December 23, 1985

Ruth McQuade, Esquire
Environmental Enforcement Section
Land and Natural Resources Division
U.S. Department of Justice
10th and Pennsylvania NW
Washington, D.C. 20530

Re: U.S. v. Conoco Inc., et al Civil Action No. 83-2518
USDC, Western District, Louisiana

Dear Ms. McQuade:

Enclosed is a copy of the cover letter we used to transmit to EPA a revised Status of Compliance and Emission Control Plan for the Lake Charles VCM Plant. We have accepted all the modifications requested by EPA Region VI.

The revised Plan may now be sent to the Court as an addendum to the Consent Decree in the subject case. Please advise both W.L. McClain and Estela Wackerbarth when this is done so that implementation of the measures described in the Plan may begin. After December 31, notices to Conoco should be addressed to Brad Raffle at 713/293-3058.

Sincerely,

William L. McClain
for Vista Chemical Company

Estela S. Wackerbarth
for Conoco Inc.

/are

cc(w/attach.):
Robert Brager
Peter de la Cruz
F. Henry Habicht, II
Courtney M. Price
Ken Spears
J. Berry St. John
D.A. Titman

Vista Chemical Company
Lake Charles VCM Plant
VCM Plant Rd., P.O. Box 605
Westlake, Louisiana 70669
Phone (318) 494-5000

CERTIFIED MAIL #059203929
RETURN RECEIPT REQUESTED

December 23, 1985

VISTA

Mr. Robert H. Shemwell
Clerk, United States District Court
Western District of Louisiana
106 Joe D. Waggonner Federal Building
500 Fannin Street
Shreveport, LA 71101

Re: United States v. Conoco Inc., et. al
Civil Action No. 83-2518

Dear Sir:

Enclosed is a copy of the letter transmitting to the United States Environmental Protection Agency information required by the Consent Decree entered in the subject case. Submittal of this information satisfies Section III.C of the Decree. Please enter the copy of the letter in the file for this case.

Thank you for your attention to this matter.

Sincerely,

R. A. Conrad
Plant Manager

kf
cc(w/attach):
Robert Brager
Peter de la Cruz
Courtney M. Price
F. Henry Habicht, II
Ken Spears
J. Berry St. John
D. A. Titman

Vista Chemical Company

Lake Charles VCM Plant
VCM Plant Rd., P.O. Box 605

Westlake, Louisiana 70669
Phone (318) 494-5000

CERTIFIED MAIL #059203930
RETURN RECEIPT REQUESTED

December 23, 1985

VISTA

Director, Air, Pesticides & Toxics Division
U.S. Environmental Protection Agency, Region VI
1201 Elm Street
Dallas, TX 75270

Re: Status of Compliance and Emission Control Plan
Lake Charles VCM Plant

Dear Sir:

This letter and the enclosed material is being sent by Conoco Inc. and Vista Chemical Company in full satisfaction of Section III.C. of the Consent Decree entered with the United States District Court for the Western District of Louisiana on August 19, 1985, in Civil Action No. 83-2518. Conoco and Vista accept all of the modifications indicated in EPA's letter of November 29, 1985 as necessary for an acceptable Emission Control Plan. In making the changes requested by EPA, it was necessary to retype and re-paginate the Plan. Therefore, the document we are submitting herewith supersedes the Plan previously submitted on October 16, 1985. Also, please note that Appendix D has been deleted since it was submitted in support of the information relating to the HCl column. In the revised plan, Appendix D is no longer relevant to those provisions. For ease of reference we have included a table indicating old page numbers and new page numbers for the paragraphs which were modified.

All of the pages in this information package which are stamped "confidential" are claimed confidential in their entirety pursuant to the provisions of 40 C.F. R. Part 2. It is our understanding that EPA will protect this information as confidential and will not divulge it to any other party. Nothing in this letter or the enclosures hereto constitutes an admission, direct or implied, that equipment, methods, procedures, training programs, etc. heretofore implemented or followed are or have been insufficient to meet the requirements of the Clean Air Act and/or the regulations governing the emission of vinyl chloride (40 C.F.R. 61, Subpart F).

After you have reviewed this material please advise Conoco and Vista, in accordance with the terms of the Consent Decree, whether the Emission Control Plan as revised meets with your approval. If you have any questions about the information contained herein, please call Brad Raffle (713/293-3058) and William McClain (713/531-3278) for clarification.

Sincerely,

R. A. Conrad
Plant Manager

kf
cc w/o att.:
Robert Brager
Peter de la Cruz
F. Henry Habicht, II
Courtney M. Price
Ken Spears
J. Berry St. John
D. A. Titman

EMISSION CONTROL PLAN

VINYL CHLORIDE MONOMER PLANT

LAKE CHARLES, LOUISIANA

INTRODUCTION

This Emission Control Plan (hereafter "Plan") is being submitted by Conoco, Inc. and Vista Chemical Co. in full satisfaction of Section III.B. of the Consent Decree ("Decree") entered with the United States District Court for the Western District of Louisiana on August 19, 1985, in Civil Action No. 83-2518.

The Plan has a threefold purpose: (1) to describe measures, procedures and equipment already in place at the VCM Plant aimed at reducing, preventing, abating or otherwise controlling emissions of vinyl chloride from equipment in vinyl chloride service; (2) to describe proposed changes in methods and procedures and proposed additional training for Plant personnel, aimed at improving compliance with the requirements of the National Emission Standard for Hazardous Air Pollutants (NESHAP) for vinyl chloride; (3) to describe proposed equipment revisions for improved compliance with the NESHAP requirements for vinyl chloride.

Nothing in this Plan, its Attachments or Appendixes constitutes an admission, direct or implied, that equipment, methods, procedures, training programs, etc. heretofore

implemented are or have been insufficient to meet the requirement of the Clean Air Act and/or the regulations governing the emission of vinyl chloride (40 CFR 61 Subpart F).

The format of the Plan is based on the applicable portions of the vinyl chloride NESHAP; i.e., for each requirement that applies to the VCM plant, the Plan contains a description of measures, procedures, etc. under headings and subheadings by the same numbering system as the vinyl chloride regulations themselves. In addition, Attachment 1 addresses measures taken and to be taken to minimize incinerator bypasses and Attachment 2 addresses HCl column emissions of vinyl chloride. Supporting documents, with the exception of those referenced and in the EPA's possession (Attachment 3), are provided in the Appendixes.

40 C.F.R.61. Subpart F - National Emission Standard for Vinyl Chloride.

§61.62 Emission standard for ethylene dichloride plants.

(a) Ethylene dichloride purification:

Ethylene dichloride purification equipment exhaust gases capable of having a vinyl chloride concentration greater than 10 ppm are ducted to a thermal incinerator from which the concentration of vinyl chloride in the exhaust gases does not exceed 10 ppm. Measures taken and to be taken to minimize incinerator bypasses are addressed in Attachment 1.

(b) Oxychlorination reactor:

The oxychlorination process was voluntarily converted from air-based to oxygen-based technology in 1983. The conversion eliminated vinyl chloride emissions from the oxychlorination process during normal operation. Emissions of vinyl

chloride to the atmosphere during scheduled and unscheduled shutdowns do not exceed 0.2g/kg of the 100 percent ethylene dichloride product from the oxychlorination process.

§61.63 Emission standard for vinyl chloride plants.

(a) Vinyl chloride formation and purification:

Vinyl chloride formation and/or purification equipment exhaust gases capable of having a vinyl chloride concentration greater than 10 ppm are ducted to a thermal incinerator from which the concentration of vinyl chloride in the exhaust gases does not exceed 10 ppm. Measures taken and to be taken to minimize incinerator bypasses are addressed in Attachment 1.

§61.65 Emission standard for ethylene dichloride, vinyl chloride and polyvinyl chloride plants.

(a) Relief valve discharge.

For the period from November 8, 1982 through July 21, 1985 six emergency discharges to the atmosphere from relief valves on equipment in vinyl chloride service have occurred. Of the six emergencies, three (November 8, 1982, August 26, 1983, and February 7, 1984) were due to thermal expansion of blocked in liquid vinyl chloride. Since installation of the Thermal Relief Valve Discharge Containment design in June of 1984 there have been no further thermal relief valve discharges to the atmosphere. No future thermal relief valve discharges to the atmosphere are expected because the new containment system routes the discharge to the incinerator. The fourth emergency discharge (May 6, 1983) occurred when a pump was started with its discharge line blocked in. Since installation of warning signs near the start buttons of 5 pumps in vinyl chloride service (see Appendix B for details) there have been no further occurrences. The fifth (June

25, 1985) and sixth (July 21, 1985) emergency discharges occurred during Plant shutdowns caused by electrical power failures. The power failures resulted from erroneous trips at the utility substation feeding the VCM Plant. The cause of these trips has since been corrected by the utility; therefore, recurrence of incidents of this nature is not anticipated.

Results of a study conducted in 1983 (see Appendix B for details) show that past measures plus those recommended by the study and since implemented will prevent non-emergency relief valve discharges. Furthermore, all plant policies/procedures have been, and will continue to be, scrutinized for areas where improvements can be made. A summary of measures taken to minimize relief valve discharges follows:

I. Operator Training

1. Annual relief valve release avoidance training

sessions have been, and continue to be, implemented (see Appendix B).

2. Special counseling of operators has been, and continues to be, implemented following any incident which did lead, or could have led, to a relief valve discharge. Refer to page 85 of reference 1 in Attachment 3.

3. A specialized training program for operations personnel was conducted. It included discussion of the properties of liquid-full systems with specific emphasis on how those properties relate to overpressuring caused by failure to properly align block valves while putting a flake caustic dryer on line and while switching check tanks. Refer to page 78 of reference 1 in Attachment 3.

4. Each operator undergoes comprehensive training and testing while progressing from one position to another. Refer to page 73 of reference 1 in Attachment 3.

II. Process Design

1. Installation of a Caustic Decanter Relief Valve Containment project was completed in 1982. Refer to page 87 of reference 1 in Attachment 3. This project would have contained 80% of all relief valve discharges of vinyl chloride occurring prior

to its completion. It has successfully contained all discharges from relief valves on the caustic decanter and flake caustic dryers since commissioning and start-up.

2. Installation of a Thermal Relief Valve Discharge Containment project was completed in June of 1984. Sixteen thermal relief valves located in the tank farm area have been tied into the system.

3. A thermal relief valve that discharges to vinyl chloride product storage was installed in 1980. Refer to page 87 of reference 1 in Attachment 3. This change prevents a discharge to atmosphere from the vinyl chloride flake caustic dryer relief valve should thermal expansion of liquid in the loading line and dryer occur.

4. A redundant pressure transmitter and high pressure alarm were installed on the vinyl column. This measure ensures that operators are warned of situations which could lead to a vinyl column relief valve discharge. Refer to page 56 of reference 1 in Attachment 3.

III. Inspection and Preventive Maintenance Programs.

1. Copies of all documents regarding standard operating and maintenance procedures and testing and installation procedures employed at the VCM plant

which relate to prevention of relief valve discharges of VCM from equipment in VCM service were submitted to the EPA. See page 80 of reference 1 in Attachment 3.

2. Routine monitoring of the pressure drop across the flake caustic dryers (and appropriate corrective action when increased pressure drop is observed) has been, and continues to be implemented. Refer to page 51 of reference 1 in Attachment 3.
3. The caustic decanter high pressure alarm switch was added to the "blind list" (used to ensure blinds are removed prior to start-up following turnarounds) in July, 1982. Refer to page 86 of reference 1 in Attachment 3.
4. A periodic check of relief valves is conducted during turnarounds by an outside contractor. Refer to page 18 of reference 2 in Attachment 3. This check ensures that all relief valves operate at their rated pressure and that they are in good mechanical condition.
5. All in-plant maintenance on relief valves is overseen by a certified relief valve inspector employed by the plant. Refer to page 18 of reference 2 in Attachment 3.
6. Following construction and installation of new equipment and/or replacement of existing equipment, the maintenance department's check-out

procedure includes a visual inspection along with hydrotesting and/or weld x-rays, as applicable. Refer to page 18 of reference 2 in Attachment 3.

7. Pre-start-up inspections are conducted by the Operations Department prior to putting new equipment in service. Refer to page 18 of reference 2 in Attachment 3.

8. The VCM Plant's preventive maintenance program includes instrumentation calibration as required to ensure that process instrumentation is functioning properly and will alert of possible overpressure conditions. Refer to page 18 of reference 2 in Attachment 3.

IV. Quality Assurance Program for Installation of New Valve Assemblies.

See items III.6. and III.7. above.

V. Process Design for Alarm System.

1. See item II.4. above.

2. Installation of high pressure alarms on the check tanks was considered. This measure was not implemented because it was determined that existing alarms on upstream equipment were adequate. Also, the new pressure recorder

installed on the caustic decanter more effectively indicates an impending overpressure condition. Refer to page 84 of reference 1 in Attachment 3.

VI. Controlled Removal of Nitrogen in Process Equipment Before or During Start-up.

1. The start-up sequence procedure for removing nitrogen from the HCl column prior to start-up following an inventory control shutdown was modified. Refer to page 29 of reference 1 in Attachment 3.
2. A new furnace clearing procedure for venting nitrogen prior to start-up was developed. Refer to page 45 of reference 1 in Attachment 3.
3. The general procedure for removal of nitrogen in process equipment before, or during, start-up is summarized on page 10 of reference 2 in Attachment 3.

VII. Instrumentation for Local Pressure Indication at Inlet Valve Points on each Check Tank.

This measure is unnecessary since the Caustic Decanter Relief Valve Containment project (item II.1. above) will contain relief valve discharges caused by valve misalignment during check tank switching. In addition, training and administrative procedures have essentially

eliminated valve misalignments during check tank switching.

VIII. Quality Assurance Program for Rupture Discs.

1. Rupture disc assemblies are pre-torqued to prevent damage to the disc during installation. *Refer to page 14 of reference 3 in Attachment 3.*
2. Bi-weekly inspections of tell-tale pressure gauges on relief valve rupture disc assemblies have been, and continue to be, conducted. Refer to page 17 of reference 3 in Attachment 3.

IX. Miscellaneous Administrative Actions

1. Warning signs have been installed near the start buttons of five pumps in vinyl chloride service (see Appendix B). These signs warn operators to check valve line-up before starting the pump to prevent a possible VCM relief valve discharge.

§61.65 (continued)

(b) Fugitive emission sources -

(1) Loading and unloading lines:

After each loading or unloading operation and before opening to the atmosphere, the quantity of vinyl chloride in railcar loading/unloading lines is reduced to $0.0038m^3$ (at standard temperature and pressure) or less. Vinyl chloride removed from the lines is ducted to a thermal incinerator from which the concentration of vinyl chloride in the exhaust gases does not exceed 10 ppm.

(2) Slip gauges

Magnetic dip sticks having no seals where fugitive emissions might escape are used for level indication on vinyl chloride railcars.

(3) Leakage from pump, compressor, and agitator seals:

(i) Rotating pumps.

All centrifugal pumps in vinyl chloride service are sealless or are equipped with tandem mechanical seals. If they have seals, the area between the seals is connected to an oil reservoir which is vented to a thermal incinerator from which the concentration of vinyl chloride in the exhaust gases does not exceed 10 ppm.

(ii) Reciprocating pumps.

There are no reciprocating pumps in vinyl chloride service in the VCM plant.

(iii) Rotating compressor.

There are no rotating compressors in vinyl chloride service in the VCM plant.

(iv) Reciprocating compressors.

The only reciprocating compressor in vinyl chloride service has two packing seals. The area between the seals is vented to a thermal incinerator from which the concentration of vinyl chloride in the exhaust gases does not exceed 10 ppm.

(v) Agitator

There are no agitators in vinyl chloride service in the VCM plant.

(4) Leakage from relief valves.

All relief valves in vinyl chloride service are either equipped with a rupture disc or discharge to a process line, containment vessel, or a thermal incinerator from which the concentration of vinyl chloride in the exhaust gases does not exceed 10 ppm. In addition, the tell-tale pressure gauges on rupture disc assemblies are inspected bi-weekly to verify that all discs are intact (see item §61.65 (a) VIII.2. above).

(5) Manual venting of gases.

Manual vents from equipment in vinyl chloride service are ducted to a thermal incinerator from which the concentration of vinyl chloride in the exhaust gases does not exceed 10 ppm.

(6) Opening of equipment.

Before opening any equipment for any reason, the quantity of vinyl chloride is reduced so that the equipment contains no more than two percent by volume vinyl chloride or $0.0950m^3$ of vinyl chloride, whichever is larger, at standard temperature and pressure. Any vinyl chloride removed from equipment in accordance with §61.65(b)(6)(i) is ducted to a thermal incinerator

from which the concentration of vinyl chloride in the exhaust gases does not exceed 10 ppm.

(7) Samples.

All samples containing 10 percent (by weight) or more vinyl chloride are obtained from a closed process sampling system. Any unused portions of these samples are returned to the process vent header.

(8) Leak detection and elimination.

A copy of the formal leak detection and elimination plan currently in effect is appended (See Appendix A).

(9) Inprocess wastewater.

Wastewater containing greater than 10 ppm (by weight) vinyl chloride is steam stripped to reduce the vinyl chloride concentration to less than 10 ppm before being mixed with any other wastewater containing less than 10 ppm vinyl chloride; before being exposed to the atmosphere; or before being discharged to a wastewater treatment process. Vinyl chloride stripped from wastewater is ducted

to a thermal incinerator from which the concentration of vinyl chloride in the exhaust gases does not exceed 10 ppm.

(c) Requirements prescribed by §61.65 (c) have been incorporated into standard operating procedures and are available for inspection by the Administrator.

§61.66 Equivalent equipment and procedures.

The VCM Plant does not use equipment or procedures other than those prescribed for compliance with this subpart.

§61.67 Emission tests.

Emission tests required by this subpart were conducted and the results reported to the EPA as prescribed in §61.67.

§61.68 Emission monitoring.

Monitoring of vinyl chloride emissions as prescribed in §61.68 has been and continues to be, conducted on a continuous basis.

§61.69 Initial report.

The initial report for the VCM Plant as prescribed in §61.69 was submitted to the EPA.

§61.70 Semiannual report.

Prior to granting authorization to the State of Louisiana, semiannual reports were prepared and submitted to the EPA as prescribed in §61.70. Since authorization, quarterly reports as prescribed by §77.11 of the Louisiana Emission Standards for Hazardous Air Pollutants (LESHAP), have been, and continue to be, submitted to the Louisiana Department of Environmental Quality.

§61.71 Recordkeeping

Records prescribed by §61.71 are retained at the source and are available for inspection by the Administrator.

Attachment 1. Minimization of Incinerator Bypasses.

Attachment 1. Minimization of Incinerator Bypasses.

ATTACHMENT 1.

Minimization of Incinerator Bypasses

Reduction in the frequency and quantity of vinyl chloride emitted due to incinerator bypasses has been, and continues to be, evaluated. Efforts have been increased to effect a positive reduction in the frequency of incinerator bypasses. Measures taken as a result are summarized below.

ADMINISTRATIVE MEASURES

1) More formal incinerator bypass investigations by operations supervisory personnel have been instituted. These investigations include a detailed report of each bypass incident and a written corrective action plan. The objective is to better define the causes and methods of prevention of all bypasses.

2) To minimize the potential for incinerator bypasses resulting from impurities in the ethylene used as reactor feedstock, a formal written agreement has been reached whereby the ethylene feedstock supplier must promptly notify VCM Plant personnel of conditions that could result in the delivery of ethylene at less than 99.0% purity by volume. Once notified, VCM Plant personnel will take appropriate action to minimize the potential for any incinerator bypass. This

administrative measure is in addition to the existing physical measures identified as measures numbered 2, 3 and 5 below, and in addition to the physical measures to be taken identified as measures numbered 1, 2 and 9 below.

3) To minimize the potential for incinerator bypasses resulting from impurities in the chlorine used as reactor feedstock, provisions have been included in the supply contract whereby the supplier must notify Vista prior to any start-up that could result in delivery of chlorine that is less than 96% pure by volume.

PHYSICAL MEASURES

1) To reduce sudden surges in flow to the incinerator during purging operations, a restriction orifice was installed on the vent line of the Vinyl Flake Caustic Dryers, S-207A&B.

2) Bypasses due to excessive header pressures have been minimized by installing new pressure transmitters, for the Direct Chlorination and Wet Vent Header pressure controllers, on the HCl Absorbers. Also, the control schemes for both vent bypass loops have been modified.

3) Potential bypass situations are detected by monitoring the Direct Chlorination and Wet Vent Header flows with flow recorders.

4) Bypasses of the incinerator due to Tank Farm Vent Blower surge are minimized through the use of anti-surge control instrumentation on the blowers.

5) To alert main plant operators of conditions which could adversely impact incinerator operation, alarms were installed in the main control room. These alarms sound when the direct chlorination reactor vent flow, direct chlorination vent header pressure, or wet vent header pressure is excessively high.

6) To minimize low lube oil pressure tripout of the steam turbine driving the incinerator combustion air blower, and subsequent automatic incinerator shutdown on low combustion air flow, the lube oil filters were changed from the throw-away type to a permanent self-cleaning type. (This measure addresses the Nature and Cause Category VIII.A. identified in reference document 4 in Attachment 3).

7) To alert plant operators of low instrument power supply voltage which could lead to automatic incinerator shutdowns, low voltage alarms were installed. (This

measure addresses the Nature and Cause category II.B. identified in reference document 4 in Attachment 3).

In addition to the above, the following measures will be taken:

ADMINISTRATIVE MEASURES

1) To minimize the risk of incinerator bypasses due to instrument and/or mechanical problems, the existing plant-wide routine preventive maintenance program will be reviewed and updated to specifically include instrument and mechanical items related to incinerator shutdown prevention. See Appendix C for an outline of the proposed program.

2) Operating procedures for minimizing the potential for incinerator bypasses due to routine and emergency/non-routine vents will be reviewed and updated. See Appendix C for measures to be included.

3) A training program designed to prevent incinerator bypasses will be formalized. It will include discussions of past bypasses (including bypass incidents identified pursuant to Section III.A. of the Consent Decree and those initiated by incinerator flame failure due to excessive vent flow occurring during loading of ships),

their cause, and appropriate preventive measures. A policy statement by the Plant Manager, emphasizing the importance of a trained and knowledgeable plant maintenance and operating staff to an effective vinyl chloride compliance program, will be presented at each training session. See Appendix C for an outline of the proposed program.

4) To ensure that administrative measures identified herein are conducted in a timely manner, a formal Notification of Status program will be instituted.

PHYSICAL MEASURES

1) To minimize incinerator bypasses due to flameouts, the following measures will be taken. (These measures address Nature and Cause categories I.A.8., I.B.2., I.B.3.a.1., I.C., II.A., VI. and VIII.B. identified in reference document 4 in Attachment 3).

   a) New in-situ oxygen analyzers will be installed in the incinerator firebox to provide reliable indication of oxygen requirements.

   b) The current incinerator combustion air flow control scheme will be revised to include: 1) vent header flow feedforward (or ratio); 2) liquid byproduct

flow feedforward (or ratio); 3) natural gas flow feedforward (or ratio); and 4) firebox oxygen concentration feedback. These will be cascaded with the existing combustion air flow control. These revisions will ensure that ample excess oxygen is available for complete combustion.

c) Automatic controls to start a standby blower when the on-line blower approaches maximum capacity will be installed.

d) New burner assemblies will be installed to improve mixing of oxygen, fuel gas, and vent streams and thus prevent incomplete combustion due to insufficient mixing.

e) Feedback control of flame or firebox temperature cascaded with natural gas flow control will be installed. This measure will maintain incinerator temperature high enough to insure complete combustion of all vent gas components.

2) To minimize incinerator bypasses resulting from impurities in the chlorine and ethylene feedstocks to the direct chlorination reactor, reactor vent flow control instrumentation will be installed. (This measure

addresses the Nature and Cause category I.B.3.a.2. identified in reference document 4 in Attachment 3).

3) To minimize incinerator bypasses due to a low incinerator liquid seal flame arrestor level, position alarms will be installed on the emergency make-up water valve. (This measure addresses the Nature and Cause category II.D. identified in reference document 4 in Attachment 3).

4) To minimize incinerator bypasses due to tank farm vent blower mechanical failure, a tank farm vent eductor and associated piping and instrumentation will be installed. (This measure addresses Nature and Cause categories III.B. and V. identified in reference document 4 in Attachment 3).

5) To minimize incinerator bypasses due to electric power failures, an automatic tie-breaker will be installed. (This measure addresses the Nature and Cause category V. identified in reference document 4 in Attachment 3).

6) To minimize incinerator bypasses due to high vent flow from the vinyl column condensers, a modified HCl column control scheme will be installed. This will minimize the amount of HCl reaching the vinyl column. (This

measure addresses the Nature and Cause category I.B.2. identified in reference document 4 in Attachment 3).

7) To minimize incinerator bypasses caused by high vent flow from the flake caustic dryers, the restriction orifice in the dryer vent line will be resized. (This measure addresses the Nature and Cause category I.A.4. identified in reference document 4 in Attachment 3).

8) To alert main plant operators of excessive vent flow from the Light Ends Column Accumulator, local flow indication will be converted to remote indication (in the main control room) with a high flow alarm. (This measure addresses the Nature and Cause category I.C. identified in reference document 4 in Attachment 3).

9) To alert the incinerator operator of potential excessive wet and/or direct chlorination vent header flow, adjustable high flow alarms will be installed. (This measure addresses the Nature and Cause category I.C. identified in reference document 4 in Attachment 3).

All documentation, designs, etc. for measures to be taken are in the conceptual stage. All revisions, modifications, etc. to this stage will be incorporated in definitive designs, for physical measures, and formal policy, for administrative measures, within six (6) months after the (8/6/86)

Plan becomes an enforceable addendum to the Decree. Four hours of annual review training on environmental matters (e.g., incinerator bypass prevention) will be conducted for all permanent, experienced operations and maintenance staff within six (6) (5/4/84) months after the Plan becomes an enforceable addendum to the Decree. All physical measures to be taken will be mechanically complete, i.e., all construction will be complete, within fourteen (14) (4/6/87) months after the Plan becomes an enforceable addendum to the Decree.

Attachment 2. HCl Column Emissions of Vinyl Chloride.

ATTACHMENT 2.

HCl Column Emissions of Vinyl Chloride

The following process description is provided to clarify HCl Column operation, thus facilitating evaluation of measures taken and to be taken to minimize vinyl chloride emissions during emergency venting of the column.

The HCl Column is fitted with a steam heated thermosiphon reboiler and a low temperature, internally mounted, refrigerated condenser (see Figure 1). In this column, HCl is separated from vinyl chloride and EDC, with the HCl exiting the top of the column and the EDC and VCM exiting the bottom of the column. The refrigerated exchanger in the top of the column acts as a partial condenser and provides a liquid stream of HCl for reflux to the column and to storage, and a vapor stream of HCl which is fed to the oxychlorination section of the Plant and/or a production unit at the adjacent Vista Chemical Lake Charles Chemical Plant. The vapor stream exiting the column passes through a knockout pot to separate entrained liquid from the vapor. The vapor then enters the HCl interchanger and is preheated. The preheated vapor combines with a small make-up stream of vaporized HCl from the storage tank and the total flow enters the oxychlorination HCl feed heater. There is a 2" vent line on the combined vapor stream exiting the HCl feed heater which

ties into the incinerator. This line is used: 1) to clear this column prior to opening for maintenance and/or inspection; and 2) to vent nitrogen from the column prior to startup. When the column is in operation no exhaust gases are generated and so this vent line is blocked in to avoid venting product to the incinerator. The liquid stream exiting the bottom of the HCl Column collects in the HCl Column bottoms drum. The steam flow to the reboiler is set such that the bottoms flow will be essentially free of HCl. Reflux to the column is controlled such that the overhead HCl vapor is essentially free of vinyl chloride.

Column pressure is controlled by three pressure controller/control valve combinations (see PIC-216 A,B and C on Figure 1). These controls are set such that during normal operation PIC-216B is controlling and PV-216A and C are fully closed. Under certain emergency conditions (e.g., automatic oxychlorination section shutdown or failure of the HCl Column condenser refrigeration system), column pressure will increase above that controllable by PIC-216B. When this occurs, PIC-216C will open, venting overhead HCl vapor to the HCl Absorber of the standby incinerator train. Should PIC-216C be unable to prevent column pressure from increasing further, PIC-216A will open, venting overhead HCl vapor to the main plant vent scrubber.

HCl vented to relieve column overpressure cannot be routed to the incinerator firebox because an automatic incinerator shutdown (due to flame failure) and/or bypass (due to overpressure of the vent header) would result. The emergency/episodic nature, quantity, and chemical composition of this stream prohibit safe, effective control via incineration.

All incidents in which HCl is vented from the overhead of the HCl Column are, and will continue to be, documented. Documentation is to include a description of the nature and cause of the incident and is to be retained for at least two years. All such incidents will be reported in LESHAP (Louisiana Emission Standards for Hazardous Air Pollutants) quarterly reports in a manner consistent with that of the June 15, 1984 LESHAP quarterly report.

Measures to be taken to minimize emissions associated with emergency HCl Column venting follow:

Administrative Measures

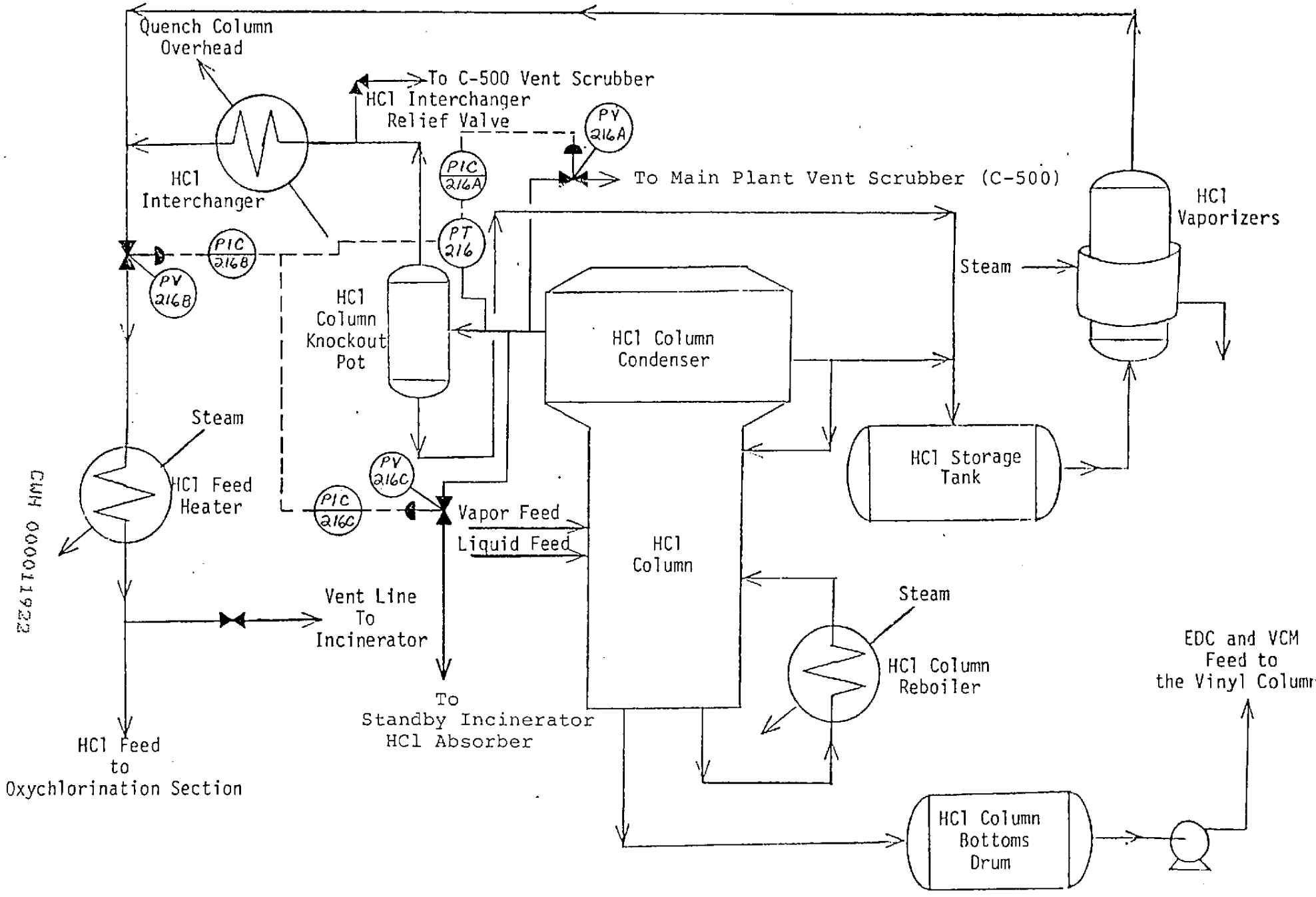
1) Operating procedures for actions to be taken in emergency situations (e.g., automatic oxychlorination section shutdown and failure of the HCl Column condenser refrigeration system) to minimize emissions from the HCl Column overhead will be reviewed and updated. See Appendix C, Item II.H.

Physical Measures

1) To minimize vinyl chloride emissions due to emergency HCl Column overhead venting, a modified HCl Column control scheme will be installed. This measure will minimize the impact of disturbances on operation of the column, thus reducing the probability of having greater than 10ppm vinyl chloride in the overhead HCl. (Refer to Physical Measure To Be Taken, Number 6, Attachment 1).

FIGURE 1 .L COLUMN

CONFIDENTIAL



Attachment 3. Referenced Documents In EPA's Possession.

ATTACHMENT 3.

Referenced Documents In EPA's Possession

1. CONOCO Inc. reply, dated September 20, 1982, to the Environmental Protection Agency's (EPA) CAA Section 114 Request for Information.

2. CONOCO Inc. reply, dated February 8, 1983, to the EPA's questions received under cover letter dated January 24, 1983.

3. CONOCO Inc. reply, dated February 25, 1983, to the EPA's questions received under cover letter dated January 24, 1983.

4. CONOCO INC. and VISTA CHEMICAL COMPANY information submitted to the EPA under cover letter dated September 12, 1985 responding to Section III.A. of the Consent Decree entered with the United States District Court for the Western District of Louisiana on August 19, 1985, in Civil Action No. 83-2518.

Appendix A. Current Leak Detection and Elimination Plan.

PLANT AREA
LEAK DETECTION & ELIMINATION
PLAN FOR LESHAP

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The Conoco VCM Plant Area Leak Detection and Elimination Plan is designed to provide a formalized procedure for detecting and controlling leaks from equipment in vinyl chloride service in the plant area. The plan is organized following the requirements of the leak detection and elimination section of the Louisiana emission standard for vinyl chloride. This plan will be reviewed periodically to determine if the plan meets the original purpose.

Continuous Monitoring System

A. Purpose

A continuous monitoring system provides a permanent, dependable means to detect leaks and identify the general area of the plant where a leak is located.

B. Definition of a Leak

A leak shall be defined as two VCM analyses over 10 ppm from any fixed points in the same area (i.e., one analysis over 10 ppm followed by a second analysis over 10 ppm, not necessarily from the same fixed point but in the same general vicinity) during two consecutive 10 minute scans in the process and offsites areas.

C. Description

Two multipoint area analyzers, Honeywell Model 1000 gas chromatographs (CAR), or equivalent, are used for detection of leaks and identification of the general area of the plant where a leak is located. The monitors will sample the air at each sample point on a continuous sequential basis, with each point being sampled once every 10 minutes. These chromatographs are CAR-171 for the plant process area and CAR-401 for the offsites area. The CAR's are presently being utilized for VCM monitoring and have proven to be reliable area monitors. Honeywell has stated that their accuracy is ±5% at VCM concentrations over 1.0 ppm. The background concentration of vinyl chloride in the plant area is approximately 0.5 ppm.

The output from each of the monitoring points of CAR-171 and CAR-401 is printed on a recording chart. The number corresponding to each sampling location is indicated as well as the vinyl chloride concentration in ppm. An analog output from CAR-171 and CAR-401 is also transmitted to a computer located in the main control room. The computer is programmed to print out a defined leak at the time it occurs and the number of such occurrences on an hourly basis for each point at the end of a 24 hour period.

An audio and a visual alarm will be given with each analysis of 10 ppm or greater. When the first alarm occurs a check by operations personnel will be made. If a leak is found, the action plan will be implemented. If a second alarm occurs in the same area during consecutive 10 minute scans, then by definition, a leak has occurred and the action plan will be implemented.

D. Location of Monitoring Points

The plant area vinyl chloride monitoring points are located in the plant process and offsites areas as shown in Figures 1 and 2 respectively. A description of the location of each point is given in Table 1.

E. Calibration and Maintenance

The plant area vinyl chloride monitoring system, CAR-171 and 401, will be maintained, calibrated, and span checked on a daily schedule, and all work will be reported in a log book. Calibration will be done with a certified standard gas cylinder containing a concentration of vinyl chloride in nitrogen of 10 ppm ±5 percent. The standard gas cylinder will have affixed to it the date of preparation, the certified vinyl chloride concentration and the recommended shelf life. At least one quarter of the plant area vinyl chloride monitoring points will be tested each year on a rotating basis using a standard vinyl chloride gas to ensure proper detection. Records of the testing will be kept.

Weekly Leak Patrol

A. Purpose

The weekly leak patrol will be used to find leaks in the plant area that have not been identified by the vinyl chloride monitoring system, as described below.

B. Definition of a Leak

A leak shall be defined as 10 ppm measured within six inches of a pump or valve seal interface, or 10 ppm in the general area over the background concentration.

C. Description

An HNU Model 101 portable analyzer, or equivalent, will be used to check for leaks during the weekly leak patrol. The HNU Model 101 portable analyzer has a sensitivity of 1 ppm vinyl chloride. The weekly leak patrol will follow the routes shown in Figures 4 and 5. During the patrol the general area, and specifically pump seals and control valves in vinyl chloride service, will be checked. Other fugitive sources will be added to the weekly check list as necessary. If a leak is detected, the operators involved in the leak patrol must then implement the action plan.

Persons conducting the patrol will sign each log entry, record the date and time of each leak patrol whether leaks are detected or not. If a leak is found, the person conducting the patrol must also enter the following information in the log: location of the leak, cause of the leak, and action taken to correct the leak.

D. Calibration and Maintenance

The portable detector will be maintained, calibrated, and span-checked on a weekly schedule. Calibration will be done with a certified standard gas cylinder containing a concentration of vinyl chloride in nitrogen of 10 ppm ±5 percent. The standard gas cylinder will have affixed to it the date of

preparation, the certified vinyl chloride concentration and the recommended shelf life. A log book will be kept of this calibration and signed by the person calibrating the detector.

Cooling Water Sampling

A. Purpose

The daily sampling of the cooling water effluent streams from several heat exchangers will be used as a check for internal leaks of exchangers in vinyl chloride service.

B. Definition of a Leak

A sample indicating a level of 10 ppm or more vinyl chloride in an exchanger effluent requires that a second sample be taken and analyzed. If an exchanger is determined to be leaking, the Action Plan will be implemented.

C. Description

The effluent cooling water from the Quench Column Condensers, H-202 A/B, and the Vinyl Column Condensers, H-207A and H-207B which are in vinyl chloride service will be sampled once per day. The water will be tested for vinyl chloride and the results recorded daily in weight ppm. A gas chromatograph, or equivalent instrumentation, will be used to test the cooling water samples.

D. Calibration and Maintenance

The analytical equipment will be calibrated periodically and maintained as necessary for reliable data.

Main Plant Vent Scrubber Stack Monitoring (C-500 Vent)

A. Purpose

An analysis of the C-500 Vent will be used as a check on a number of vent tie-ins to the vent scrubber (C-500) that are normally isolated by rupture disks, valves and relief valves.

B. Definition of a Leak

A leak investigation will begin if a significant trend or concentration of VCM is indicated on the daily analysis. When a leak is determined to exist, the Action Plan will be implemented. The source of the leak will be identified on the Leak Detection Form.

C. Description

Grab samples taken three times per week of the C-500 Vent Gas will help identify if streams not routinely discharged to C-500 begin to leak into the scrubber. A Varian Model 3700 Gas Chromatograph with flame ionization

detector, or equivalent equipment, is used to identify vinyl chloride. A vent analysis sheet is completed for each test day and filed.

D. Calibration and Maintenance

The gas chromatograph will be calibrated and maintained as necessary for reliable data.

Action Plan

The action plan upon detection of a leak will be as follows:

1) The person investigating the leak will attempt to locate and control the leak.

2) If that person is unable to control the leak, the Operations Shift Supervisor will be notified. The Shift Supervisor will take one of the following actions.

   a) Control the leak, or

   b) Notify the Maintenance Department to take corrective action to control the leak.

3) Each leak found should be accounted for on the Leak Detection Form, along with the action taken to control the leak. The Shift Supervisor will then forward the Leak Detection Form(s) to the Process Superintendent who will in turn forward the form(s) to the Environmental Engineer. These leak detection forms will be kept on file.

4) If a leak can not be controlled without a process unit shutdown, it will be noted on the Leak Detection Form along with the expected date of repair. The corrective action taken will be documented upon control of the leak.

5) A record of the leaks detected by the leak detection plan shall be retained and made available for inspection by the Assistant Secretary for a minimum of two years or such longer period as ordered by the Assistant Secretary.

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TABLE 1

DESCRIPTION OF LOCATION OF MONITORING POINTS FOR PROCESS AND OFFSITES AREAS

FIXED POINT NO.	LOCATION DESCRIPTION
PROCESSING AREA, CAR-171	
1	VCM Column Reflux Pumps, P-201 A/B
2	Between VCM Dryers, S-207 A/B
3	North of VCM Dryers Area
4	VCM/Caustic Containment
5	VCM to Storage Control Valve, FR-209
6	Laboratory
7	Light Ends Column Reflux Pumps, P-104 A/B
8	Quench Column Reflux Pumps, P-202 A/B
9	Direct Chlorination Reactor Area
10	VCM Column Feed Pumps, P-203 A/B
OFFSITES AREA, CAR-401	
1	Light Ends Transfer Pump, P-402
2	VCM Loading Pumps, P-411 A, B, C
3	VCM Loading Rack No. 1, West
4	VCM Loading Rack No. 1, East
5	VCM Loading Rack No. 2, East
6	VCM Vent Recovery Unit
7	VCM Storage Tanks, Mid-Farm
8	VCM Loading Rack No. 2, West
9	VCM Check Tanks, West
10	VCM Transfer Pumps, P-401 A/B