

CALVERT CITY
VINYL CHLORIDE EXPOSURE
ABATEMENT PROGRAM

AP00001278



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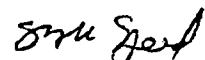
Date 19 JULY 1974

To J. D. KRAMER Subject VC1 REDUCTION - PROFIT IMPROVEMENT
From G. B. H. SPEED PROJECTS
☐ Take Action ☐ For Your Approval ☐ For Your Info ☐ Discuss With Me
☐ For Your Comments ☐ As Requested ☐ File ☐ Note & Return

This book contains the profit improvement projects currently being considered with a goal of attaining a 10 ppm maximum exposure to VC1 on a TWA. Additional projects will be added as new ideas develop. The program is divided into six major areas as follows:

- I - Improve Area Monitoring for VC1 Leaks
- II - Projects to Remove Operator from Exposure
- III - Process Modifications for the Containment or Removal of VC1
- IV - Reduction of PVC Particulates
- V - Reduce Lost Batches
- VI - Operator Training

Included in the book is a summary of the projects, a time table for project completion, details of the individual projects and a sample of the weekly report forms.


G. B. H. SPEED

GBHS/pk

SUMMARY

SUMMARY

VC1 IMPROVEMENT PROJECT

IMPROVED AREA MONITORING FOR VC1 VAPORS

<u>PROJECT NUMBER</u>	<u>PROJECT</u>	<u>PERSON RESPONSIBLE</u>	<u>COST</u>	<u>CE NO.</u>
I-A	Initiate Formal Leak Patrol 1. Set up procedure & record keeping 2. Select maintenance man for job 3. Instruct man in job 4. Start patrol	Draffen/Speed	\$80,000/yr.	
I-B	Review Sample Point Locations 1. Review 2. Relocate	Speed	\$ 2,000	Maintenance
I-C	Add Alarm Lights & Horn 1. Design system, prepare cost estimate & CE 2. Order equipment 3. Install equipment.	Dunning/Speed	\$100,000	
I-D	Add Second Bendix Chromatograph 1. Prepare CE 2. Order equipment 3. Install	L.Thompson/Speed	\$41,000	CC #288
I-E	Review need for alarm lights & horn on Beckman Analyzer	Speed	\$25,000	
I-F	Collect Chromatograph Data on Computer 1. Design system, prepare cost estimate & CE 2. Order equipment 3. Install system	L.Thompson/Speed	\$100,000	

SUMMARY

VCI IMPROVEMENT PROJECT

PROJECTS TO REMOVE OPERATOR FROM EXPOSURE

<u>PROJECT NUMBER</u>	<u>PROJECT</u>	<u>PERSON RESPONSIBLE</u>	<u>COST</u>	<u>CE NO.</u>
II-A	Time and Motion Studies 1. Top Floor Operator a. Charging Nos. 16,17 & 18 reactors b. Charging Nos. 1,2 & 3 reactors c. Charging No. 19 reactor d. Making up solution 2. Stripper Operator a. Homopolymer batch b. Copolymer batch c. 400 batch d. 19th reactor 3. Bottom Floor Operator 4. Finishing Operator	F. L. Riddle		
II-B	Communications 1. Determine system, prepare cost estimate & CE 2. Equipment delivery 3. Install equipment	J.D.Pearson/ G.B.H.Speed	\$75,000	
II-C	Automation of Process 1. Prepare P & I flow sheets a. Monomer charging b. DM water charge c. Solution charge d. VAc charge e. Propylene charge f. Drop header g. North recovery h. Center recovery i. South recovery j. Air k. Refrigerated water 2. Automation, or remote control of process a. From C-1 above, determine amount of automation or remote control required b. Design system, prepare cost estimate	W.E.Dunning/ G.B.H.Speed	\$2,000,000	

SUMMARY

VC1 IMPROVEMENT PROJECT

PROJECTS TO REMOVE OPERATOR FROM EXPOSURE

<u>PROJECT NUMBER</u>	<u>PROJECT</u>	<u>PERSON RESPONSIBLE</u>	<u>COST</u>	<u>CE NO.</u>
II-C	Automation of Process (continued) 3. Television monitoring of equipment a. From C-1 above and survey of equipment determine number and location of television cameras b. Design system & prepare cost estimate 4. Enclosed control room a. Determine location b. Determine cost of relocating equipment if required c. Design control room including control panel, etc. and prepare cost estimate 5. Prepare total cost package for items C-2, 3 and 4 & prepare CE 6. Equipment delivery 7. Install			
II-D	Breathing Air System 1. Revise existing temporary system for adequacy and modify if necessary 2. Install fresh air breathing station at T/C unloading 3. Install permanent breathing air system a. Prepare cost estimate & CE b. Equipment delivery c. 1) Installation of filter & connections 2) Installation of compressor & dryer	D.L.Walker/ G.B.H.Speed	\$200,000	

SUMMARY

VC1 IMPROVEMENT PROJECT

PROCESS MODIFICATIONS FOR THE CONTAINMENT OR REMOVAL OF VC1

<u>PROJECT NUMBER</u>	<u>PROJECT</u>	<u>PERSON RESPONSIBLE</u>	<u>COST</u>	<u>CE NO.</u>
III-A	Third Steam Jet 1. Design system 2. Determine cost & prepare CE 3. Install	D.L.Walker	\$ 10,000	Maintenance
III-B	Charge Pot Drain System 1. Design system 2. Determine cost & prepare CE 3. Install	F.N.Sublette	\$ 10,000	Maintenance
III-C	Sweco Screen Exhaust Fan 1. Design system 2. Determine cost & prepare CE 3. Install	F.N.Sublette	\$ 10,000	Maintenance
III-D	Reactor & Third Floor Exhaust System 1. Design system 2. Determine cost & prepare CE 3. Install	D.L.Walker	\$140,000	VFCE #508
III-E	First & Second Floor Exhaust System 1. Design system 2. Determine cost & prepare CE 3. Install	D.L.Walker	Included in III-D	VFCE #508
III-F	New Stripper Transfer Pumps 1. Design system 2. Determine cost & prepare CE 3. Install	F.N.Sublette	\$50,000	Maintenance
III-G	Improve Ventilation Pattern 1. Redesign blower discharge nozzles 2. Conduct air flow studies with smoke	R.W.McGinnis	\$25,000	
III-H	Monomer Recovery Drain System 1. Revise existing drain system & equipment 2. Modify or add drain as required 3. Equipment delivery as required 4. Install additional instruments as required	F.N.Sublette/ G.B.H.Speed	\$25,000	Maintenance

SUMMARY

VC1 IMPROVEMENT PROJECT

PROCESS MODIFICATIONS FOR THE CONTAINMENT OR REMOVAL OF VC1

<u>PROJECT NUMBER</u>	<u>PROJECT</u>	<u>PERSON RESPONSIBLE</u>	<u>COST</u>	<u>CE NO.</u>
III-I	Charge Pot Rupture Disc Vent Lines 1. Design system 2. Equipment delivery 3. Install	F.N.Sublette/ G.B.H.Speed	\$ 10,000	Maintenance
III-J	New (Fetterolf) Spray Rinse Valve 1. Evaluate new type valves currently being tested 2. Prepare cost estimate & CE to replace existing Phaudler spray rinse valves 3. Equipment delivery 4. Install	F.N.Sublette/ G.B.H.Speed	\$ 50,000	Maintenance
III-K	New VC1 Recovery System 1. Design 2. Equipment delivery 3. Installation	D.L.Walker/ G.B.H.Speed	\$653,000	VFCE #450
III-L	Increase Total Ventilation Through Reactor Building 1. Design system 2. Prepare cost estimate & CE 3. Equipment delivery 4. Install	W.E.Dunning/ G.B.H.Speed	\$120,000	
III-M	Low Temperature VC1 Recovery System 1. Design system 2. Prepare cost estimate & CE 3. Equipment delivery 4. Install	W.E.Dunning/	\$500,000	
III-N	High Pressure Water Cleaning System for Reactors 1. Determine system to use 2. Prepare cost estimate & CE 3. Install	J.T.Barr/ W.E.Dunning/ G.B.H.Speed	\$ 10,000	

SUMMARY

VCL IMPROVEMENT PROJECT

PROCESS MODIFICATIONS FOR THE CONTAINMENT OR REMOVAL OF VCL

<u>PROJECT NUMBER</u>	<u>PROJECT</u>	<u>PERSON RESPONSIBLE</u>	<u>COST</u>	<u>CE NO.</u>
III-O	Chemical Cleaning of Reactors 1. Determine system to be used 2. Design system 3. Prepare cost estimate & CE 4. Equipment delivery 5. Install	Pensacola/ W.E.Dunning/ G.B.H.Speed	\$750,000	
III-P	Redesign all monomer handling piping 1. From the P & I flow sheets prepared under Project II-C-1, review all monomer piping to determine if modification can be made to reduce number of flanges & polymer buildup 2. Redesign if required 3. Prepare cost estimate & CE 4. Equipment delivery 5. Install	F.N.Sublette/ G.B.H.Speed	\$ 50,000	

SUMMARY
VC1 IMPROVEMENT PROJECT
REDUCTION OF PVC PARTICULATES

<u>PROJECT NUMBER</u>	<u>PROJECT</u>	<u>PERSON RESPONSIBLE</u>	<u>COST</u>	<u>CE NO.</u>
IV-A	Replace Product Collectors with Cyclones 1. Design system 2. Prepare cost estimate & CE 3. Equipment delivery 4. Install	D.L.Walker/	\$150,000	Maintenance
IV-B	Complete upgrading of Bulk Handling, Loading & Bagging 1. Review of existing system 2. Design revised system 3. Determine cost & prepare CE 4. Equipment delivery 5. Install	W.E.Dunning/ G.B.H.Speed	\$750,000 EST	

SUMMARY

VC1 IMPROVEMENT PROJECT

REDUCE LOST BATCHES

<u>PROJECT NUMBER</u>	<u>PROJECT</u>	<u>PERSON RESPONSIBLE</u>	<u>COST</u>	<u>CE NO.</u>
V-A	Chemical Charge System 1. Review charging procedures to eliminate errors 2. Review charging system	F.L.Riddle		
V-B	Reevaluate all recipes & catalyst levels	F.L.Riddle		
V-C	New DM water system 1. Design system 2. Prepare cost estimate & CE 3. Equipment delivery 4. Install	D.L.Walker	\$227,000	VFCE #430
V-D	Add additional refrigeration & cooling tower water supply 1. Design system 2. Prepare cost estimate & CE 3. Equipment delivery 4. Install	W.E.Dunning/ G.B.H.Speed	\$750,000 EST	

SUMMARY

VC1 IMPROVEMENT PROJECT

OPERATOR TRAINING

<u>PROJECT NUMBER</u>	<u>PROJECT</u>	<u>PERSON RESPONSIBLE</u>	<u>COST</u>	<u>CE NO.</u>
VI-A	Update operating manuals	J.P.Parker		
VI-B	Group & individual training sessions	J.P.Parker		

AP000001290

PROJECT NO. I

VINYL CHLORIDE REDUCTION

PROFIT IMPROVEMENT PROJECTS

NO. 1

IMPROVE AREA MONITORING FOR VCL LEAKS

- A. INITIATE FORMAL LEAK PATROL
 - 1. Set up procedures and record keeping
 - 2. Select maintenance man for job
 - 3. Instruct man in need for job and sample procedures
 - 4. Start patrols
- B. REVIEW SAMPLE POINT LOCATIONS
 - 1. Relocate to reflect two systems
 - a. Personnel operating area
 - b. Process control area
- C. ADD ALARM LIGHT AND HORN (INCLUDES NO. 2 BENDIX)
 - 1. Design system, prepare cost estimate and CE
 - 2. Order equipment
 - 3. Install system
- D. ADD SECOND BENDIX CHROMATOGRAPH
 - 1. Prepare CE
 - 2. Order equipment
 - 3. Install
- E. REVIEW NEED FOR ALARM LIGHTS AND HORN ON BECKMAN ANALYZER USED IN FINISHING, BAGGING AND COMPOUNDING
- F. COLLECT CHROMATOGRAPH DATA ON COMPUTER (INCLUDE BOTH BENDIX & BECKMAN)
 - 1. Design system, prepare cost estimate and CE
 - 2. Order equipment
 - 3. Install system

PROFIT IMPROVEMENT PROJECT

Department PVC

Capital Investment \$ 80,000/yr.

Project No. I-A

Annual Benefits N/A

Date 8 July 1974

Person Responsible W.D.DRAFFEN
G.B.H.SPEED

DESCRIPTION: (include plan of action and timetable)

INITIATE FORMAL LEAK PATROL

The purpose of this project is to detect and stop VCI leaks as soon as possible.

It is proposed to add one additional maintenance man per shift (total 4) with

the primary responsibility of patrolling the polymerization building with a

Century Analyzer. Upon detecting a leak, he will, if possible, make the

necessary repairs on the spot or connect an exhaust hose to the leak, and

report the leak to insure repairs are made. A separate log will be maintained

by the patrol personnel. He will work closely with process personnel for

effective reduction in monomer leaks.

This project is divided into the following steps:

1. Set up procedures and record keeping
2. Select maintenance man for job
3. Instruct man in need for job and sample procedures
4. Start patrol.

TIMING: SEE MASTER TIME TABLE

PROFIT IMPROVEMENT PROJECT

Department PVC

Capital Investment \$ 2,000

Project No. I-B

Annual Benefits N/A

Date 8 July 1973

Person Responsible G.B.H.SPEED

DESCRIPTION: (include plan of action and timetable)

REVIEW SAMPLE POINT LOCATIONS

The plant currently has one 10 point Bendix Chromatograph monitoring the polymerization building. An additional 10 point Bendix will be added under project I-D. It is felt that some of the existing sample locations do not reflect the actual operating areas. This project will review the existing locations and considering the additional 10 points to be added, will propose a new layout with the purpose of not only covering the operating areas but areas not normally used but where VCI can escape.

The two areas will be divided into:

- a) Personnel operating area.
- b) Process control area

TIMING: SEE MASTER TIME TABLE

PROFIT IMPROVEMENT PROJECT

Department PVC

Capital Investment \$ 100,000 Est.

Project No. I-C

Annual Benefits N/A

Date 8 July 1974

Person Responsible L.R.THOMPSON
G.B.H.SPEED

DESCRIPTION: (include plan of action and timetable)

ADD ALARM LIGHTS AND HORN TO BENDIX CHROMATOGRAPH

The purpose of this project is to provide means by which the operating personnel will know when the VCI exposure in a particular area is above the proposed limit. It is proposed to install a flashing red light at each sample point location and a horn on each floor. If the VCI concentration exceeds the limit the light will start flashing at the point of high concentration and the horn will sound indicating that a sample point on that level is beyond the limits. Thus the operators will know that a fresh air mask is required in the area and that maintenance is required to stop the leak.

This project is divided into the following steps:

1. Design system, prepare cost estimate and CE
2. Order equipment
3. Install system

TIMING: SEE MASTER TIME TABLE

PROFIT IMPROVEMENT PROJECT

Department PVC Capital Investment \$ 50,000
Project No. I-D Annual Benefits N/A
Date 8 July 1974 Person Responsible L.R. THOMPSON
G.B.H. SPEED

DESCRIPTION: (include plan of action and timetable)

ADD SECOND BENDIX CHROMATOGRAPH

The purpose of this project is to provide additional VCI monitoring in the polymerization building. After installing the original 10 point Bendix it was found that the 10 points do not provide adequate coverage of the area. Also during calibration or other outages of the existing chromatograph, there is no record of the building exposure. With the second chromatograph, additional coverage of the building will be obtained and the second 10 points will be dispersed with the first 10 points to provide some record during outage of either unit.

This project is divided into the following steps:

1. Prepare CE
2. Order equipment
3. Install

TIMING: SEE MASTER TIME TABLE

PROFIT IMPROVEMENT PROJECT

Department PVC

Capital Investment \$ 25,000 EST

Project No. I-E

Annual Benefits N/A

Date 8 July 1974

Person Responsible G.B.H.SPEED

DESCRIPTION: (include plan of action and timetable)

REVIEW NEED FOR ALARM LIGHTS AND HORN ON BECKMAN CHROMATOGRAPH

A 10 point Beckman Chromatograph is currently in use analyzing the
operation area of the PVC finishing building, bagging area, warehouse
and compounding plant. Based on preliminary data the VCI concentrations
in these areas have been below 10 ppm. Additional data will be analyzed
as obtained to determine if excursions above 10 ppm do exist. Depending
on the number of excursions and locations the need for alarm lights and
horns will be made.

TIMING: SEE MASTER TIME TABLE

PROFIT IMPROVEMENT PROJECT

Department PVC

Capital Investment \$ 100,000 EST

Project No. I-F

Annual Benefits N/A

Date 8 July 1974

Person Responsible L.R. THOMPSON
G.B.H. SPEED

DESCRIPTION: (include plan of action and timetable)

COLLECT CHROMATOGRAPH DATA ON COMPUTER

Currently the chromatograph charts from both the Bendix and Beckman Analyzers
are being manually read and the data recorded. The same will be done when
the second Bendix is added. The manual reading is time consuming and
expensive. It is proposed to install a computer that will automatically
collect the individual reading from each point and every 24 hours produce a
record of the reading along with an average for each point and for the total
area. These records are required by law.

This project is divided into the following steps:

1. Design system, prepare cost estimate and CE
2. Order equipment
3. Install system

TIMING: SEE MASTER TIME TABLE

PROJECT NO. II

VINYL CHLORIDE REDUCTION

PROFIT IMPROVEMENT PROJECTS

NO. II

PROJECTS TO REMOVE OPERATOR FROM EXPOSURE

A. TIME AND MOTION STUDIES

1. Top Floor Operator
 - a. Charging Nos. 16, 17 or 18 reactors
 - b. Charging Nos. 1, 2 or 3 reactors
 - c. Charging No. 19 reactor
 - d. Making up solution
2. Stripper Operator
 - a. Homopolymer batch
 - b. Copolymer batch
 - c. 400 batch
 - d. 19th reactor
3. Bottom Floor Operator
4. Finishing Operator

B. COMMUNICATIONS

1. Determine system, prepare cost estimate and CE
2. Equipment delivery
3. Install equipment

C. AUTOMATION OF PROCESS

1. Prepare P & I flow sheets
 - a. Monomer charging
 - b. DM water charge
 - c. Solution charge
 - d. VAc charge
 - e. Propylene charge
 - f. Drop header
 - g. North recovery
 - h. Center recovery
 - i. South recovery
 - j. Air
 - k. Refrigerated water
2. Automation, or remote control of process
 - a. From C-1 above, determine amount of automation or remote control required
 - b. Design system, prepare cost estimate
3. Television monitoring of equipment
 - a. From C-1 above and survey of equipment determine number and location of television cameras
 - b. Design system and prepare cost estimate

PROJECT IMPROVEMENT PROJECT

Department PVC
Project No. II-C - Page 2
Date 8 July 1974
Person Responsible W.B. DUNNING
Annual Benefits ---
Capital Investment \$ ---
G.B.H. SPEED
F.L. RIDDLE

DESCRIPTION: (include plan of action and timetable)

AUTOMATION OF PROCESS (continued)

4. Enclosed control room
- a. Determine location
- b. Determine cost of relocating equipment if required
- c. Design control room including control panel, etc. and prepare cost estimate.
5. Prepare total cost package for items C-2, 3 and 4 and prepare CB
6. Equipment Delivery
7. Install

TIMING: SEE MASTER TIME TABLE

PROFIT IMPROVEMENT PROJECT

Department PVC

Capital Investment \$ 200,000 EST

Project No. II-D

Annual Benefits _____

Date 8 July 1974

Person Responsible D.L.WALKER
G.B.H.SPEED

DESCRIPTION: (include plan of action and timetable)

BREATHING AIR SYSTEM

As proposed in the tentative regulations, a fresh air breathing system must be provided for operators in case the VCI level exceeds the limit. The project proposes a complete and separate fresh air system with filter beds for the removal of CO. A temporary system is currently in use utilizing the instrument air system.

This project is divided into the following steps:

1. Revise existing temporary system for adequacy and modify if necessary
2. Install fresh air breathing station at T/C Unloading
3. Install permanent breathing air system
 - a. Prepare cost estimate and CE
 - b. Equipment delivery
 - c. 1) Installation of filter and connections
2) Installation of compressor and dryer

TIMING: SEE MASTER TIME TABLE

VINYL CHLORIDE REDUCTION

PROFIT IMPROVEMENT PROJECTS

NO. II

PROJECTS TO REMOVE OPERATOR FROM EXPOSURE

C. AUTOMATION OF PROCESS (continued)

4. Enclosed control room
 - a. Determine location
 - b. Determine cost of relocating equipment if required
 - c. Design control room including control panel, etc. and prepare cost estimate
5. Prepare total cost package for items C-2, 3 and 4 and prepare CE
6. Equipment delivery
7. Install

D. BREATHING AIR SYSTEM

1. Revise existing temporary system for adequacy and modify if necessary
2. Install fresh air breathing station at T/C Unloading
3. Install permanent breathing air system
 - a. Prepare cost estimate and CE
 - b. Equipment delivery
 - c. 1) Installation of filter and connections
2) Installation of compressor and dryer

PROFIT IMPROVEMENT PROJECT

Department PVC

Capital Investment \$ N/A

Project No. II-A

Annual Benefits N/A

Date 8 July 1974

Person Responsible F.L.RIDDLE

DESCRIPTION: (include plan of action and timetable)

TIME AND MOTION STUDIES

Time and motion studies are planned for each operating job in the polymer building and for various phases of some of the jobs. The purpose of these studies is to determine where an operator spends most of his time so these areas can be adequately monitored and more emphasis can be put on making these areas clean. The studies will also be used to determine what valves or equipment can be operated automatically or remotely. The various jobs or job phases to be studied are as follows:

1. Top Floor Operator
 - a. Charging Nos. 16, 17 or 18 reactors
 - b. Charging Nos. 1, 2 or 3 reactors
 - c. Charging No. 19 reactor
 - d. Making up solution
2. Stripper Operator
 - a. Homopolymer batch
 - b. Copolymer batch
 - c. 400 batch
 - d. 19th reactor
3. Bottom Floor Operator
4. Finishing Operator

TIMING: SEE MASTER TIME TABLE

PROFIT IMPROVEMENT PROJECT

Department PVC Capital Investment \$ 75,000 EST
Project No. II-B Annual Benefits N/A
Date 8 July 1974 Person Responsible J.D. PEARSON

DESCRIPTION: (include plan of action and timetable)

COMMUNICATIONS

In the operations of the PVC Plant, operators need to be in constant communication with each other for the correct timing of charging, dropping and stripping of reactors. The operators are separated on different floors by concrete. Due to the above normal noise level, it is very difficult to communicate by voice alone. In the case of an emergency or VCI leak, notification of all affected personnel is slow. By means of a walkie talkie type communication system, all operators can be notified of emergency or leaks at once. It is the purpose of this project to supply such a system.

The project is divided into the following steps:

1. Determine system, prepare cost estimate and CE
2. Equipment delivery
3. Install equipment

TIMING: SEE MASTER TIME TABLE

PROFIT IMPROVEMENT PROJECT

Department PVC

Capital Investment \$ 2,000,000 EST

Project No. II-C

Annual Benefits _____

Date 8 July 1974

Person Responsible W.E.DUNNING
G.B.H.SPEED
F.L.RIDDLE

DESCRIPTION: (include plan of action and timetable)

AUTOMATION OF PROCESS

The purpose of this project is to eliminate the exposure of the operator to VCI by removing the operator from the operating area through the use of automatically or remotely controlled valves and/or equipment. From the time and motion studies and update P & I flow sheets, the extent of automation will be determined. The use of television cameras will also be evaluated. In the scope of this project is an enclosed VCI free control room in which the major operations will be conducted from.

This project is divided into the following steps:

1. Prepare P & I flow sheets
 - a. Monomer charging
 - b. DM water charge
 - c. Solution charge
 - d. VAc charge
 - e. Propylene charge
 - f. Drop header
 - g. North recovery
 - h. Center recovery
 - i. South recovery
 - j. Air
 - k. Refrigerated water
2. Automation, or remote control of process
 - a. From C-1 above, determine amount of automation or remote control required
 - b. Design system, prepare cost estimate
3. Television monitoring of equipment
 - a. From C-1 above and survey of equipment determine number and location of television cameras
 - b. Design system and prepare cost estimate

PROJECT NO. III

VINYL CHLORIDE REDUCTION

PROFIT IMPROVEMENT PROJECTS

NO. III

PROCESS MODIFICATIONS FOR THE CONTAINMENT OR REMOVAL OF VC1

- A. THIRD STEAM JET
 - 1. Design system
 - 2. Determine cost
 - 3. Install
- B. CHARGE POT DRAIN SYSTEM
 - 1. Design system
 - 2. Determine cost and prepare CE
 - 3. Install
- C. SWECO SCREEN EXHAUST FAN
 - 1. Design system
 - 2. Determine cost and prepare CE
 - 3. Install
- D. REACTOR AND THIRD FLOOR EXHAUST SYSTEM
 - 1. Design system
 - 2. Determine cost and prepare CE
 - 3. Install
- E. FIRST AND SECOND FLOOR EXHAUST SYSTEM
 - 1. Design system
 - 2. Determine cost and prepare CE
 - 3. Install
- F. NEW STRIPPER TRANSFER PUMPS
 - 1. Design system
 - 2. Determine cost and prepare CE
 - 3. Install
- G. IMPROVE VENTILATION PATTERN
 - 1. Redesign blower discharge nozzles
 - 2. Conduct air flow studies with smoke
- H. MONOMER RECOVERY DRAIN SYSTEM
 - 1. Revise existing drain system and equipment
 - 2. Modify or add drain as required
 - 3. Equipment delivery as required
 - 4. Install additional instruments as required

VINYL CHLORIDE REDUCTION
PROFIT IMPROVEMENT PROJECTS

NO. III

PROCESS MODIFICATIONS FOR THE CONTAINMENT OR REMOVAL OF VC1

I. CHARGE POT RUPTURE DISC VENT LINES

1. Design system
2. Equipment Delivery
3. Install

J. NEW (FETTEROLF) SPRAY RINSE VALVE

1. Evaluate new type valves currently being tested
2. Prepare cost estimate and CE to replace existing Phaudler spray rinse valves
3. Equipment delivery
4. Install

K. NEW VC1 RECOVERY SYSTEM

1. Design
2. Equipment delivery
3. Installation

L. INCREASE TOTAL VENTILATION THROUGH REACTOR BUILDING

1. Design system
2. Prepare cost estimate and CE
3. Equipment delivery
4. Install

M. LOW TEMPERATURE VC1 RECOVERY SYSTEM

1. Design system
2. Prepare cost estimate and CE
3. Equipment delivery
4. Install

N. HIGH PRESSURE WATER CLEANING SYSTEM FOR REACTORS

1. Determine system to use
2. Prepare cost estimate and CE
3. Install

O. CHEMICAL CLEANING OF REACTORS

1. Determine system to be used
2. Design system
3. Prepare cost estimate and CE
4. Equipment delivery
5. Install

VINYL CHLORIDE REDUCTION

PROFIT IMPROVEMENT PROJECTS

NO. III

PROCESS MODIFICATIONS FOR THE CONTAINMENT OR REMOVAL OF VC1

P. REDESIGN ALL MONOMER HANDLING PIPING

1. From the P & I flow sheets prepared under project II-C-1, review all monomer piping to determine if modification can be made to reduce number of flanges and polymer buildup.
2. Redesign if required
3. Prepare cost estimate and CE
4. Equipment delivery
5. Install

PROFIT IMPROVEMENT PROJECT

Department PVC

Capital Investment \$ 10,000 EST

Project No. III-B

Annual Benefits

Date 8 July 1974

Person Responsible F.N.SUBLETTE
G.B.H.SPEED

DESCRIPTION: (include plan of action and timetable)

CHARGE POT DRAIN SYSTEM

When a reactor is charged, monomer vapors are left in the catalyst charge pot.

As a safety precaution, the pot is drained of any liquid and pressure bled-off

in case any catalyst is left in the pot. The drain currently vents into the
reactor building. This project will connect all drains to a central drain
system outside the building.

This project is divided into the following steps:

1. Design system
2. Determine cost and prepare CE
3. Install

TIMING: SEE MASTER TIME TABLE

PROFIT IMPROVEMENT PROJECT

Department PVC

Capital Investment \$ 10,000 EST

Project No. III-C

Annual Benefits _____

Date 8 July 1974

Person Responsible F.N.SUBLETTE
G.B.H.SPEED

DESCRIPTION: (include plan of action and timetable)

SWECO SCREEN EXHAUST FAN

Stripped resin is pumped from the strippers to Sweco Screens to remove large particles. These screens located just outside the building allow residual monomer to escape and drift into the operating area. A temporary exhaust system was installed inside the reactor building and has drastically improved the operation. This project proposes the installation of a permanent exhaust fan outside the reactor building.

This project is divided into the following steps:

1. Design system
2. Determine cost and prepare CE
3. Install

TIMING: SEE MASTER TIME TABLE

PROFIT IMPROVEMENT PROJECT

Department PVC

Capital Investment \$ 140,000

Includes III-D

Project No. III-E

Annual Benefits

Date 8 July 1974

Person Responsible D.L.WALKER
G.B.H.SPEED

DESCRIPTION: (include plan of action and timetable)

FIRST AND SECOND FLOOR EXHAUST SYSTEM

Currently any leaks that develop on the first or second floor of the reactor building must be cleared through the use of wall fans. With the cross ventilation in the building a leak on the opposite wall must go completely across the building before being exhausted. This project proposes a large exhaust fan with multiple flexible connections that can be connected to a leak source until repairs can be made.

This project is divided into the following steps:

1. Design system
2. Determine cost and prepare CE
3. Install

TIMING: SEE MASTER TIME TABLE

PROFIT IMPROVEMENT PROJECT

Department PVC

Capital Investment \$ 140,000
Includes III-D

Project No. III-E

Annual Benefits _____

Date 8 July 1974

Person Responsible D.L.WALKER
G.B.H.SPEED

DESCRIPTION: (include plan of action and timetable)

FIRST AND SECOND FLOOR EXHAUST SYSTEM

Currently any leaks that develop on the first or second floor of the reactor building must be cleared through the use of wall fans. With the cross ventilation in the building a leak on the opposite wall must go completely across the building before being exhausted. This project proposes a large exhaust fan with multiple flexible connections that can be connected to a leak source until repairs can be made.

This project is divided into the following steps:

1. Design system
2. Determine cost and prepare CE
3. Install

TIMING: SEE MASTER TIME TABLE

PROJECT IMPROVEMENT PROJECT

Department	PVC
Project No.	III-F
Date	8 July 1974
Person Responsible	F.N. SUBLETTE
Annual Benefits	
Capital Investment \$	50,000
	G.B.H. SPEED

DESCRIPTION: (include plan of action and timetable)

NEW STRIPPER TRANSFER PUMPS

Resin from the strippers is pumped through Sweco screens to the blend tanks.

The present pumps used for this service are old and require a high NPSH.

As a result monomer pressure must be put on the strippers to provide the NPSH.

As a result monomer vapors are frequently pressured through the pumps to the

Sweco screen. In addition the old pumps frequently plug. To free the pump

the resin content must be dumped in the building releasing residual monomer.

This project proposes the installation of new Gorman-Rupp pumps currently being

used successfully on No. 19 reactor.

This project is divided into the following steps:

1. Design system
2. Determine cost and prepare CE
3. Install

TIMING: SEE MASTER TIME TABLE

PROFIT IMPROVEMENT PROJECT

Department PVC

Capital Investment \$ 25,000

Project No. III-G

Annual Benefits

Date 8 July 1974

Person Responsible R.W. McGINNIS
G.B.H. SPEED

DESCRIPTION: (include plan of action and timetable)

IMPROVE VENTILATION PATTERN

On the third floor of the reactor building, the fresh air blower exhaust is located about 12 feet above the floor. As a result, the fresh air does not reach the operators level until it is half way across the building.

This project will investigate means for discharging the fresh air along the wall to provide a complete sweep of the building.

This project is divided into the following steps:

1. Redesign blower discharge nozzles
2. Conduct air flow studies with smoke

TIMING: SEE MASTER TIME TABLE

PROFIT IMPROVEMENT PROJECT

Department PVC

Capital Investment \$ 25,000 EST

Project No. III-H

Annual Benefits

Date 8 July 1974

Person Responsible F.N.SUBLETTE
G.B.H.SPEED

DESCRIPTION: (include plan of action and timetable)

MONOMER RECOVERY DRAIN SYSTEM

In the operation of the monomer recovery system, water condenses out of the monomer as pressure is increased. In addition, water is used in the Nash system to compress the gases. As such, these systems include gas/liquid separators which must be drained of excess liquid. In the present system, these separators drain into the reactor building, releasing any dissolved monomer and on occasions monomer vapor.

This project proposes installing level control equipment as the separator and a closed central drain system discharging outside the building.

This project is divided into the following steps:

1. Revise existing drain system and equipment
2. Modify or add drain as required
3. Equipment delivery as required
4. Install additional instruments as required

TIMING: SEE MASTER TIME TABLE

PROJECT IMPROVEMENT PROJECT

Department PVC
Project No. III-1
Date 8 July 1974
Capital Investment \$ 10,000
Annual Benefits
Person Responsible F.N. SUBLETTE
G.B.H. SPEED

DESCRIPTION: (include plan of action and timetable)

CHARGE POT RUPTURE DISC VENT LINES

The charge pot on the PVC reactor are provided with rupture discs which discharge into the operating area. Although very infrequent, the rupture disc have burst while charging monomer.
This project proposes the extension of the rupture disc vent to a point above the reactor building roof.

This project is divided into the following steps:

1. Design system
2. Equipment delivery
3. Install

TIMING: SEE MASTER TIME TABLE

PROJECT IMPROVEMENT PROJECT

Department PVC Project No. III-J Date 8 July 1974
Annual Benefits _____
Person Responsible F.N. SUBLETTE
Capital Investment \$ 50,000
G.B.H. SPEED

DESCRIPTION: (include plan of action and timetable)

NEW FETTEROLF SPRAY RINSE VALVE

All the Calvert City reactors are equipped with Phaulder spray rinse valves except for two. These two have the new Fetterolf valves. Spray rinse valves are used to rinse loose polymer out of a reactor while dumping without the need for opening the reactor. The Phaulder valves do not provide an adequate spray and not being retractable cause considerable fouling. The Fetterolf valves are retractable.

It is proposed to evaluate the new valves and replace the Phaulder valves if justified. The new valves will allow the recharging of reactors without the need for opening and manual washing.

This project is divided into the following steps:

1. Evaluate new type valves currently being tested
2. Prepare cost estimate and CF to replace existing Phaulder spray rinse valves
3. Equipment delivery
4. Install

TIMING: SEE MASTER TIME TABLE

PROFIT IMPROVEMENT PROJECT

Department PVC Capital Investment \$ 653,000
Project No. III-K Annual Benefits _____
Date 8 July 1974 Person Responsible D.L.WALKER
G.B.H.SPEED

DESCRIPTION: (include plan of action and timetable)

NEW VCI RECOVERY SYSTEM

The present VCI recovery system is spread over the entire inside of the building and includes old equipment both Nash type and reciprocating type compressors. The control of the equipment is essentially manual. The obsolescent, poor layout and lack of instrumentation has resulted in poor VCI efficiencies and frequent plugging of equipment and lines which results in the escape of VCI. It is proposed to locate all VCI recovery equipment outside the building in one location. The equipment is to be instrumented to provide minimum operator attention.

This project is divided into the following steps:

1. Design
2. Equipment Delivery
3. Installation

TIMING: SEE MASTER TIME TABLE

PROFIT IMPROVEMENT PROJECT

Department PVC

Capital Investment \$ 120,000

Project No. III-L

Annual Benefits

Date 8 July 1974

Person Responsible D.L.WALKER
G.B.H.SPEED

DESCRIPTION: (include plan of action and timetable)

INCREASE TOTAL VENTILATION THROUGH REACTOR BUILDING

The reactor building currently has ventilation capacity to provide a normal air change of 12 per hour and emergency of 24 per hour. If through other process modifications the VC1 exposure level cannot be maintained below the limit, additional ventilation will be considered.

This project is divided into the following steps:

1. Design system
2. Prepare cost estimate and CE
3. Equipment delivery
4. Install

TIMING: SEE MASTER TIME TABLE

PROFIT IMPROVEMENT PROJECT

Department PVC

Capital Investment \$ 500,000 EST

Project No. III-M

Annual Benefits

Date 8 July 1974

Person Responsible W.E.DUNNING
G.B.H.SPEED

DESCRIPTION: (include plan of action and timetable)

LOW TEMPERATURE VCI RECOVERY SYSTEM

The majority of the problems associated with monomer recovery resulting in
fouling and monomer release occurs in the compression of the vapor from the
discharge of the vacuum pump to the condensers.

This project proposes the use of low temperature (20-25°F) recovery system
which would eliminate the need for compression. The monomer would condense
at the vacuum pump discharge pressure.

This project is divided into the following steps:

1. Design system
2. Prepare cost estimate and CE
3. Equipment delivery
4. Install

TIMING: SEE MASTER TIME TABLE

PROFIT IMPROVEMENT PROJECT

Department PVC

Capital Investment \$ 100,000 EST

Project No. III-N

Annual Benefits

Date 8 July 1974

Person Responsible J.T.BARR
W.E.DUNNING
G.B.H.SPEED

DESCRIPTION: (include plan of action and timetable)

HIGH PRESSURE WATER CLEANING SYSTEM FOR REACTORS

Currently all reactors are opened and manually hosed down between charges and entered and manually cleaned every three to five charges. The opening of reactors results in the release of monomer to the operating area.

This project proposes the use of a high pressure water cleaning system that is more effective than manual hosing. It is hoped that the effectiveness will be improved to allow discontinuing the between batch hosing and less frequent manual cleaning.

This project is divided into the following steps:

1. Determine system to use
2. Prepare cost estimate and CE
3. Install

TIMING: SEE MASTER TIME TABLE

PROFIT IMPROVEMENT PROJECT

Department PVC

Capital Investment \$ 750,000

Project No. III-O

Annual Benefits

Date 8 July 1974

Person Responsible W.E.DUNNING
G.B.H.SPEED

DESCRIPTION: (include plan of action and timetable)

CHEMICAL CLEANING OF REACTORS

At Calvert City only one reactor, No. 19 stainless steel, is currently being chemically cleaned with DMF. The other 18 reactors are manually cleaned. No man has ever entered No. 19 for cleaning. Chemical cleaning with DMF results in a far superior job than manual cleaning. With a properly designed chemical cleaning system the use of operator to clean reactors can be eliminated.

If entry for mechanical reasons are required, the reactor can be scrupulously cleaned with DMF before entering.

The purpose of this project is to eliminate the need to enter reactors for cleaning through the use of a chemical cleaning system.

This project is divided into the following steps:

1. Determine system to be used
2. Design system
3. Prepare cost estimate and CE
4. Equipment delivery
5. Install

TIMING: SEE MASTER TIME TABLE

PROFIT IMPROVEMENT PROJECT

Department PVC

Capital Investment \$ 50,000

Project No. III-P

Annual Benefits

Date 8 July 1974

Person Responsible F.N.SUBLETTE
G.B.H.SPEED

DESCRIPTION: (include plan of action and timetable)

REDESIGN ALL MONOMER HANDLING PIPING

Due to the addition of monomer recovery equipment to the facility through the years, monomer recovery equipment is located throughout the polymer building. Many lines traverse the building several times from beginning to end. It is the purpose of this study to review all the monomer piping and redesign and relocate in a more direct route with less flanges, dead spots, etc. can be made.

This project is divided into the following steps:

1. From the P & I flow sheets prepared under project II-C-1, review all monomer piping to determine if modification can be made to reduce number of flanges and polymer buildup.
2. Redesign if required
3. Prepare cost estimate and CE
4. Equipment delivery
5. Install

TIMING: SEE MASTER TIME TABLE

PROJECT NO. IV

VINYL CHLORIDE REDUCTION

PROFIT IMPROVEMENT PROJECTS

NO. IV

REDUCTION OF PVC PARTICULATES

A. REPLACE PRODUCT COLLECTORS WITH CYCLONES

1. Design system
2. Prepare cost estimate and CE
3. Equipment delivery
3. Install

B. COMPLETE UPGRADING OF BULK HANDLING, LOADING AND BAGGING

1. Review of existing system
2. Design revised system
3. Determine cost and prepare CE
4. Equipment delivery
5. Install

PROFIT IMPROVEMENT PROJECT

Department PVC

Capital Investment \$ 750,000

Project No. IV-B

Annual Benefits _____

Date 8 July 1974

Person Responsible W.E.DUNNING
G.B.H.SPEED

DESCRIPTION: (include plan of action and timetable)

1. COMPLETE UPGRADING OF BULK HANDLING, LOADING AND BAGGING

The existing bulk handling, loading and bagging system at Calvert City are obsolete, under capacity and lack any instrumentation. As a result during any resin transfer operation leaks develop, equipment breaks down, dust flies everywhere and even silos are overfilled.

The purpose of this project is to completely overhaul the transfer system to eliminate the sources of leaks, provide exhaust system with collectors to keep the bagging area dust free and automate the system to prevent overfilling of silos and bulk containers.

This project is divided into the following steps:

1. Review of existing system
2. Design revised system
3. Determine cost and prepare CE
4. Equipment delivery
5. Install

TIMING: SEE MASTER TIME TABLE

PROFIT IMPROVEMENT PROJECT

Department PVC

Capital Investment \$ 150,000

Project No. IV-A

Annual Benefits

Date 8 July 1974

Person Responsible D.L.WALKER
G.B.H.SPEED

DESCRIPTION: (include plan of action and timetable)

REPLACEMENT OF PRODUCT COLLECTORS WITH CYCLONES

The existing bag house product collectors are original equipment and are in a poor condition requiring constant maintenance. In addition, the bags break frequently allowing resin to escape.

This project will replace the existing product collectors with cyclones. By their design, cyclones have no moving parts or bags to break. Being stainless steel, corrosion will be eliminated.

This project is divided into the following steps:

1. Design system
2. Prepare cost estimate and CE
3. Equipment delivery
4. Install

TIMING: SEE MASTER TIME TABLE

PROJECT NO. V

VINYL CHLORIDE REDUCTION
PROFIT IMPROVEMENT PROJECTS

NO. V

REDUCE LOST BATCHES

A. CHEMICAL CHARGE SYSTEM

1. Review charging procedures to eliminate errors
2. Review charging system

B. REEVALUATE ALL RECIPES AND CATALYST LEVELS

C. NEW DM WATER SYSTEM

1. Design system
2. Prepare cost estimate and CE
3. Equipment delivery
4. Install

D. ADD ADDITIONAL REFRIGERATION AND COOLING TOWER WATER SUPPLY

1. Design system
2. Prepare cost estimate and CE
3. Equipment delivery
4. Install

PROJECT IMPROVEMENT PROJECT

Department PVC
Project No. V-B
Date 8 July 1974
Person Responsible F.L.RINDLE
Annual Benefits
Capital Investment \$

DESCRIPTION: (include plan of action and timetable)

RE-EVALUATE ALL RECIPES AND CATALYST LEVELS

A possible reason for losing a batch either through emergency venting or as BB's may be that the recipe does not contain the most desirable or correct level of suspending agent, buffer, etc. Also, the catalyst level may be too high for the cooling capacity of the plant on a 24 hour basis. This project will review the recipes and recommend changes where need to insure that optimum ingredient level is used.

TIMING: SEE MASTER TIME TABLE

PROFIT IMPROVEMENT PROJECT

Department PVC

Capital Investment \$ --

Project No. V-B

Annual Benefits

Date 8 July 1974

Person Responsible F.L.RIDDLE

DESCRIPTION: (include plan of action and timetable)

REEVALUATE ALL RECIPES AND CATALYST LEVELS

A possible reason for losing a batch either through emergency venting or as BB's may be that the recipe does not contain the most desirable or correct level of suspending agent, buffer, etc. Also, the catalyst level may be too high for the cooling capacity of the plant on a 24 hour basis.

This project will review the recipes and recommend changes where need to insure that optimum ingredient level is used.

TIMING: SEE MASTER TIME TABLE

PROFIT IMPROVEMENT PROJECT

Department PVC

Capital Investment \$ 227,000

Project No. V-C

Annual Benefits

Date 8 July 1974

Person Responsible D.L.WALKER
G.B.H.SPEED

DESCRIPTION: (include plan of action and timetable)

NEW DEMINERALIZED WATER SYSTEM

Poor water quality has been found to result in an unstable suspension system resulting in the need for discharging a batch of resin. The poor quality water problems experienced at Calvert City are attributed to the old and undersize DM unit currently in service. It is planned to replace the present unit with a larger more reliable type system.

This project is divided into the following steps:

1. Design system
2. Prepare cost estimate and CE
3. Equipment delivery
4. Install

TIMING: SEE MASTER TIME TABLE

PROFIT IMPROVEMENT PROJECT

Department PVC

Capital Investment \$ 750,000

Project No. V-D

Annual Benefits _____

Date 8 July 1974

Person Responsible W.E.DUNNING
G.B.H.SPEED

DESCRIPTION: (include plan of action and timetable)

ADD ADDITIONAL REFRIGERATION AND COOLING TOWER WATER SUPPLY

Approximately five batches a month are lost due to inadequate refrigerated water
supply. It is planned to install an additional refrigeration machine, surge
tankage and additional cooling tower water facilities to maintain adequate
control over the polymerization process.

This project is divided into the following steps:

1. Design system
2. Prepare cost estimate and CE
3. Equipment delivery
4. Install

PROJECT NO. VI

VINYL CHLORIDE REDUCTION

PROFIT IMPROVEMENT PROJECTS

NO. VI

OPERATOR TRAINING

A. UPDATE OPERATING MANUALS

B. GROUP AND INDIVIDUAL TRAINING SESSIONS

PROFIT IMPROVEMENT PROJECT

Department PVC

Capital Investment \$ ---

Project No. VI-A

Annual Benefits -----

Date 8 July 1974

Person Responsible J.P.PARKER
F.L.RIDDLE

DESCRIPTION: (include plan of action and timetable)

UPDATE OPERATING MANUALS

Due to the many changes and additions in the process such as catalyst charges, 19th reactor, effluent reclaim, etc. many of the operating procedures have not been updated, or have been issued as a separate sheet. With the new P & I flow sheets being prepared in II-C, the operating manual will be revised to incorporate all new procedures and equipment.

TIMING: SEE MASTER TIME TABLE

PROFIT IMPROVEMENT PROJECT

Department PVC

Capital Investment \$

Project No. VI-B

Annual Benefits

Date 8 July 1974

Person Responsible J. P. PARKER

DESCRIPTION: (include plan of action and timetable)

GROUP AND INDIVIDUAL TRAINING SESSIONS

Group and individual training sessions will be held to acquaint the
operators with new procedures and insure understanding of old procedures.

The sessions will also be used to keep the operators aware of the VCI
exposure problem and progress made.

TIMING: SEE MASTER TIME TABLE

TIME TABLE

VINYL CHLORIDE REDUCTION
PROJECT IMPROVEMENT PROJECTS

PROJECT GROUP NO. 1		JULY	AUG.	SEPT.	OCT.	NOV.	DEC.	2ND QTR FY-1975	3RD QTR FY-1975	4TH QTR FY-1975	LATER
IMPROVE AREA MONITORING FOR VCL LEAKS											
A. INITIATE FORAL LEAK PATROL		COMPLETE									
1. Set up procedures and record keeping											
2. Select maintenance man for job											
3. Instruct man in need for job and sample procedures											
4. Start patrols											
B. REVIEW SAMPLE POINT LOCATIONS											
1. Relocate to reflect two systems											
a. Personnel operating area											
b. Process control area											
C. ADD ALARM LIGHT AND HORN (INCLUDES NO. 2 BENDIX)											
1. Design system, prepare cost estimate and CE											
2. Order equipment											
3. Install system											
D. ADD SECOND BENDIX CHROMATOGRAPH		COMPLETE									
1. Prepare CE											
2. Order equipment											
3. Install											
E. REVIEW NEED FOR ALARM LIGHTS AND HORN ON BECCON ANALYZER USED IN FINISHING, BAGGING AND COMPOUNDING											
F. COLLECT CHROMATOGRAPH DATA ON COMPUTER (INCLUDE BOTH BENDIX & BECCON)											
1. Design system, prepare cost estimate and CE											
2. Order equipment											
3. Install system											

ANNUAL BUDGET ALLOCATION
PROJECT IMPROVEMENT PROJECTS

PROJECT GROUP NO. II		JULY	AUG.	SEPT.	OCT.	NOV.	DEC.	2ND QTR FY-1975	3RD QTR FY-1975	4TH QTR FY-1975	LATER
PROJECTS TO REMOVE OPERATOR FROM PROCESS											
A. TIME AND MOTION STUDIES											
1. Top Floor Operator											
a. Charging Nos. 16, 17 or 18 reactors											
b. Charging Nos. 1, 2 or 3 reactors											
c. Charging No. 19 reactor											
d. Making up solution											
2. Stripper Operator											
a. Homopolymer batch											
b. Copolymer batch											
c. 400 batch											
d. 19th reactor											
3. Bottom Floor Operator											
4. Finishing Operator											
B. COMMUNICATIONS											
1. Determine system, prepare cost estimate and CE											
2. Equipment delivery											
3. Install equipment											
C. AUTOMATION OF PROCESS											
1. Prepare P & I flow sheets											
a. Manometer charging											
b. IM water charge											
c. Solution charge											
d. Vac charge											
e. Propylene charge											
f. Drop header											
g. North recovery											
h. Center recovery											
i. South recovery											
j. Air											
k. Refrigerated water											
2. Automation, or remote control of process											
a. From C-1 above, determine amount of automation or remote control required											
b. Design system, prepare cost estimate											
3. Television monitoring of equipment											
a. From C-1 above and survey of equipment determine number and location of television cameras											
b. Design system and prepare cost estimate											

VINYL CHLORIDE REDUCTION
PROJECT IMPROVEMENT PROJECTS

PROJECT GROUP NO. II		JULY	AUG.	SEPT.	OCT.	NOV.	DEC.	2ND QTR FY-1975	3RD QTR FY-1975	4TH QTR FY-1975	LATER
PROJECTS TO REMOVE OPERATOR FROM EXPOSURE											
C. AUTOMATION OF PROCESS (continued)											
1.	4. Enclosed control room										
2.	a. Determine location										
3.	b. Determine cost of relocating equipment if required										
4.	c. Design control room including control panel, etc. and prepare cost estimate										
5.	5. Prepare total cost package for items C-2, 3 and 4 and prepare CE										
6.	6. Equipment delivery										
7.	7. Install										
D. BREATHING AIR SYSTEM											
1.	1. Revise existing temporary system for adequacy and modify if necessary										
2.	2. Install fresh air breathing station at T/C unloading										
3.	3. Install permanent breathing air system										
4.	a. Prepare cost estimate and CE										
5.	b. Equipment delivery										
6.	c. 1) Installation of filter and connections										
7.	2) Installation of compressor and dryer										
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VINYL CHLORIDE REDUCTION PROJECT IMPROVEMENT PROJECTS

Page 2

PROJECT GROUP NO. 111		JULY	AUG.	SEPT.	OCT.	NOV.	DEC.	2ND QTR FY-1975	3RD QTR FY-1975	4TH QTR FY-1975	LATER
PROCESS MODIFICATIONS FOR THE CONTAINMENT OR REMOVAL OF VCI											
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VINYL CHLORIDE REDUCTION
PROJECT IMPROVEMENT PROJECTS

PROJECT GROUP NO. IV REDUCTION OF PVC PARTICULATE		JULY	AUG.	SEPT.	OCT.	NOV.	DEC.	2ND QTR FY-1975	3RD QTR FY-1975	4TH QTR FY-1975	LATER
1	A. REPLACE PRODUCT COLLECTORS WITH CYCLONES	COMPLETE									
2	1. Design system										
3	2. Prepare cost estimate and OS										
4	3. Equipment delivery										
5	4. Install										
6											
7	B. COMPLETE UPGRADING OF MILK HANDLING, LOADING AND BAGGING										
8	1. Review of existing system	COMPLETE									
9	2. Design revised system	COMPLETE									
10	3. Determine cost and prepare CE	COMPLETE									
11	4. Equipment delivery										
12	5. Install										
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VINYL CHLORIDE REDUCTION
PROJECT IMPROVEMENT PROJECTS

PROJECT GROUP NO. Y	JULY	AUG.	SEPT.	OCT.	NOV.	DEC.	2ND QTR FY-1975	3RD QTR FY-1975	4TH QTR FY-1975	LATER
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SAMPLE PROGRESS REPORT

DATE 15 July 1974

STATUS REPORT

VCI IMPROVEMENT PROJECT

IMPROVED AREA MONITORING FOR VCI VAPORS

PROJECT NUMBER	PROJECT	PERSON RESPONSIBLE	COST	CE NO.	STATUS
I - A	Initiate Formal Leak Patrol 1. Set up procedure & record keeping 2. Select maintenance man for job 3. Instruct man in job 4. Start patrol	Draffen/Speed	\$80,000/yr.		Scope of project has been defined.
I - B	Review Sample Point Locations 1. Review 2. Relocate	Speed	\$ 2,000	Maintenance	No work done.
I - C	Add Alarm Lights & horn 1. Design system, prepare cost estimate & CE 2. Order equipment 3. Install equipment	Horning Speed	\$100,000		Some design work done on internal of chromatograph.
I - D	Add Second Bendix Chromatograph 1. Prepare CE 2. Order equipment 3. Install	L.Thompson/Speed	\$ 41,000	CC #288	CE prepared.
I - E	Review need for alarm lights & horn on Beckman Analyzer	Speed	\$ 25,000		No work done.
I - F	Collect Chromatograph Data on Computer 1. Design system, prepare cost estimate & CE 2. Order equipment 3. Install system	L.Thompson/Speed	\$100,000		Some design work has been done including visit to vendors of computer equipment.

AP00001348

STATUS REPORT

VCL IMPROVEMENT PROJECT

PROJECTS TO REMOVE OPERATOR FROM EXPOSURE

<u>PROJECT NUMBER</u>	<u>PROJECT</u>	<u>PERSON RESPONSIBLE</u>	<u>COST</u>	<u>CE NO.</u>	<u>STATUS</u>
II - A	Time and Motion Studies 1. Top Floor Operator a. Charging Nos. 16, 17 & 18 reactors b. Charging Nos. 1, 2 & 3 reactors c. Charging No. 19 reactor d. Making up solution 2. Stripper Operator a. Homopolymer batch b. Copolymer batch c. 400 batch d. 19th reactor 3. Bottom Floor Operator 4. Finishing Operator	F.L. Riddle			Studies to begin week of July 12, 1974.
II - B	Communications 1. Determine system, prepare cost estimate & CE 2. Equipment Delivery 3. Install equipment	J.D. Pearson/ G.B.H. Speed	\$75,000		No work done.
II - C	Automation of Process 1. Prepare P & I flow sheets a. Monomer charging b. DI water charge c. Solution charge d. VAC charge e. Propylene charge f. Drop header g. North Recovery h. Center Recovery i. South Recovery j. Air k. Refrigerated water	W.E. Dunning/ G.B.H. Speed	\$2,000,000		No work done.

STATUS REPORT

VCL IMPROVEMENT PROJECT

PAGE 2

PROJECTS TO REMOVE OPERATOR FROM EXPOSURE

PROJECT NUMBER	PROJECT	PERSON RESPONSIBLE	COST	CE NO.	STATUS
II - C	Automation of Process (continued) 2. Automation, or remote control of process a. From C-1 above, determine amount of automation or remote control required b. Design system, prepare cost estimate 3. Television monitoring of equipment a. From C-1 above and survey of equipment determine number and location of television cameras b. Design system & prepare cost estimate 4. Enclosed control room a. Determine location b. Determine cost of relocating equipment if required c. Design control room including control panel, etc. and prepare cost estimate 5. Prepare total cost package for items C-2, 3 and 4 & prepare CE 6. Equipment delivery 7. Install				
II - D	Breathing Air System 1. Revise existing temporary system for adequacy and modify if necessary 2. Install fresh air breathing station at T/C unloading 3. Install permanent breathing air system a. Prepare cost estimate & CE b. Equipment delivery c. 1) Installation of filter & connections 2) Installation of compressor & dryer	D.L.Walker/ G.B.H.Speed	\$200,000		Estimate being prepared.

AP00001350

STATUS REPORT

VCI IMPROVEMENT PROJECT

PROCESS MODIFICATIONS FOR THE CONTAINMENT OR REMOVAL OF VCI

PROJECT NUMBER	PROJECT	PERSON RESPONSIBLE	COST	CE NO.	STATUS
III - A	Third Steam Jet 1. Design system 2. Determine cost & prepare CE 3. Install	D.L.Walker	\$ 10,000	Maintenance	Essentially complete. Several tie-ins to make. Expect completion July 19, 1974.
III - B	Charge Pot Drain System 1. Design system 2. Determine cost & prepare CE 3. Install	F.N.Sublette	\$ 10,000	Maintenance	Project about half complete. Expect completion by 19 July 1974.
III - C	Sweco Screen Exhaust Fan 1. Design system 2. Determine cost & prepare CE 3. Install	F.N.Sublette	\$ 10,000	Maintenance	All equipment has been delivered. Expect completion by 19 July 1974.
III - D	Reactor & Third Floor Exhaust System 1. Design system 2. Determine cost & prepare CE 3. Install	D.L.Walker	\$140,000	VFCE #508	Duct work currently being fabricated.
III - E	First & Second Floor Exhaust System 1. Design system 2. Determine cost & prepare CE 3. Install	D.L.Walker	Included in III-D	VFCE #508	System currently being designed.
III - F	New Stripper Transfer Pumps 1. Design system 2. Determine cost & prepare CE 3. Install	F.N.Sublette	\$ 50,000	Maintenance	No. 3 transfer pump installed. No. 1 and 2 arrived without motors. Motors expected in September.
III - G	Improve Ventilation Pattern 1. Redesign blower discharge nozzles. 2. Conduct air flow studies with smoke	R.W.McCinnis	\$ 25,000		Initial studies scheduled for week of July 15, 1974.

STATUS REPORT

VCI IMPROVEMENT PROJECT

PROCESS MODIFICATIONS FOR THE CONTAINMENT OR REMOVAL OF VCI

PAGE 2

PROJECT NUMBER	PROJECT	PERSON RESPONSIBLE	COST	CE NO.	STATUS
III - H	Monomer Recovery Drain System 1. Revise existing drain system & equipment 2. Modify or add drain as required 3. Equipment delivery as required 4. Install additional instruments as required	F.N.Sublette/ G.B.H.Speed	\$ 25,000	Maintenance	System about half complete. Delivery time on needed equipment estimated in August.
III - I	Charge Pot Rupture Disc Vent Lines 1. Design system 2. Equipment delivery 3. Install	F.N.Sublette/ G.B.H.Speed	\$ 10,000	Maintenance	System has been designed and equipment ordered.
III - J	New (Fetterolf) Spray Rinse Valve 1. Evaluate new type valves currently being tested 2. Prepare cost estimate & CE to replace existing Phaudler spray rinse valves 3. Equipment delivery 4. Install	F.N.Sublette/ G.B.H.Speed	\$ 50,000	Maintenance	Evaluation complete and CE prepared.
III - K	New VCI Recovery System 1. Design 2. Equipment Delivery 3. Installation	D.L.Walker/ G.B.H.Speed	\$653,000	VFCE #450	System partially designed. Equipment ordered for February 1975 delivery. Scope will require changes.
III - L	Increase Total Ventilation Through Reactor Building 1. Design system 2. Prepare cost estimate & CE 3. Equipment delivery 4. Install	W.E.Dunning/ G.B.H.Speed	\$120,000		No work done.
III - M	Low Temperature VCI Recovery System 1. Design system 2. Prepare cost estimate & CE 3. Equipment delivery 4. Install	W.E.Dunning/ G.B.H.Speed	\$500,000		No work done.

STATUS REPORT

VCI IMPROVEMENT PROJECT

PAGE 3

PROCESS MODIFICATIONS FOR THE CONTAINMENT OR REMOVAL OF VCI

<u>PROJECT NUMBER</u>	<u>PROJECT</u>	<u>PERSON RESPONSIBLE</u>	<u>COST</u>	<u>CE NO.</u>	<u>STATUS</u>
III - N	High Pressure Water Cleaning System for Reactors 1. Determine system to use 2. Prepare cost estimate & CE 3. Install	J.T. Barr/ W.E. Dunning/ G.B.H. Speed	\$ 10,000		No work done at Calvert..
III - O	Chemical Cleaning of Reactors 1. Determine system to be used 2. Design system 3. Prepare cost estimate & CE 4. Equipment delivery 5. Install	Pensacola/ W.E. Dunning/ G.B.H. Speed	\$750,000		No work done at Calvert.
III - P	Redesign all monomer handling piping 1. From the P & I flow sheets prepared under Project II-C-1, review all monomer piping to determine if modification can be made to reduce number of flanges & polymer buildup 2. Redesign if required 3. Prepare cost estimate & CE 4. Equipment delivery 5. Install	F.N. Sublette/ G.B.H. Speed	\$ 50,000		No work done.

STATUS REPORT

VCI IMPROVEMENT PROJECT

REDUCTION OF PVC PARTICULATES

<u>PROJECT NUMBER</u>	<u>PROJECT</u>	<u>PERSON RESPONSIBLE</u>	<u>COST</u>	<u>CE NO.</u>	<u>STATUS</u>
IV - A	Replace Product Collectors with Cyclones 1. Design system 2. Prepare cost estimate & CE 3. Equipment delivery 4. Install	D.L. Walker/ G.B.H. Speed	\$150,000	Maintenance	Cyclones designed, ordered and scheduled for delivery in September. Installation scheduled for first quarter FY-1975.
IV - B	Complete upgrading of Bulk Handling, Loading & Bagging 1. Review of existing system 2. Design revised system 3. Determine cost & prepare CE 4. Equipment delivery 5. Install	W.E. Dunning/ G.B.H. Speed	\$750,000 EST		Leco Engineering is currently estimating cost of equipment.

STATUS REPORT

VCI IMPROVEMENT PROJECT

REDUCE LOST BATCHES

<u>PROJECT NUMBER</u>	<u>PROJECT</u>	<u>PERSON RESPONSIBLE</u>	<u>COST</u>	<u>CE NO.</u>	<u>STATUS</u>
V - A	Chemical Charge System 1. Review charging procedures to eliminate errors 2. Review charging system	F.L.Riddle			
V - B	Reevaluate all recipes & catalyst levels.	F.L.Riddle			
V - C	New IM water system 1. Design system 2. Prepare cost estimate & CE 3. Equipment delivery 4. Install	D.L.Walker	\$227,000	VCE #430	System designed, estimate prepared and CE approved. Equipment delivery scheduled for November 1974.
V - D	Add additional refrigeration & cooling tower water supply 1. Design system 2. Prepare cost estimate & CE 3. Equipment delivery 4. Install	W.E.Dunning/ G.B.H.Speed	\$750,000 EST		

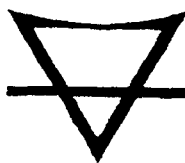
STATUS REPORT

VCI IMPROVEMENT PROJECT

OPERATOR TRAINING

<u>PROJECT NUMBER</u>	<u>PROJECT</u>	<u>PERSON RESPONSIBLE</u>	<u>COST</u>	<u>CE NO.</u>	<u>STATUS</u>
VI - A	Update operating manuals	J.P. Parker			
VI - B	Group & Individual training sessions	J.P. Parker			

Reactor Entry Permit revised and issued.



Air Products and Chemicals
INC.

APRIL 30, 1974 MIDDLESEX MEETING

VCM REDUCTION IN COMPOUNDING PLANT

I. BASIS FOR VCM REDUCTION PROGRAM

A. Legal Aspects - Govt. Regulatory Actions on
VCM Levels

1. PVC Used in C.C. Compounding
2. PVC Used by Customers
3. Compound VCM Levels

B. Experimental Programs

1. Modification of Present Compound Line
2. New Compounding Line

II. COMPOUND ANALYSIS FOR VCM LEVEL - CURRENT STATUS

A. VCM Extraction from PVC Liquor Bottles

1. Total VCM Vs. Extractable VCM
2. Early Work Comparing Plant and Special
Middlesex Compounds

B. Latest "Round-Robin" Study

III. CONCLUSIONS



MANUFACTURING CHEMISTS ASSOCIATION

1825 CONNECTICUT AVENUE, N. W.

WASHINGTON, D. C. 20009

FOR RELEASE

For Immediate Release

CONTACT:

Richard F. Blewitt
(202) 483-6126, ext. 282

WASHINGTON, D. C., April 16 -- The Manufacturing Chemists Association (MCA) announced today preliminary indications that vinyl chloride exposure has produced angiosarcoma -- a liver cancer -- in mice at several exposure levels.

Industrial Bio-Test Laboratories, Inc., who are conducting the MCA-administered vinyl chloride animal exposure study, informed MCA that their work -- although very preliminary at this point -- tends to confirm the findings of Professor Cesare Maltoni, an Italian scientist who found that vinyl chloride exposure in rats caused cancer.

MCA immediately notified the Occupational Safety and Health Administration, the National Institute for Occupational Safety and Health and the Environmental Protection Agency of the preliminary test results.

In the MCA-administered study, rats, hamsters and mice are being exposed seven hours a day, five days a week, to 2500 parts per million (ppm), 200 ppm and 50 ppm. After seven months of exposure, angiosarcoma has been observed in mice at all levels, but not in rats or hamsters.

(more)

AP00001359

Professor Maltoni reported at the OSHA hearings on vinyl chloride February 15 that he had observed the liver cancer in rats exposed four hours a day, five days a week, to 250 ppm for up to 12 months. However, he did not find the cancer in testing at the 50 ppm level.

The animal exposure study is continuing. Another MCA-administered study on the chemical, documenting the health experience of present and former employees who have worked with the material, the results of which also will be released, is expected to be completed in the near future. Further vinyl chloride testing is under consideration.

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MCA-3839

(b) Technical services. . . .

(1) The builder-developer proposing a new subdivision which will have 10 or more dwelling sites will secure the services of a site planner, architect, landscape architect, or engineer, registered or otherwise certified as qualified in the state in which the subdivision is to be constructed, to provide complete planning, drawings, specifications, and supervision on land, street, utility and grading development.

(2) Complete technical services will be obtained and paid for by the builder-developer with his own funds.

(3) At completion of construction (or when construction will be accomplished in phases, at the end of each phase), the person who is qualified and registered or certified in the state in which the subdivision is to be constructed and is providing supervisory services during the period of work shall notify the FHA County Office in writing that all work has been completed in substantial conformance with the approved plans and specifications.

2. Amend § 1804.67 as follows:**§ 1804.67 Streets.**

(a) New subdivisions and expansion of existing subdivisions.

(1) Streets must conform to master street plans, design standards and construction specifications of the applicable public body, city, town, county or state and the requirements of the FHA. Developments with more than 20 sites shall have two accesses available, unless an exception is granted by the State Director.

(42 U.S.C. 1430a; delegation of authority by Sec. of Agr., 38 FR 14944, 14948, 7 CFR 2.23; delegation of authority by the Asst. Sec. for Rural Development, 38 FR 14944, 14952, 7 CFR 2.70).

Dated: April 15, 1974.

FRANK B. ELLIOTT,
Administrator,
Farmers Home Administration.
(FD Doc. 74-9152 Filed 4-19-74; 8:45 am)

DEPARTMENT OF HEALTH,
EDUCATION, AND WELFARE

Food and Drug Administration
[21 CFR Parts 310 and 700]

VINYL CHLORIDE AS AN INGREDIENT OF
DRUG AND COSMETIC AEROSOL PRO-
DUCTS

Notice of Proposed Rule Making

In the FEDERAL REGISTER of May 17, 1973 (38 FR 12931), the Commissioner of Food and Drugs published a notice of proposed rulemaking for prior-sanctioned polyvinyl chloride (PVC) resin. Polyvinyl chloride is a polymeric resin produced by polymerization of vinyl chloride which was used as a component of food packaging materials prior to the passage of the Food Additive Amendments of 1958 and which has been widely

used since that time. Only certain formulations of PVC, however, are prior-sanctioned for use in food packaging and therefore are exempt from classification as food additives and may be used without pre-marketing clearance by the Food and Drug Administration.

Early in 1973, the Food and Drug Administration began receiving reports of possible migration problems of ingredients of PVC bottles then being test marketed for distilled spirits. As a result of further analytical testing, the Commissioner published the May 17, 1973 proposal wherein he concluded that the use of PVC for the packaging of alcoholic foods may cause such foods to be adulterated. No PVC bottles have been used for such purposes since then. After the publication of the proposal, the Commissioner began investigating scientific reports regarding the possible migration of PVC container ingredients to nonalcoholic foods as well. Agency action on this matter and on the earlier proposal is expected to be published shortly in the FEDERAL REGISTER. The Commissioner is also considering the applicability of this information to various drug products packaged in PVC, and to various devices composed in whole or in part of PVC which may come in contact with drug fluids, or which may be inserted or implanted in the human body.

Because of the broad interest in the subject of vinyl chloride by both the public and the scientific community because of its potential as a serious threat to the public health, the Commissioner has undertaken an agency-wide effort to explore the problem in connection with those products within the jurisdiction of the Food and Drug Administration and to fashion the appropriate regulatory actions that should be taken to assure full protection of the public health. Representatives of this agency are also members of a Federal inter-agency task force formed to gather data on the overall effect of vinyl chloride on the total environment and to initiate coordinated action to minimize this impact.

In connection with this search for information, the Commissioner is particularly interested in receiving data in response to the following points relating to the use of polyvinyl chloride in containers for food and cosmetics, and in devices:

(1) The extent of usage of polyvinyl chloride by type of container or container liner and type of product.

(2) The vinyl chloride content in polyvinyl chloride used to manufacture or line various food and cosmetic containers, including description of the methods and extraction systems used to determine this content.

(3) The rate and level of vinyl chloride extraction from the aforementioned containers or their liners by various foods and cosmetics, including data derived after periods of storage.

(4) The rate and level of percutaneous absorption of vinyl chloride from cosmetics and devices when in contact with the skin or mucous membrane.

(5) The vinyl chloride content of vari-

ous drug fluids after they have been in contact with devices composed in whole or in part of polyvinyl chloride.

(6) The effect on blood and tissues of vinyl chloride extracted from devices composed in whole or in part of polyvinyl chloride inserted or implanted in the body.

All persons in possession of such data are urgently requested to submit it to the Food and Drug Administration in writing (preferably in quintuplicate), if at all possible on or before June 21, 1974. This data should be sent to the Hearing Clerk, Food and Drug Administration, Room 6-56, 5600 Fishers Lane, Rockville, MD 20852. Received data may be seen in the above office during working hours, Monday through Friday.

The Commissioner recently received a petition from the Health Research Group, 2000 P Street NW., Washington, D.C. 20036, proposing to prohibit immediately the continued use of vinyl chloride as a constituent or propellant of cosmetic aerosol products and of polyvinyl chloride as a container material for any cosmetic product which can leach out detectable amounts of vinyl chloride from the polyvinyl chloride container material. The petitioner contends that there is substantial evidence that vinyl chloride monomer is carcinogenic.

A copy of the petition and letter of transmittal to the Commissioner are on file in the Office of the Hearing Clerk.

The Commissioner has reviewed all cosmetic product ingredient statements on file with the agency, representing approximately 50 percent of current market formulations, as of February 1, 1974, and has ascertained that no information exists in these files indicating use of vinyl chloride in cosmetic aerosol products. Furthermore, the Cosmetic, Toiletry and Fragrance Association, Inc. (CTFA), has informed the Food and Drug Administration that the results of a recent telephone poll, covering 26 companies including the major aerosol hair spray manufacturers, show that no company contacted has manufactured or sold a product containing vinyl chloride since 1973. In 1973, according to this information, two companies produced vinyl chloride-containing products with a total volume of approximately 1,625,000 units. The CTFA estimates that the percentage of hair spray cans manufactured in 1973 which contained vinyl chloride is less than 0.4 percent. A copy of the information received from the CTFA is on file in the Office of the Hearing Clerk.

There is no known past or present usage of vinyl chloride as a propellant in food aerosol products. Any such use without a food additive regulation would be a violation of the Federal Food, Drug, and Cosmetic Act.

With regard to drug products, the Food and Drug Administration has recently reviewed its files and conducted a survey of all known drug manufacturers of aerosol products to determine the extent to which vinyl chloride is used as a component, including propellant, in such products. The only known use of vinyl chloride in drug products has been as a

propellant in aerosol preparations. While all the information requested in the survey was not supplied by manufacturers, the review of the agency files and preliminary results of the survey indicate that vinyl chloride is not currently being used in aerosol drug products. There are no approved new drug applications for vinyl chloride as a component of any drug. There is evidence, however, that manufacturers of some over-the-counter drug products used vinyl chloride as a propellant until 1973.

To determine the full extent that vinyl chloride is used in drug products and to determine if any additional action is needed to protect the public, there is published elsewhere in this issue of the Federal Register, a notice, pursuant to § 132.7(a)(4) (21 CFR 132.7(a)(4)), of the regulations under the Drug Listing Act of 1972, requiring all registrants to submit a list of all drug products marketed containing the ingredient vinyl chloride or packaged in containers composed of or lined with polyvinyl chloride.

The Commissioner has determined that there are sufficient scientific data on which to base a decision that: (1) vinyl chloride presents an unnecessary hazard to the public health when it is used as an ingredient in cosmetic aerosol products and that such use should be banned, and (2) vinyl chloride, when used as an ingredient in drug aerosol products, is not generally recognized as safe and effective, is a new drug within the meaning of section 201(p) of the Federal Food, Drug and Cosmetic Act, and requires an approved new drug application as a condition of marketing.

There is ample evidence that vinyl chloride inhalation can result in acute toxicity manifested by an array of symptoms, including unconsciousness as a result of high concentration of inhalation. Cardiac effects, bone changes, and degenerative changes in the brain, liver, and kidneys have also been reported in animals. Reported studies also demonstrate carcinogenic effects in animals as a result of inhalation exposure to vinyl chloride. Of most significance, however, is the fact that vinyl chloride has been linked to liver disease, including liver cancer, in workers engaged in the polymerization of vinyl chloride to PVC. The scientific articles providing this evidence are on file in the Office of the Hearing Clerk. In view of this evidence, the Commissioner concludes that the banning of vinyl chloride as an ingredient in drug and cosmetic aerosol products is required. These products are often used in the confines of a small room where the level of vinyl chloride to which the individual may be exposed, although usually only for a short time, could be significantly in excess of the safe level established in connection with occupational exposure.

As a corollary to this conclusion, the Commissioner has requested all known manufacturers of such products with supplies still on the market to recall these supplies from the market to the retail level, and similar requests will be

made of any additional such manufacturers if and as they are located.

Two cosmetic aerosol hair spray manufacturers commenced such recalls as of April 2, 1974 and a drug and cosmetic manufacturer, identified after a file search, began recall of seven drug and three cosmetic aerosol products as of April 8, 1974, following an April 4, 1974 request.

Therefore, pursuant to provisions of the Federal Food, Drug, and Cosmetic Act (secs. 502, 505, 601(a), 701(a); 52 Stat. 1050-1055, as amended; 21 U.S.C. 352, 355, 361(a), 271(a)) and under authority delegated to the Commissioner of Food and Drugs (21 CFR 2.120), it is proposed that Parts 310 and 700 be amended as follows:

1. By adding a new § 310.506 to Subpart E of Part 310 to read as follows:

§ 310.506 Use of vinyl chloride as an ingredient, including propellant, of aerosol drug products.

(a) Vinyl chloride has been used as a propellant in aerosol drug preparations. Evidence indicates that vinyl chloride inhalation can result in acute toxicity manifested by dizziness, headache, disorientation, and unconsciousness where inhaled at high concentrations. Cardiac effects, bone changes, and degenerative changes in the brain, liver, and kidneys have been reported in animals. Studies also demonstrate carcinogenic effects in animals as a result of inhalation exposure to vinyl chloride. Recently, vinyl chloride has been linked to liver disease, including liver cancer, in workers engaged in the polymerization of vinyl chloride.

(b) The Commissioner finds that there is a lack of general recognition by qualified experts of the safety or effectiveness of aerosol drug preparations containing vinyl chloride as an ingredient, including propellant. Therefore, any such product containing vinyl chloride is a new drug and a new drug application approved under section 505 of the Federal Food, Drug, and Cosmetic Act is required for marketing.

(c) A completed and signed "Notice of Claimed Investigational Exemption for a New Drug" (Form FD-1571), as set forth in § 312.1 of this chapter, is required to cover clinical investigations designed to obtain evidence that such preparations are safe and effective for the purposes intended.

(d) Any such drug within the jurisdiction of the act which is not in accord with this regulation is subject to regulatory action.

2. By adding a new § 700.14 to Subpart B of Part 700 to read as follows:

§ 700.14 Use of vinyl chloride as an ingredient, including propellant of cosmetic aerosol products.

(a) Vinyl chloride has been used as an ingredient in cosmetic aerosol products including hair sprays. Where such aerosol products are used in the confines of a small room, as is often the case, the level of vinyl chloride to which the indi-

vidual may be exposed could be significantly in excess of the safe level established in connection with occupational exposure. Evidence indicates that vinyl chloride inhalation can result in acute toxicity manifested by dizziness, headache, disorientation, and unconsciousness where inhaled at high concentrations. Studies also demonstrate carcinogenic effects in animals as a result of inhalation exposure to vinyl chloride. Furthermore, vinyl chloride has recently been linked to liver disease, including liver cancer, in workers engaged in the polymerization of vinyl chloride. It is the view of the Commissioner that vinyl chloride is a deleterious substance which may render any cosmetic aerosol product that contains it as an ingredient injurious to users. Accordingly, any cosmetic aerosol product containing vinyl chloride as an ingredient is deemed to be adulterated under section 601(a) of the Federal Food, Drug, and Cosmetic Act.

(b) Any cosmetic aerosol product containing vinyl chloride as an ingredient shipped within the jurisdiction of the act is subject to regulatory action.

Interested persons may, on or before May 23, 1974, file with the Hearing Clerk, Food and Drug Administration, room 6-66, 5600 Fishers Lane, Rockville, MD 20852, written comments (preferably in quintuplicate) regarding this proposal. Comments may be accompanied by a memorandum or brief in support thereof. Received comments may be seen in the above office during working hours, Monday through Friday.

Dated: April 16, 1974.

A. M. SCHWARTZ,
Commissioner of Food and Drugs.
[FR Doc. 74-0232 Filed 4-19-74; 8:45 am]

DEPARTMENT OF TRANSPORTATION

COAST GUARD

[33 CFR Part 117]

[CGD 74115]

NEW RIVER SOUND AND STRANAHAN
RIVER, FLA.

Proposed Drawbridge Operation Regulations

At the request of the Florida Yacht Club Council, the Coast Guard is considering revoking the regulations for the East Las Olas Boulevard drawbridge across the Atlantic Intracoastal Waterway in Fort Lauderdale, Florida, to require that the draw open on signal. Present regulations allow closed periods from November 15 through May 15 from 7 a.m. to 8 p.m. during which the draw need only open on the hour and half hour. This change is being considered for the following reasons:

(a) The regulations presently in force were issued on March 15, 1950 (15 FR 1461), and were amended on July 2, 1953 (18 FR 3782), October 20, 1955 (20 FR 5119), and October 20, 1956 (21 FR 6004). These regulations were issued to ease vi-

the denial order issued against the respondent on February 28, 1972 (37 FR 5306).

Dated: April 12, 1976.

RAUER H. MEYER,
Director,
Office of Export Administration.
[FR Doc. 74-0080 Filed 4-19-74; 8:45 am]

**COMPUTER SYSTEMS TECHNICAL
ADVISORY COMMITTEE**

Notice of Meeting

Pursuant to the provisions of the Federal Advisory Committee Act (Public Law 92-463), notice is hereby given that a meeting of the Licensing Procedures Subgroup of the Computer Systems Technical Advisory Committee will be held Monday, April 29, 1974, at 1:30 p.m. in Conference Room A, Main Commerce Building, 14th and Constitution Avenue, Washington, D.C.

Members advise the Office of Export Administration, Bureau of East-West Trade, with respect to questions involving technical matters, worldwide availability and actual utilization of production and technology, and licensing procedures which may affect the level of export controls applicable to computer systems, including technical data related thereto, and including those whose export is subject to multilateral (COCOM) controls.

Agenda items are as follows:

1. Opening remarks by the Chairman, Computer Systems Technical Advisory Committee.
2. Appointment of subgroup chairman.
3. Presentation of papers or comments by the public.
4. Discussion of export licensing procedures relating to computer systems.
5. Executive Session: Continuation of discussion of export licensing procedures.

The public will be permitted to attend the discussion of agenda items 1-4, and a limited number of seats will be available to the public for these agenda items. To the extent time permits, members of the public may present oral statements to the subgroup. Interested persons are also invited to file written statements with the subgroup.

With respect to agenda item 5, "Executive Session," the Assistant Secretary of Commerce for Administration, on December 20, 1973, determined, pursuant to section 10(d) of Public Law 92-463, that this agenda item should be exempt from the provisions of sections 10 (a) (1) and (a) (3), relating to open meetings and public participation therein, because the meeting will be concerned with matters listed in 5 U.S.C. 552(b) (1).

Further information may be obtained from John L. Collins, Chairman, Computer Systems Technical Advisory Committee, IBM World Trade Corporation, 1001 K Street NW, Washington, D.C. 20006 (A/C 202-833-0000).

Minutes of those portions of the meeting which are open to the public will be available 30 days from the date of the meeting upon written request ad-

dress to: Central Reference and Records Inspection Facility, U.S. Department of Commerce, Washington, D.C. 20230.

Dated: April 17, 1974.

RAUER H. MEYER,
Director, Office of Export Ad-
ministration, Bureau of East-
West Trade, Department of
Commerce.

[FR Doc. 74-0039 Filed 4-19-74; 8:45 am]

**DEPARTMENT OF HEALTH,
EDUCATION, AND WELFARE**

Food and Drug Administration

[NADA No. 48-236V]

AGRITRONICS CORP.

Agritronics Swine Premix T-S; Withdrawal of Approval of New Animal Drug Application

Pursuant to provisions of the Federal Food, Drug, and Cosmetic Act (sec. 512, 21 Stat. 343-351; 21 U.S.C. 360b) and under authority delegated to the Commissioner of Food and Drugs (21 CFR 2.120), the following notice is issued:

Agritronics Corp., 511 24th St., Des Moines, IA 50311, has requested that its NADA (new animal drug application) No. 48-236V be withdrawn in accordance with § 135.26(d) (21 CFR 135.26(d)) on the grounds that the drug is not being marketed. Notice is given that approval of NADA No. 48-236V for Agritronics Swine Premix T-S, which contains tylosin and sulfamethazine, is hereby withdrawn.

Effective date. This notice shall be effective April 22, 1974.

Dated: April 15, 1974.

SAM D. FINE,
Associate Commissioner
for Compliance.

[FR Doc. 74-0114 Filed 4-19-74; 8:45 am]

**HUMAN DRUGS CONTAINING VINYL
CHLORIDE OR PACKAGED IN POLY-
VINYL CHLORIDE CONTAINERS**

**Notice to Drug Manufacturers, Packers,
and Distributors**

Elsewhere in this issue of the FEDERAL REGISTER (39 FR 14215) the Commissioner of Food and Drugs has proposed that all aerosol drug products containing vinyl chloride as a component, including propellant, are new drugs and subject to regulatory proceedings unless the products are the subject of new drug applications approved pursuant to section 505 of the Federal Food, Drug, and Cosmetic Act. That proposal is based on scientific data demonstrating that vinyl chloride is not generally recognized as safe and effective as a component, including propellant, of a drug product.

The Food and Drug Administration is aware that vinyl chloride has been used as a propellant in aerosol drug preparations, but has no information that vinyl chloride is currently being used in the manufacture of drug products. There is ample evidence that vinyl chloride in-

halation can result in acute toxicity manifested by an array of symptoms including unconsciousness as a result of high concentration inhalation. Cardiac effects, bone changes, and degenerative changes in the brain, liver, and kidneys have also been reported in animals. In addition, there are studies demonstrating the carcinogenic effects in animals as a result of inhalation exposure to vinyl chloride, and it has been linked to liver disease, including liver cancer, in workers engaged in the polymerization of the monomer to polyvinyl chloride.

Polyvinyl chloride, a polymeric resin produced by polymerization of vinyl chloride, is used in drug packaging materials. There is evidence of vinyl chloride migration when polyvinyl chloride is used in packaging material for products containing alcohol. There have also been reports of the possible migration of polyvinyl chloride container ingredients to non-alcoholic products as well. Because of this it is necessary to give special study to such packaging material to determine if it is safe for its intended use.

For these reasons it is essential that the Commissioner have knowledge of every drug product currently marketed in the United States that contains vinyl chloride as an ingredient, and information regarding every marketed drug product packaged in a polyvinyl chloride container or in a container lined with polyvinyl chloride. Such information is necessary for determining if there is adequate evidence whether drugs containing vinyl chloride or packaged in containers composed of, or lined with, polyvinyl chloride are safe and effective for their intended purposes and what action, if any, is required to protect the public health.

Section 510(j)(3) of the act, as added by the Drug Listing Act of 1972, authorizes the Commissioner to require each registrant under section 510 of the act to submit a list of each drug product which the registrant is manufacturing, preparing, propagating, compounding, or processing for commercial distribution and which contains a particular ingredient, when the Commissioner has made a finding that the submission of such a list is necessary to carry out the purposes of the act. For the reasons stated above the Commissioner so finds with regard to drugs containing vinyl chloride. As packaging materials are an integral part of the drug product, the Commissioner also so finds with regard to drug products packaged in polyvinyl chloride containers or in containers with polyvinyl chloride liners.

In addition to the required list of drugs containing vinyl chloride and a required list of drug products packaged in polyvinyl chloride containers or in containers with polyvinyl chloride liners, the Commissioner is requesting, but not requiring, that certain other information be submitted. The Commissioner acknowledges that some of the information being requested has also been requested in the regulations implementing the Drug Listing Act of 1972, and will be available

STATUS REPORT

VCI IMPROVEMENT PROJECT

OPERATOR TRAINING

<u>PROJECT NUMBER</u>	<u>PROJECT</u>	<u>PERSON RESPONSIBLE</u>	<u>COST</u>	<u>CE NO.</u>	<u>REMARKS</u>
VI - A	Update operating manuals	J.P.Parker			Reactor Entry Permit revised and issued.
VI - B	Group & Individual training sessions	J.P.Parker			

from that source. However, it will greatly simplify the compilation of this information if it is included in this submission.

Therefore, pursuant to the provisions of the Federal Food, Drug, and Cosmetic Act (secs. 201, 510, 701(a), 52 Stat. 1030-1032, as amended, 1953, as amended, 1955, as amended; 21 U.S.C. 321, 360, 371(a); 42 U.S.C. 262) and under authority delegated to the Commissioner (21 CFR 2.120), each registrant under section 510 of the act is required to submit to the Food and Drug Administration a list of all human drugs which are being manufactured, prepared, propagated, compounded, or processed for commercial distribution and which contain vinyl chloride whether or not the vinyl chloride is an active or inactive ingredient and a list of all human drug products packaged in polyvinyl chloride containers or in containers with polyvinyl chloride liners as follows:

1. Reporting firm name, address, and registration number.

2. List of drugs containing vinyl chloride (by trade name, if any, and established name, if any) and a list of drug products for which polyvinyl chloride is used as a container or a container liner (by trade name, if any, and established name, if any).

It is requested but not required that the following information also be submitted:

3. National Drug Code (NDC) if one has been assigned.

4. A statement whether the drug is marketed over the counter or limited to prescription distribution.

5. Route of administration.

6. Amount of vinyl chloride in average daily dose.

7. Quantity of drug distributed (number of dosage units) during previous 12 months.

8. A copy of the label and labeling.

In addition to the information requested in items 1 through 8 (excluding item 6) for drug products packaged in polyvinyl chloride containers or in containers with polyvinyl chloride liners it is requested, but not required, that the following information be submitted.

9. A statement of the vinyl chloride content in polyvinyl chloride used for the manufacture of the drug container or container lining. Include description of the methods and extraction systems used to determine this content. If this information is not known, provide the name and address of the drug container or container liner supplier and/or manufacturer.

10. The rate and level of extraction of vinyl chloride from the polyvinyl chloride containers or container liners by the particular drug or by any other extraction or solvent systems, including data derived after periods of storage. Where such information is not known, but is or may be available from the supplier or manufacturer of the container or liner, provide the name and address of such supplier or manufacturer.

11. The rate and level of absorption of vinyl chloride as an ingredient or of vinyl chloride extracted from a polyvinyl chloride container or liner by the drug contained on an average daily dose. Where such information is not known, but is or may be available from the supplier or manufacturer of the container or liner, provide the name and address of such supplier or manufacturer.

12. Name and address of the manufacturer of the polyvinyl chloride resin, where such information is known.

This information shall be submitted to:

Department of Health, Education, and Welfare
Food and Drug Administration
Bureau of Drugs, Drug Listing Staff (HFD-7)
5000 Fishers Lane
Rockville, MD 20853

by May 23, 1974.

Dated: April 15, 1974.

A. M. SCHMIDT,
Commissioner of Food and Drugs.
[FR Doc. 74-9231 Filed 4-19-74; 8:45 am]

ADVISORY COMMITTEES

Notice of Meetings

Pursuant to the Federal Advisory Committee Act of October 6, 1972 (Public Law 92-463, 86 Stat. 770-776; 5 U.S.C. App.), the Food and Drug Administration announces the following public advisory committee meetings and other required information in accordance with provisions set forth in section 10(a) (1) and (2) of the act:

Committee name	Date, time, place	Type of meeting and contact person
1. Panel on Review of Internal Analgesic Drugs	May 8 and 9, 9 a.m., Conference Room C, Parkland Bldg., 500 Fishers Lane, Rockville, Md.	Open May 8, 9 a.m. to 10 a.m., closed May 9, after 10 a.m., closed May 9. Leo Gelsman, Room 101-01, 5000 Fishers Lane, Rockville, Md. 20853, 301-413-4900.

Purpose. Reviews and evaluates available information concerning safety and effectiveness of active ingredients of currently marketed non-prescription drug products containing internal analgesic agents.

Agenda. Open session: Comments and presentations by interested persons. Closed session: Continuing review of nonprescription internal analgesic drugs under investigation.

Committee name	Date, time, place	Type of meeting and contact person
2. Panel on Review of Orthopaedic Devices	May 11, 9 a.m., Hotel Utah, Motor Lodge, Salt Lake City, Utah.	Open 9 a.m. to 10 a.m., closed after 10 a.m., James H. Vesile (HFD-120), 5000 Fishers Lane, Rockville, Md. 20853, 301-413-3553.

Purpose. Reviews and evaluates available data concerning safety, effectiveness, and reliability of orthopaedic devices currently in use.

Agenda. Open session: Comments and presentations by interested persons. Closed session: Continuation of review of previous classification results and identification of specific areas for standards for those devices classified as requiring standards.

Committee name	Date, time, place	Type of meeting and contact person
3. Panel on Review of Dental Devices	May 22 and 23, 9 a.m., Auditorium, Federal Building, Chicago, Ill.	Open May 22, 9 a.m. to 10 a.m., closed May 22 after 10 a.m., closed May 23, Robert S. Kennedy, Ph.D., (HFD-120), 5000 Fishers Lane, Rockville, Md. 20853, 301-413-2373.

Purpose. Reviews and evaluates available data concerning the safety, effectiveness, and reliability of dental devices currently in use.

Agenda. Open session: Comments and presentations by interested persons; device classification; and device legislation. Closed session: Continuing review and classification of dental devices.

Agenda items are subject to change as priorities dictate.

During the open sessions shown above, interested persons may present relevant information or views orally to any committee for its consideration. Information or views submitted to any committee in writing before or during a meeting shall also be considered by the committee.

A list of committee members and summary minutes of meetings may be obtained from the contact person for the committee both for meetings open to the public and those meetings closed to the public in accordance with section 10(d) of the Federal Advisory Committee Act.

Most Food and Drug Administration advisory committees are created to advise the Commissioner of Food and Drugs on pending regulatory matters. Recommendations made by the committees on these matters are intended to result in action under the Federal Food, Drug, and Cosmetic Act, and these committees thus necessarily participate with the Commissioner in exercising his law enforcement responsibilities.

The Freedom of Information Act recognized that the premature disclosure of regulatory plans, or indeed internal discussions of alternative regulatory approaches to a specific problem, could have adverse effects upon both public and private interests. Congress recognized that such plans, even when finalized, may not be made fully available in advance of the effective date without damage to such interests, and therefore provided for this type of discussion to remain confidential. Thus, law enforcement activities have long been recognized as a legitimate subject for confidential consideration.

These committees often must consider trade secrets and other confidential information submitted by particular manufacturers which the Food and Drug Administration by law may not disclose, and which Congress has included within the exemptions from the Freedom of Information Act. Such information includes safety and effectiveness information, product formulation, and manufacturing methods and procedures, all