeretsky)
PT Group Supervisor (J.P. Graham)
PT Group Supervisor (Saunders)

General Superintendent (Clark)
MTS Group Superintendent (Ingersoll)
Engineering Superintendent (Ingram)
Projects Group Superintendent (Ramsay)
Projects Group Superintendent (Pickett)
Project Group Superintendent (Marvin)
Engineering Services Superintendent (Moore)
Central Files (2)
General Maintenance Superintendent (Gray)
Maintenance Engineering Superintendent (Fisher)
General Maint.Group Foreman (3)
Stores Superintendent (Ingersoll)
Stores Supervisor (Loving)
Maintenance Shop 4 (2)
Maintenance Shop 5
Maintenance Shop 6
Maintenance Shop 7
I&E Superintendent (Sheppard)
I&E Group Foreman
Contractor Group Foreman
Central Files Supv. (Lyng)
Manager,Mfg.Guest Companies (Jones)
SAB Superintendent (Hamilton)
SAB Group Foreman
SAB Production Planner (SPM)

NTA/IDA Superintendent (Sheridan)
NTA/IDA Group Foreman
NTA/SAB Tech.Superintendent (Ochsner)
NTA/IDA Tech.Supervisor (Wilbeck)
Resins/Formalin/DPO Supt. (Louvet)
Resins/Formalin/DPO Group Foreman
Resins/Formalin/DPO Shift Foreman
Phenol Shift Foreman
Mgr. Terminal Operations (Bramlette)
Prod.Coord.Supt. (Ogens)
Manager,Govern.& Env.Affairs (Pappas)
Environmental Health Superintendent(Marquez)
Supt.Mfg. & Services (Gulliams)
Purchasing Superintendent (Henkes)
Purchasing Assistant (Beall)
Utilities Superintendent (Atkins)
Utilities Group Foreman
Utilities Shift Foreman
Energy,Utilities & Site Dev.Supt. (Blake)
Dist.Operations Supt. (Harlan)
Distribution Group Foreman
Distribution Shift Foreman (2)
Night Supervisors

General Superintendent (Kongable)
AN Superintendent (Murrell)
AN Group Foreman
AN Shift Foreman
Control Lab Superintendent (Meade)
Lab Group Foreman (Faulkner) (2)
Environmental Control Supt.(Silva)
Environmental Control Group Foreman

General Superintendent (McDannold)
Technical Superintendent (Fouts)
Sorbic Superintendent (Steinhauser)
Sorbic Group Foreman
Sorbic Shift Foreman
MR/Projects Manager (Seals)
MHBA Manufacturing (Ceyannes)

MHBA Group Foreman (Menard)
MHBA Shift Foreman
MHBA Process Specialist
CED Superintendent (Ganschinietz)
CED Construction Safety Consultant (Brooks-F2EG)

CBY 3109827

C 001717

Monsanto

FROM (NAME—LOCATION—PHONE) Earl Moore - Chocolate Bayou Plant - Ext. 4300

DATE : August 27,1984 CC:

SUBJECT : PROCEDURE MANUAL REVISIONS

REFERENCE

TO : Attached Distribution

Attached are updates for your SAFETY PROCEDURE MANUAL:

SP-035 is a new procedure. Please insert the attached pages in your manual.

SP-035 HOT TAPPING AND PLUGGING

Pages 1-2 of 2

Attachment #1 - pages 1-5 of 5

Earl

Earl Moore

EDM/sk

Attachments

CBY 3109828

IN - 10 (REV. 8/77)

C 001718

HOT TAPPING AND PLUGGING

PURPOSE

This procedure outlines planning and job preparation requirements for safe hot taps and line plugs performed at Chocolate Bayou.

SCOPE

Hot tapping and/or line plugging is a last resort for connection or isolating a piece of equipment or piping system. This procedure covers all hot tapping and/or plugging including valve bonnet tapping and process or utility systems. Valve packing by tapping and injecting is not included (refer to MSP #10).

PROCEDURE

Introduction

Hot taps and hot line plugging are permissible only as a last resort; i.e., when the time required or expense of isolation and decontamination is unreasonable. A special permit is required according to Safety Procedure SP-019 Fire Permits Vessel Entry/Fire Permits. Check lists (Attachment #1, pages 1-3 of 3) are provided to assure pertinent questions are answered and due consideration is given to back-up drills, cutters, etc.

RESPONSIBILITIES

Requestor

The Operations Planner, with the assistance of the Maintenance Foreman, is responsible for specifying department number, line or equipment number, process conditions, and justifications for hot tapping or hot plugging.

Design Engineer

Engineering responsibility includes design of nozzle and its support, valve section and specification of test pressures, and method of testing media. Special consideration must be given to testing media due to parent wall temperature and thickness.

CBY 3109829

Materials Technology

The MTS representative will review and determine materials of construction, hot tap location and wall thickness. MTS will also specify welding procedure. The Design Engineer and MTS Engineer will make joint decisions concerning X-raying of the hot tap valve and any other special testing or inspection procedure.

C 001719

HOT TAPPING AND PLUGGING DATA LIST

I. REQUESTOR DATA RESPONSIBILITIE'.

Data Responsibilities Operations Representative _____

Date _____, Dept. No., _____, Process _____

Max/Min Pressure _____/_____, Max/Min Temp _____/_____

Size of Hot Tap Required _____ Line No. _____

Why is this hot tap/plug the efficient way to perform this work?

_____

_____

_____

_____

_____

Note: Please attach a Polaroid snap shot of desired hot tap area.

SAFETY EQUIPMENT NEEDED

(1)	Fire Extinguisher	[ ] Yes	[ ] No
(2)	Radio Communications	[ ] Yes	[ ] No
(3)	Fresh Air Mask	[ ] Yes	[ ] No

POTENTIAL PROBLEMS

(1) Loss of Coupon - Action to Take: _____

_____

(2) Burn through during welding - Action to Take: _____

_____

(3) Metal shaving in line and/or valve - Action to Take: _____

_____

(4) _____ CBY 3109831

HOT TAPPING AND PLUGGING DATA LIST

Repad Details: [ ] No, ID = _____, OD = _____, Thickness _____

Can a weld-o-let be used? [ ] Yes [ ] No

Split Tee: [ ] No, ID = _____", t= _____",
Length = _____"

Type of Flange on Split Tee _____

Valve Specs: Spec. No. _____, Size _____

Flange _____, Rating _____

Type _____, Size _____

Valve intergity assured by _____
name of MTS tech.

Valve intergity assured by [ ] X-Ray [ ] Dye check

[ ] Ultrasonics [ ] Visual inspection

Tapping Machine Clearance: See Drafting Manual

SAFETY AUDIT

IV. Safety Audit [ ] Yes Date _____

Special precautions required: _____

_____

_____

_____

_____

V. Test procedure and media specified by engineering and MTS. Where possible the nozzle should be filled with mineral oil during hot tapping.

CBY 3109833

HOT TAPPING AND PLUGGING CHECK LIST

VII. FOREMAN DATA FOREMAN _____

Before Tapping Begins

Special Scaffold Required	[ ] Yes	[ ] No
Is Backup Cutter On Hand	[ ] Yes	[ ] No
Is Backup Pilot Drill On Hand	[ ] Yes	[ ] No
Does Pilot Drill Have Two "U" Pins (Alum)	[ ] Yes	[ ] No
Are "U" Pins Of Right Material & Size	[ ] Yes	[ ] No
Is Backup "U" Cups (Packing) On Hand	[ ] Yes	[ ] No
Confirmed Pilot Drill Is Not Too Long	[ ] Yes	[ ] No
Confirmed Cutter Will Pass Through Valve	[ ] Yes	[ ] No

VII. Problems Encountered During Tap Plugging

_____

_____

_____

_____

_____

(Send these three sheets completed to MTS)

AUTHOR: J. C. Usrey 7/2/84

APPROVED: J. S. Hagood

APPROVED: G. E. Davenport

CBY 3109835
C 001725

RESPIRATORY PROTECTION PROGRAM

PURPOSE

To establish a Respiratory Protection Program which will set overall objectives and policies for the selection, maintenance, training and use of all respiratory protective equipment at Chocolate Bayou Plant.

SCOPE

This procedure covers respiratory protective equipment for both normal and emergency situations.

POLICY

In the control of occupational exposure to air contaminated with harmful gases, dusts and fumes, the primary objective shall be to prevent atmospheric contamination. This shall be accomplished as far as feasible by accepted engineering controls and good work practices. When effective engineering controls are not feasible, or while they are being initiated, appropriate respiratory equipment shall be used.

The company will provide respiratory protection equipment which is applicable and suitable for the purpose intended, when such equipment is necessary to protect the health of the employee.

Individuals who need towear a breathing protection device in the performance of job duties must be clean shaven in the area between the sealing surface of the respirator and the face.

PREMISE FOR RESPIRATORY PROTECTION PROGRAM

The following are the basic premises for an acceptable Respiratory Protective Program:

1. Written departmental operating procedures will define the proper selection and use of respiratory protective equipment. Selection will be based on:

   a. Nature of hazardous operation.

   b. Type and concentration of air contaminants.

   c. Period of time for which protection must be provided.

   d. Functional and physical characteristics of the protective device.

CBY 3109836

RESPIRATORY PROTECTION PROGRAM

2. Users should be adequately trained in the use and limitation of the protective equipment. Training will include information presented in Attachment II (attached).

3. Where practical, respirators will be assigned to an individual. These routinely used respirators must be cleaned regularly, inspected before each use, and repaired as necessary to insure proper protection.

4. Respiratory equipment must be stored in convenient, clean, sanitary locations.

5. There should be regular inspections and evaluations to determine the continued effectiveness of the respiratory protection program.

HAZARDS

The classification of breathing hazards and recommended protective equipment is presented in Table I (attached).

RESPONSIBILITIES

Respirator Fitting:

1. The purpose of any protective mask is to isolate the wearer from the surrounding atmosphere, by providing a leak-tight seal between the mask and the face. To insure the best possible opportunity for a good face piece to face seal, all employees who are required to wear respiratory equipment, must be free of facial hair protruding into the sealing portion of the respirator.

   NOTE: A fit test will not be conducted on anyone not meeting this requirement.

User Responsibilities:

1. The user must test for fit each time it is put on.

2. The user must check for fit by the following methods:

   a. Positive Pressure Test: Close the exhalation valve and exhale gently into the face piece. The slight positive pressure can be built up inside the face piece without any evidence of outward leakage of air at the seal. For most respirators, this method of leak

CBY 3109837

C 001727

RESPIRATORY PROTECTION EQUIPMENT

testing requires that the wearer first remove the exhalation valve cover and then carefully replace it after the test.

b. Negative Pressure Test: Close off the inlet opening of the canister or cartridge(s) by covering with the palm of the hand(s) or by replacing the seal(s). Inhale gently so that the face piece collapses slightly and hold the breath for approximately 10 seconds. If the face piece remains in its slightly collapsed condition and no inward leakage of air is detected, the fit of the respirator is considered satisfactory.

c. Manufacturer's Instructions: Follow the directions provided by the respirator manufacturer.

d. Movement Check: The employee using the respirator should also turn his/her head from side to side and up and down to ensure that the respirator is sealed and will not become loose during wear.

3. User must wear the respirator as originally designed:

   a. All functional parts must be in place and worn in appropriate positions.

   b. All straps shall be secure.

   c. Modification to the respirator straps shall not be made.

4. If special glasses are issued for use with respirators, they will be used in fit testing.

5. Dentures may seriously affect the face piece fit and therefore should be worn during fit testing and use.

Departmental Supervision is responsible for:

1. Providing written operating procedures for selection and use of breathing protection.

2. Insuring adequate breathing equipment is provided for all situations requiring its use within that department.

3. Proper storage, identification and inspection of the equipment in the department.

RESPIRATORY PROTECTION PROGRAM

4. Insuring personnel in their department are adequately trained. A detailed training and fitting guideline is presented in Attachment II.

5. Maintaining records of training (name, date, type of equipment).

Industrial Hygiene Department is responsible for:

1. Specifying proper equipment.

2. Providing Stores with a list of approved equipment for purchase.

3. Training supervision in the use of respiratory equipment.

4. Inspections and evaluations to determine effectiveness of Respiratory Protection Program.

Safety Department is responsible for:

1. Training supervision in the use of respiratory equipment.

2. Training of new employees.

3. Conducting Quantitative Fit Testing.

Stores is responsible for:

1. Maintaining an adequate supply of approved respiratory equipment.

2. Providing services for collection, cleaning, repair, repackaging, restocking of respirators as required.

PROCEDURES

1. Requirements to Obtain Equipment

Non-routine use:

a. When a need has been established, the using department will complete a respiratory equipment request form (Attachment I).

b. The completed request will be reviewed by the Industrial Hygiene and/or Safety Department for approval.

c. The approved form can then be taken to Stores, where the required equipment will be provided.

CBY 3109839

C 001729

RESPIRATORY PROTECTION EQUIPMENT

Personal Issue for Routine Use:

a. Departmental supervision in consultation with Industrial Hygiene Department will determine need, type and numbers of equipment needed.

b. As specified by Industrial Hygiene, Stores will stock the appropriate equipment.

c. Department supervision will return used respirators and obtain new ones at least once per year (as per schedule in Attachment III) or more frequently if needed. Broken or malfunctioning respirators can be turned in to Stores for a replacement at anytime.

2. Procedures for Use of the Various Kinds of Breathing Protection

Following are listed the various types of devices currently in use in the plant and procedures for their use. Any new applications should be carefully considered and selection should be made only after consultation with Industrial Hygiene and Safety Departments.

a. Self Contained Air Mask Systems (15 and 30 minute MSA Air Pacs).

THIS EQUIPMENT IS INTENDED FOR SHORT-TERM EMERGENCY WORK IN CONTAMINATED ATMOSPHERES (i.e. ATMOSPHERES WHICH IRRITATE OR POISON THROUGH THE SKIN, SUCH AS HCN, CONCENTRATED AMMONIA, HF, ETC.). THE 30 MINUTE UNIT IS APPROVED FOR USE WITH THE VAPOR SUIT. THE 15 MINUTE UNIT IS FOR SHORT DURATION WORK BUT HAS A LIMITED AIR SUPPLY NOT ADEQUATE FOR VAPOR SUIT USE.

1. The Safety Department has the responsibility to inspect and maintain the 30 minute MSA air mask. The owning department will inspect and maintain other respiratory protective equipment.

2. The owning department will train on this equipment at least once per year. The Safety Department will provide training aids and assistance in this training effort.

b. Escape Masks

1. Only Robertshaw (formerly Lear-Siegler) self contained, pressurized air unit with a hood shall be used as an escape mask.

CBY 3109840

C 001730

RESPIRATORY PROTECTION EQUIPMENT

2. The owning department will inspect this equipment weekly.

3. The owning department will train on the proper use of this equipment at least once per year.

c. Supplied Breathing Air Systems

1. Monsanto Maintenance Breathing Air System (Portable Manifold)

a. The Maintenance Department is the owner of this system and has the responsibility for its use and maintenance.

b. The Safety Department shall be contacted when it is to be used, to insure that the using personnel have been trained in its use.

NOTE: ONLY BOTTLED BREATHING AIR THAT HAS BEEN VERIFIED AND TAGGED BY THE SAFETY DEPARTMENT TO CONTAIN 20.8% OXYGEN SHALL BE USED IN THIS SYSTEM.

(1) The Safety Department must be notified when breathing air is brought into the plant, both for Monsanto and contract personnel.

(a) They will verify the oxygen content to be 20.8%.

(b) They will then place a dated and initialed tag on the bottle.

(2) Stores will notify the Safety Department when breathing air is brought into the plant through normal deliveries.

(3) Maintenance or CED supervision will notify the Safety Department when breathing air is brought into the plant by an outside contractor.

2. Air Compressor Systems

THE PLANT COMPRESSED AIR SYSTEM MUST NEVER BE USED FOR BREATHING AIR SUPPLY.

CBY 3109841

RESPIRATORY PROTECTION EQUIPMENT

a. The only air compressor systems for breathing air in this plant are:

(1) Fixed system in the SAB department.

(2) Portable breathing air compressor system used in sandblasting. The air compressor must be of the type certified for human consumption or have the required safety features as required by federal standards (OSHA Standards, 1910.134).

d. Air Purifying Respirators

1. Chemical Cartridge Respirators (full face and half mask respirators)

a. A cartridge type respirator is worn generally when there is a possibility of exposure to a very light concentration of a harmful or irritating vapor. Cartridge type respirators should be limited to use in atmospheres containing at least 19.5% oxygen. Selection of the appropriate cartridge respirator (size and type of cartridge) are dependent on the chemicals and concentration to which the individual will be exposed.

A listing of the proper equipment for various chemicals is presented in Appendices (Attached).

b. Where respirators will be used on a routine basis (such as in benzene areas), respirators will be issued to individuals for his/her exclusive use. Department supervisors will insure these respirators are used and maintained in accordance with this procedure. Respirators issued to individuals for routine use will be returned to Stores at least once per year for cleaning/repair/repackaging.

c. Where air-purifying respirators are used (cartridge), the air-purifying cartridges shall be replaced prior to the expiration of their service life or the end of the shift in which they are first used, whichever occurs first. An adequate supply of spare cartridges will be maintained in individual shops/ control rooms.

CBY 3109842

C 001732

RESPIRATORY PROTECTION PROGRAM

2. Dust Masks

a. Dust respirators are to be used when there is exposure to dust which is irritating to the nose or throat or which may cause trouble in the bronchial tubes or lungs.

b. Only Industrial Hygiene Department approved masks obtained from Stores will be used. Only NIOSH approved masks will be considered.

AUTHOR: J. C. Usrey

APPROVED BY: J. S. Hagood

APPROVED BY: G. E. Davenport

CBY 3109843

C 001733

ATTACHMENT 1

STORES REQUISITION

RESPIRATORY PROTECTIVE EQUIPMENT

DEPARTMENT _____

REQUESTING SUPERVISOR _____

INTENDED USE _____

_____

TYPE & IDENTIFICATION NUMBER OF RESPIRATOR	NUMBER REQUIRED

TYPE & IDENTIFICATION NUMBER OF CARTRIDGE	NUMBER REQUIRED

APPROVED BY _____

INDUSTRIAL HYGIENE DEPARTMENT

DATE _____

CBY 3109844

ATTACHMENT III

RETURN & REPLACEMENT SCHEDULE
FOR INDIVIDUAL ISSUED RESPIRATORS

DEPARTMENT	MONTH FOR RETURN/REPLACEMENT
Ethylene	July
Hydrocarbons	August
Utilities	September
SAB	October
NTA	June
Resins	November
AN	May
Phenol	April
Environmental Control	December
Distribution	March
Maintenance	January
I&E	February
Sorbic	September
All Other	June

CBY 3109846

APPENDIX A

RESPIRATORY PROTECTION FOR BENZENE

Approved respirators for use in potential benzene exposure areas are as follows:

CONCENTRATION OF BENZENE OR CONDITION OF USE		RESPIRATOR TYPE	IDENTIFICATION NUMBER
a. Less than or equal to 10 ppm	1.	Chemical cartridge respirator with organic vapor cartridges and half mask; or	MSA - Comfoe II #459433 or #460968 MSA - Type GMA Organic Cartridge #459315
	2.	Any supplied air respirator with half mask	
b. Less than or equal to 500 ppm.	1.	Chemical cartridge respirator with organic vapor cartridges & full facepiece; or	MSA - Full Facepiece respirator #460560 MSA - Typw GMA Organic Cartridge #459315
	2.	Any supplied air respirator with full facepiece; or	
	3.	Any organic vapor gas mask; or	
	4.	Any self-contained breathing apparatus with full facepiece.	
c. Less than or equal to 1000 ppm	1.	Supplied air respirator with half mask in positive pressure mode	

CBY 3109847

C 001737

APPENDIX A

RESPIRATORY PROTECTION FOR BENZENE

CONCENTRATION OF BENZENE OR CONDITION OF USE		RESPIRATOR TYPE	IDENTIFICATION NUMBER
d. Less than or equal to 2000 ppm	1.	Supplied air respirator with full facepiece, helmet, or hood, in positive pressure mode	
e. Less than or equal to 10,000 ppm	1.	Supplied air respirator and auxillary self contained facepiece in positive pressure mode; or	
	2.	Open circut self-contained breathing apparatus with full facepiece in positive pressure mode	
f. Escape	1.	Any organic vapor gas mask; or	
	2.	Any self-contained breathing apparatus with full facepiece	

CBY 3109848

APPENDIX B

RESPIRATORY PROTECTION FOR ACRYLONITRILE

Approved respirators for use in potential Acrylonitrile exposure areas are as follows:

CONCENTRATION OF AN OR CONDITION OF USE	RESPIRATOR TYPE	IDENTIFICATION NO.
(a) Less than or equal to 20 ppm	(1) Chemical cartridge respirator with organic vapor cartridge(s) and half-mask facepiece; or	MSA - Comfo II #460968 MSA - Type GMA Organic Cartridge #464031
	(2) Supplied air respirator with half-mask facepiece.	
(b) Less than or equal to 100 ppm or maximum use concentration (MUC) of cartridges or canisters, whichever is lower.	(1) Full facepiece respirator with (A) organic vapor cartridges, (B) organic vapor gas mask chin-style, or (C) organic vapor gas mask canister, front or back mounted;	MSA - Full Facepiece Respirator #460560 MSA - Type GMA Organic Cartridge #464031
	(2) Supplied air respirator with full facepiece; or	
	(3) Self-contained breathing apparatus with full facepiece.	
(c) Less than or equal to 4,000 ppm	(1) Supplied air respirator operated in the positive pressure mode with full facepiece, helmet, suit or hood.	

CBY 3109849

APPENDIX B

RESPIRATORY PROTECTION FOR ACRYLONITRILE

CONCENTRATION OF AN OR CONDITION OF USE	RESPIRATOR TYPE	IDENTIFICATION NO.
(d) Greater than 4,000 ppm or unknown concentration.	(1) Supplied air and auxiliary self-contained breathing apparatus with full facepiece in positive pressure mode; or	
	(2) Self-contained breathing apparatus with full facepiece in positive pressure mode.	
(3) Firefighting	(1) Self-contained breathing apparatus with full facepiece in positive pressure mode.	
(4) Escape	(1) Any organic vapor respirator, or	
	(2) Any self-contained breathing apparatus.	

CBY 3109850

TABLE I

APPROPRIATE PROTECTIVE EQUIPMENT FOR RESPIRATORY HAZARDS

Recommended Protective Equipment	RESPIRATORY HAZARDS				
	Oxygen Deficiency	Gas or Vapor Contaminants		Particulate Contaminants	
		Immed. dangerous to life or health	Not immed. dangerous to life or health	Immed. dangerous to life or health	Not immed. dangerous to life or health
1) Supplied Breathing Air System	Yes	Yes	Yes	Yes	Yes
2) Self Contained Air Mask Systems (15 & 30 Minute) (MSA Air Pac)	Yes	Yes	Yes	Yes	Yes
3) Robert Shaw Escape Mask	No	Yes	Yes	Yes	Yes
4) Cartridge Respirator	No	No	Yes (1)	Yes (2)	Yes (2)
5) Dust Mask	No	No	No	No	Yes

NOTES:

(1) Type depends on concentration of contaminant.
(2) Must have appropriate filter.

CBY 3109851

C 001741

GUIDELINES FOR CHOOSING SAFE SAMPLE CONTAINERS

PURPOSE

The purpose of this policy is to define minimum acceptable safety standards for sample containers used for in-plant use only.

SCOPE

This policy covers all types of sample containers that are acceptable for use in sampling any material or product at this location. It also defines some very basic guidelines for the safe use of these sample containers.

This policy does not intend to define complete safe sampling rules. It is the responsibility of each individual unit and/or operation to define their own safe sampling procedures to fit their mode of operation and sampling conditions. This policy does not cover DOT rules and regulations for shipping samples outside the plant.

RESPONSIBILITY

It is the responsibility of supervision at any unit or operation area to assure that personnel doing sampling are aware of and follow the guidelines defined in this policy when catching samples.

DISCUSSION

Many types of samples are handled at this location, the physical characteristics of which vary from gas to liquid, to solid at ambient conditions. Samples also vary from basic to acidic, from very toxic to non-toxic, from non-flammable to varying degrees of flammability, from non-corrosive to very corrosive. This policy will define, by the nature of the sample and hazards involved, the type containers to be used for sampling materials.

Proper labeling is very important. If a sample is clearly and properly labeled, the dangers inherent in handling and analyzing the sample will be known. Samples from the acrylonitrile process must be labeled with the special labels marked "Danger, contains Acrylonitrile (AN). Cancer Hazard".

CBY 3109852

SAMPLE CONTAINER GUIDELINES

Sample container type is defined according to the physical properties of materials sampled. In all cases, the safest type of container is recommended.

C 001742

The following guidelines are to be strictly adhered to in sampling any material or stream which falls under the group definition. Where necessary, subgrouping is used to further define safe sample containers.

GROUP I

Samples which are or tend to be gas at ambient conditions.

Any sample or material in this group tends to be gas under ambient conditions and therefore must be sampled in pressure containers (sample bombs). This group includes any hydrocarbons of C5 & lighter molecular structure. Exception: Some streams are of very low pressure and may, with lab supervision's approval, be sampled in special bombs.

Sample bombs must be tested and/or approved by the Control Lab before use. See Safety Procedure, SP-008.

Bombs of either 300 ml or 1000 ml volume and manufactured by either Hoke or Whitey are approved for use. (Hoke is preferred due to its structural design.) These bombs must be fitted with Robbins valves. Special bombs are used for HF and MeSH samples, see 3 and 4 below.

Sample bomb types, used at this location, and how they are to be used is as follows.

1. Liquid Bomb Samples

These bombs must be fitted with dip tubes which extend into the bomb an adequate length to allow for thermal expansion of the liquified gas to be sampled. At this location, our standard liquid bombs, other than Olefin's bombs, are fitted with dip tubes which extend into the bomb at least 20% of the bombs length. The "dip tube" end of the bomb is painted yellow and stamped "out".

Olefins Department bombs have longer dip tubes which extend into the bomb at least 50% of the bombs length. These bombs are yellow on the dip tube end and white at the other end. The longer dip tube is provided to assure expansion room when sampling streams which might contain liquid C2's.

After a liquid is caught, the bomb must be supported in a vertical position which the yellow end uppermost and depressured through the upper valve until liquid ceases to vent from this valve. At this point, the sample is safe for handling and transporting.

2. Vapor Bomb Samples

CBY 3109853

Vapor bombs have no dip tubes and are therefore unsafe for catching liquid samples. These bombs are painted red and stenciled "vapor only". They must be used for sampling streams which are known to be vapor only.

3. HF Bomb Samples

C 001743

These bombs are for use in sampling Hydrofluoric Acid only. They

are made of monel, a corrosive resistant metal. Valves are also made of monel. These bombs are manufactured by Hoke and valves by Whitey. They are recognizable by their smaller size and the total absence of paint. They are not to be used for anything except sampling HF. These bombs are not fitted with dip tubes and "must not" be used in any other service.

4. MeSH Bomb Samples

MeSH (Methyl Mercaptan) samples will be caught in either 40 or 75 ml Whitey or Hoke bombs. These bombs must not be used in any other service.

5. C2's and Lighter Hydrocarbon Samples

Samples of this group are of a particularly hazardous nature if liquid C2's are left in the bomb. After depressuring, these samples must contain only vapors, under pressure. (See instructions for proper depressuring above). These samples which may possibly contain liquid C2's are primarily from the Olefins Unit (C2 streams) and the liquid C2 pipeline samples from Mt. Belview. If samples from the Olefins Unit are caught in the proper olefins bombs, with the white end, and depressured properly, the possibility of liquid C2's will be minimized. Sample bombs must not contain liquid C2's. 17D2 Bottoms and Ethylene Product, from Departments 17 and 18 may possibly contain liquid C2's. It is essential that they be properly depressured after sampling to assure their safety.

6. Liquid C2's (Ethane & Ethylene) Samples

Samples from Mt. Belview pipelines are not to be sampled in sample bombs. A special liquid C2 sampling device is used for these samples. This sampling device is available from Conoco pipeline personnel. These sampling devices are manufactured with hand operable piston type sample mixers. These devices are rated @ 1800-2160# PSI @ STP and are tested @ 3600 PSI @ STP. Valve bodies at each end of the devices are fitted with PSV's rated @ 1800 ± 100# PSI. Oil filled pressure gauges, at each end, are rated @ 0-2000# PSI. Quick disconnect couplings are provided at each end. These devices are manufactured by Welker Engineering Co., of Sugarland, Texas.

7. AN Recovery Runs

AN reactor recovery off gas samples are taken in clear plastic containers. These containers are designed for this analysis only and are not to be used for any other samples.

GROUP II

C 001744

Samples which are liquid at ambient conditions. CBY 3109854

Samples in this group vary from non-flammable to varying degrees of flammability, from non-corrosive to very corrosive, from non-toxic to very toxic,

from very basic to very acidic.

Sample containers approved for this group may be glass or plastic bottles, metal cans, or metal thermos bottle for liquid HCN. Container sizes vary. Bottles may be either clear or amber.

The proper sampling container must be chosen by considering all unsafe properties of any sample. Quality requirements of products must also be considered. The container which is the safest, considering all of the sample hazards, and which will not interfere with minimal quality guidelines will be chosen.

Container guidelines

1. The basic most useful container for this group is the glass bottle. These bottles must have Polyseal ® lined lids (see exception) to protect product quality.

   Exception: Some units use french square bottles for catching production samples. When these bottles are used, lids made entirely of polyethylene must be used. Do not use polyethylene lined lids with french square bottles, as these liners sometimes are sucked into the bottle when opened splashing sample on personnel.

   If the sample is subject to deterioration by exposure to light, it must be sampled in an amber bottle, e.g., AN & Acetone. The minimum size bottle, which will allow enough sample for required analyses plus retain will be used. This information is available in unit and Distribution sampling procedures. The bottle will be filled no more than 80% full.

   The plastic bottle is the second most useful container for this group. These bottles must be provided with a cap which will seal to prevent leakage. Plastic bottles will be used for any sample which is highly corrosive e.g., strong acid or caustic solutions, crotonaldehyde, etc.

   Exceptions to this rule are Hydrofluoric Acid, which must be caught in a special Monel bomb, phenol which must be caught in a glass bottle, and HCN in a metal thermos bottle.

   The minimum size bottle, which will allow enough sample for required analyses plus retain will be used. The bottle will be no more than 80% full.

2. The metal can will be the least used for sampling this particular group, but for sampling materials which tend to build up pressure or which require high temperature for melting, they are absolutely essential.

   Corrosives (e.g., acids, caustic) will never be sampled in metal containers.

Materials which might be expected to contain light ends (C5's & ltr) in small amounts must be sampled in cans with screw caps and/or press on covers so they are vapor tight. Note: If the material contains primarily C5's & lighter, it must be sampled in a bomb.

Materials must be melted for analysis or disposal must be sampled in "open topped" cans.

If a material contains small amounts of light ends and is also corrosive, then a can lined with polyethylene must be used for sampling. The minimum size can, which will allow enough sample for required analyses plus retain will be used. The can will be no more than 80% full.

GROUP III

Samples which are solid at ambient conditions.

Samples in this group may be in the form of a powder or granules. They may also be materials which will melt on heat application, and in fact, must be melted for analyses.

Materials of dry powder or granular form will normally be sampled in plastic containers, but glass or metal are acceptable. If the sample is corrosive, a metal container must not be used.

Any container used for sampling dry powder or granular products must have a tight fitting lid which will prevent contamination of the materials, especially moisture. Materials which are solid at ambient conditions and must be melted for analysis or disposal, must be sampled in "open topped" cans, with the exception of Phenol, which is sampled in glass bottles. (Open topped cans have lids which are the size of the top of the can. The top of the can is, therefore, open when the lid is removed). Materials such as Tar, Resin PR, and Naphthalene must be sampled in such containers.

The minimum size can which will allow enough sample for required analyses plus retain will be used. The can will be no more than 80% full.

This policy establishes some guidelines which, if adhered to, will make the jobs of sampling, sample handling, and analyses much safer. In consideration of their own personal safety, each individual who handles samples should be aware of and abide by this policy.

AUTHOR R.L. Garroutte — APPROVED BY Safety Department 8/31/82

APPROVED BY J.W. Kongable — APPROVED BY W.W. Klemme

APPROVED BY G.E. Davenport

C 001746

CBY 3109856

INSTRUMENT AIR CONTAMINATION WITH NITROGEN

PURPOSE

The purpose of this procedure is to establish guidelines to be followed when nitrogen is added to the instrument air headers.

SCOPE

This policy and procedure defines the communication method and actions required by all units in the event nitrogen is added to the instrument air headers.

DESCRIPTION OF SYSTEM

The plant instrument air headers have a potential of nitrogen being admitted due to shutdown/trip out of the air compressors that normally provide these headers. Should the instrument air pressure drop to 90 PSIG the nitrogen back up system comes into service adding nitrogen to the instrument air headers to maintain header pressure at 90 PSIG.

This nitrogen being added to the headers creates a potential safety problem if any people are inside an analyzer house and depending on the location of pneumatic instrumentation may accumulate nitrogen in other confined spaces within the production departments. Nitrogen will also result in chromatograph analyzers shutting down in labs.

PROCEDURE

1) Upon loss of compressors or any time that the nitrogen control valve is activated which will permit addition of nitrogen into the instrument air headers the Plant fire and spill alarm will be activated. The fire and spill alarm for nitrogen being admitted to the instrument air header is 3-3-3.

2) Upon activation of the 3-3-3 fire and spill alarm all personnel are to vacate analyzer houses that use instrument air for instruments, purges, and etc. or any other confined spaces that may accumulate nitrogen.

3) The owning departments of the analyzer houses and other confined spaces that may accumulate nitrogen will take the following actions immediately upon activation of the 3-3-3 fire and spill alarm:

   a. Inspect the analyzer houses and or other confined spaces to be sure that all personnel have vacated the premises.

C 001747

CBY 3109857

Instrument Air Contamination with Nitrogen (cont.)
Page Two

b. Lock doors closed to anaylzer houses or other confined spaces.

c. Attach sign to entrance doors indicating that a vapor hazard exists.

d. The shift foreman will contact the main guard gate to verify that they are aware of the nitrogen being in the instrument air systems and have taken appropriate action as specified in items a,b, & c listed above.

4) a. The guards are to call the shift foreman of any unit not making contact with them immediately to be sure they are aware of the problem and request that they take action as specified.

b. Upon completion of verification check list the guard will sound an all clear on the fire/spill horns. This all clear does not signify that the instrument air headers are back to normal, only that verification of notification is complete and that other routine work may be resumed.

5). After air compressors are returned to service and nitrogen is blocked away from the instrument air headers, utilities will notify all units and the main guard gate by telephone that instrument air headers are back to normal.

6) If it is necessary for immediate entry into analyzer house or other confined space, after instrument air headers are returned to normal, a vapor test should be performed before entry to be sure that oxygen level is normal. Otherwise, a period of 2 hours should be allowed before removal of locks and entry is permitted on a routine basis.

7) In the event nitrogen is admitted to the instrument air headers and the fire and spill alarm does not activate automatically, the Utilities Shift Foreman will call the main guard gate and request the guard to activate the fire and spill alarm code 3-3-3.

APPROVED BY: JK Atkins 12/13/82

APPROVED BY: JMurray 12/14/82

CBY 3109858

APPROVED BY: RE Sullivan 12/15/82

APPROVED BY: HCCL / ACTING PLANT MGR.

C 001748

FIRE EQUIPMENT IMPAIRMENT CONTROL

PURPOSE

The purpose of this procedure is to establish a method of effectively handling repairs to the fire protection system.

POLICY

It will be the Safety Department's responsibility to insure all fire equipment is kept in a ready to use condition, also to communicate to all units and areas affected when equipment has been taken out of service for repairs and returned to service.

PROCEDURE

1. An Impairment Permit will be filled out by a member of the Safety Department prior to the equipment being removed from service.

2. The permit will be approved by a member of supervision in the Safety Department. Approval may be granted verbally during off hours.

3. The original hard copy of the permit will be fastened to equipment impaired or area of impairment.

4. Supervision in areas affected by the impairment will be informed verbally before and after repairs are made. The supervisor's name will appear on permit.

   These areas will minimize operational changes or hot work that could case an incident while the fire equipment protecting the area is out of service.

5. The use of this impairment procedure does not preclude the usage of SP-009 (By-passing and Testing Protective Devices) or SP-019 (Fire Permits and Vessel Entry/Fire Permits). The affected department supervisor is responsible to make the appropriate decision to invoke SP-009 or SP-019.

C 001749

CBY 3109859

FIRE EQUIPMENT
IMPAIRMENT CONTROL

6. After repairs are completed the safety department will return all equipment to service then complete the impairment permit form.

7. The soft copy of the permit shall be retained on file at the Safety Department. This copy will then serve as a permanent record.

NOTE: Impairment Permit has green border, white background with black lettering.

AUTHOR: C. A. Coburn
C. A. COBURN

APPROVED BY: J C Usrey 1/5/83
J. C. USREY

APPROVED BY:
J. S. HAGOOD

APPROVED BY:
G. E. DAVENPORT acting Plt Mgr

CBY 3109860

C 001750

FIRE EQUIPMENT
IMPAIRMENT CONTROL

GREEN BORDER

GREEN BORDER

FIRE PROTECTION IMPAIRMENT PERMIT

Monsanto CHOCOLATE BAYOU PLANT - ALVIN, TEXAS

Issued To _____

Area Impaired _____

_____

Reason For Impairment _____

_____

_____

TYPE SYSTEM(s) IMPAIRED - Circle

Sprinkler P.I. Valve Water Main Fire Pump
Monitors Hydrant Foam System

Others: _____

_____

_____

INITIAL

Date & Time Impaired _____ Repairs Started _____ _____

Repairs Complete _____ _____

Valves Closed for Isolation — Date _____ Time _____ _____

Valves Opened After Repair — Date _____ Time _____ _____

1. Has Supervision In Affective Area Been Notified?

(Yes)_____

Name_____

2. Other Precautions Taken: _____

_____

_____

_____

Fire Safety Inspector _____

Safety Supervision _____

CBY 3109861

C 001751

HEARING CONSERVATION PROGRAM

PURPOSE

To establish a Hearing Conservation Program (HCP) which will set the guidelines, consistent with OSHA and Monsanto's HCP for hearing protection training, monitoring and protective equipment selection.

SCOPE

This procedure will apply to all Employees who are exposed to a noise level of 80 dBA full shift TWA. All contractors at Chocolate Bayou falling in this category will have a HCP complying with OSHA guidelines, and will also comply with Monsanto's policy of hearing protection areas an approved equipment.

POLICY

A HCP will be administered where there is exposure to a full shift TWA greater than 80 dBA, or where hearing protection is worn. Hearing protection equipment will be used only when feasible engineering controls do not reduce noise sufficiently. New or retrofit engineering projects will have noise levels below 85 dBA.

RESPONSIBLITIES

Industrial Hygiene

* Overall responsibility for administering the Hearing Conservation Program (HCP).
* Monitoring areas and new Projects to determine noise levels and establishing plant noise profile.
* Supply stores and purchasing with a list of approved hearing and protection equipment.
* Evaluation of hearing protection equipment.

Manufacturing

* Supervision will be held accountable for worker compliance to Hearing Conservation Program.
* Insure personnel have annual Hearing Conservation Training which complies with OSHA standard.
* Maintain training records including dates, name and type of equipment used.
* Address the reduction of noise through engineering design.

C 001752

CBY 3109862

Medical

* Informing employees of results from audiometric tests.

HEARING CONSERVATION PROGRAM

4. Each unit having a HCP will have hearing protection equipment available for any personnel going out into the unit. Each unit will have the option of selecting its own hearing protection equipment. However, the equipment used must be on the Purchasing Department approved list.

HEARING PROTECTION EQUIPMENT

1. Industrial Hygiene will evaluate Hearing Protection using NIOSH Method No. 1.

2. For purpose of real world effectiveness, the calculations should be made using 50% of the attenuation value at each frequency.

3. Hearing Protection equipment will also be evaluated on the basis of administrative controls.

AUDIOMETRIC TESTING

Audiometric testing will be the responsibility of the Medical Department and will meet the following requirements.

1. All employees exposed to 80 dBA full shift TWA will be tested annually.

2. A preplacement audiogram must be done before any employee is exposed to or starts work in a high noise area. HP cannot be used, and 48 hours free of loud noise must preceed this baseling test.

3. Audiometric testing equipment must meet OSHA, HCA, and Monsanto Medical Policy guidelines.

4. Acoustical Audiometer calibration must be done at least semi-annually

5. An exhaustive calibration is required when acoustical calibration results show 75 dB or at least every 2 years.

6. Annual follow-up audiometric tests need not be tested. If a STS is noted, a rested retest will be done within 30 days.

7. In the period between the audiometric test and the retest, any employee suffering a STS will be refitted with HP, retrained and required to wear properly selected HP.

TRAINING

CBY 3109864 C 001754

The training and education of workers and their supervision in the hazards and control of noise is an essential element in the Hearing Conservation Program.

HEARING CONSERVATION PROGRAM

AUTHOR: K.A. Lindberg

K.A. Lindberg

APPROVED BY: G.J. Wilbeck

G.J. Wilbeck

APPROVED BY: J.S. Hagood

J.S. Hagood

APPROVED BY: R.N. Jones

R.N. Jones

CBY 3109866

C 001756