

VCM Plant

Conoco Chemicals
Continental Oil Company
P.O. Box 605
Westlake, Louisiana 70669
(318) 491-5211

RECEIVED

MAY 22 1978

May 16, 1978

Don R. Goodwin, Director
Emission Standards and Engineering Division
United States Environmental Protection Agency
Office of Air Quality Planning and Standards
Research Triangle Park, NC 27711

Dear Mr. Goodwin:

Attached is the process vent information for the ethylene dichloride facilities at the CONOCO VCM Plant in Lake Charles, Louisiana. This information is in response to your letter of April 12, 1978 to Dr. David A. Kuhn, Director of Biomedical and Environmental Affairs for Continental Oil Company.

The information on control devices and atmospheric vents is based on present operation. After the installation of a vent gas incinerator for compliance with EPA vinyl chloride emission standards, all the vents identified in the attached listing will be incinerated except for the oxychlorination vent (2a). This vent will continue to pass through the vent scrubber, C-500, to the atmosphere.

If the attached information is not sufficient to meet your requirements, we will try to supply any additional information.

Sincerely,

J. A. DeBernardi
Plant Manager

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Enc
CC + enc:
DAK
BCC: REL-JEC-CRH-JD
GLF-PLF-JOG-JN

VVC 000012679

INFORMATION ON ETHYLENE DICHLORIDE UNIT

CONOCO VCM PLANT, WESTLAKE, LOUISIANA

Answers to EPA Questions:

1) See Figure I for a process block flow diagram.

2 & 3) Gas Stream Information

Stream 1a - Direct Chlorination Vent

Process Cause: Vents inert gases introduced with incoming chlorine and ethylene from system.

Flow: Approx. 10,000 SCFH (778 lbs./hr.)

Composition: 4.4 % H₂ (Mole %)
14.5 % O₂
42.8 % N₂
1.1 % CO
16.3 % CO₂
15.1 % CH₄
3.3 % C₂H₄
0.8 % C₂H₆
0.01% Ethyl Chloride
0.02% Vinyl Chloride
1.7 % Ethylene Dichloride

Temperature: 200°F

Reported flow rate is based on typically observed flow indication. Composition is based on average GC analysis. This vent also contains small quantities of Cl₂ and HCl (not routinely analyzed).

Stream 2a - Oxychlorination Unit Vent

Process Cause: Vents nitrogen and other inert gases introduced with air or produced by side reactions.

Flow: 10,565 Ft.³/Min. at Vent Conditions (44,750 lbs./hr.)

Composition:	lb./hr.
Carbon Monoxide	434
Carbon Dioxide	895
Hydrochloric Acid	59.8
Chlorine	7.3
Ethylene Dichloride	414
VCM	13.63
C ₂ H ₄	117
Methane	42
Ethane	5
Ethyl Chloride	489
Miscellaneous Hydrocarbons	46
Nitrogen and Oxygen	42,227

Temperature: 1000°F

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Reported flow rate is based on material balance calculations. Compositions are based on routine GC and wet chemistry analyses as reported in Plant's Louisiana Air Control Commission Emission Inventory Questionnaire.

Stream 3 - EDC Washing System Vent

Process Cause: Vents inert gases liberated in washing process.

Flow: 9.9 Ft.³/Min. at vent conditions (54 lbs./hr.)

Composition:	lb./hr.
Carbon Monoxide	.17
Carbon Dioxide	28.64
Ethylene Dichloride	4.54
VCM	.47
C ₂ H ₄	.16
Methane	.91
Ethane	.17
Ethyl Chloride	1.06
Nitrogen & Oxygen	17.88

Temperature: 120°F

Reported flow rate is based on engineering calculations. Compositions are based on special GC and wet chemistry analyses for Plant's Louisiana Air Control Commission Emission Inventory Questionnaire.

Stream 4a - EDC Purification Vent

Process Cause: Vents light hydrocarbons from purification system which cannot be condensed in overhead water cooled exchangers.

Flow: (1)

Composition: (1)

Temperature: 130°F

(1) Purification vents are not routinely analyzed, and have not been analyzed for emission reports. Likewise vent flow rate is not routinely calculated or measured. This stream is included in C-500 vent.

Stream 5 - EDC Storage Vent

Process Cause: Breathing losses from storage tanks due to inventory changes or ambient temperature increases.

Flow: 21.13 Ft.³/Min. at vent conditions (103 lbs./hr.)

Composition:	lb./hr.
Hydrochloric Acid	.26
Ethylene Dichloride	7.89
VCM	.74
Methane	.04
Ethyl Chloride	4.49
Nitrogen	89.58

Temperature: Ambient

Reported flow rate is based on engineering calculations. Compositions are based on special GC and wet chemistry analyses for Plant's Louisiana Air Control Commission Emission Inventory Questionnaire.

Stream 1b, 2b, and 4b - C-500 Vent

Combined vent to the atmosphere.

Flow: 11,076 Ft.³/Min. at vent conditions (48,700 lbs./hr.)

Composition:	lb./hr.
Carbon Monoxide	530
Carbon Dioxide	1040
Hydrochloric Acid	59.8
Chlorine	7.3
Ethylene Dichloride	414
VCM	94
Ethyl Chloride	621
C ₂ H ₄	208
Methane	144
Ethane	15.7
Ethylene	208
Miscellaneous Hydrocarbons	119
Oxygen & Nitrogen	45,448

Temperature: 100°F

Reported flow rate is based on engineering calculations. Compositions are based on routine GC and wet chemistry analyses as reported in Plant's Louisiana Air Control Commission Emission Inventory Questionnaire.

- 4) Nominal operating capacity of the CONOCO VCM Plant ethylene dichloride facility is 1,100 MM lbs./yr.

- 5) Control Devices

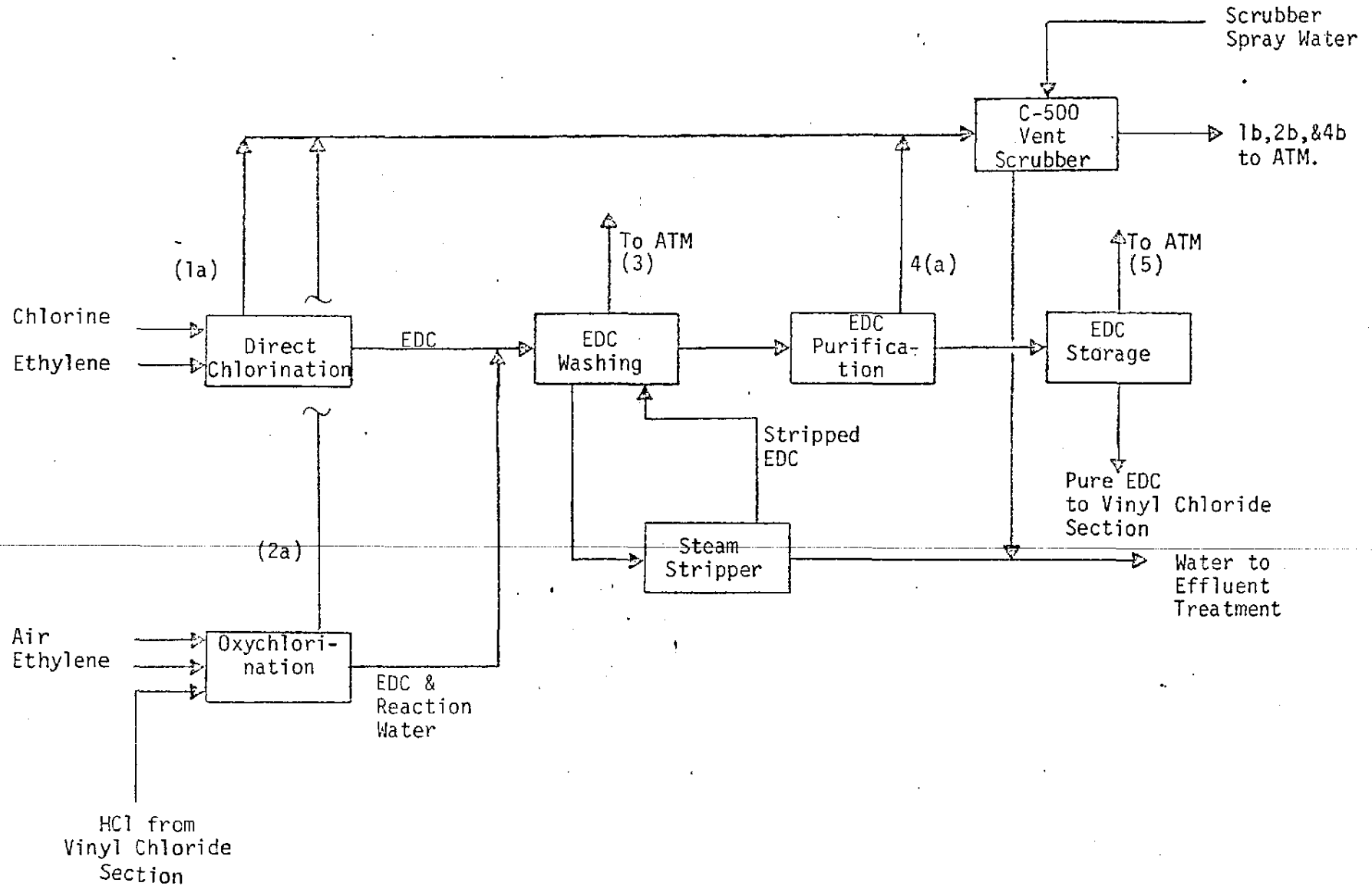
C-500 Vent Scrubber: Control device is designed for HCl removal and consists of a column with overhead water sprays.

6) Wastewater and Organic Waste Streams

Wastewater - The major wastewater sources are the water produced in the oxychlorination reaction and water from the EDC washing system. These streams are combined and fed to the steam stripper as indicated in the block flow diagram (Fig. I) to remove ethylene dichloride and other volatile organics. Total flow from the stripper is about 75 gpm with an EDC content of 100 ppm or less. Cooling tower blowdown is used as the scrubbing medium in the C-500 vent scrubber. This adds 225 gpm of wastewater flow to effluent water treatment.

Organic Waste Stream - About 12 MM lbs./yr. of heavy ends are separated in the distillation section of the ethylene dichloride process. This material is transported to the Chemicals Division of PPG Industries, Inc. for further processing and incineration. The heavy ends mainly consist of chlorinated C₂ hydrocarbons plus carbon and salt solids. The material is not routinely analyzed for volatile content.

FIGURE I
BLOCK FLOW DIAGRAM
ETHYLENE DICHLORIDE PROCESS
CONOCO VCM PLANT, LAKE CHARLES, LA.



VCM Plant

Conoco Chemicals
Continental Oil Company
P.O. Box 605
Westlake, Louisiana 70669
(318) 491-5211

CERTIFIED MAIL #316086
RETURN RECEIPT REQUESTED

May 9, 1978

RECEIVED
MAY 11 1978

Mr. Howard G. Bergman
Director, Enforcement Division
Region VI, Environmental Protection Agency
First International Building
1201 Elm Street
Dallas, TX 75270

Dear Mr. Bergman:

The purpose of this letter is to inform you of a labor problem in the Lake Charles, Louisiana area which has halted construction work on the Continental Oil Company - VCM Plant vent gas incinerator project. I was in contact with Mr. Martin Brittain of your staff by phone on May 8, 1978 related to this problem.

As you are aware, the Continental Oil Company - VCM Plant located in Westlake, Louisiana is presently operating under a waiver of compliance from certain requirements of the national hazardous emission standard for vinyl chloride (40 CFR Part 61, Subpart F) granted by your office on July 5, 1977. The key to our final compliance with the national hazardous emission standard for vinyl chloride requires installation of a thermal incineration system to thermally decompose all plant vent streams with the exception of the oxy-chlorination system vent. The incineration system is presently in construction.

On May 1, 1978 construction work in the Lake Charles area was shut down due to a strike by Teamsters Local #969 against the Association of General Contractors. Contracts between the Building Trades Council and the Association of General Contractors expired at mid-night April 30, 1978. Negotiations between the Association of General Contractors and the Teamsters broke off on April 28, 1978 without a settlement being reached leading to the Teamsters strike and the stoppage of construction work in the area until a settlement is reached. Therefore, work on Continental's incinerator project has been halted by the strike since area contractors working on the project are unable to man the job as a result of Teamster picketing. This situation is entirely outside the control of Continental Oil Company since the labor dispute is not against Continental, but against the area contractors being used on the incinerator construction project. Continental Oil Company has not been, nor will they be, included in any of the bargaining taking place between the Association of General Contractors and the Building Trades Council.

VVC 000012685

Ronald G. Bergman
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May 9, 1978

The net effect of this strike will result in the delay of our compliance projects related to the national hazardous emission standard for vinyl chloride beyond the existing waiver date for completion of construction of October 1, 1978. I would anticipate that this delay will amount to the same number of days that the present work stoppage takes to reach a bargained settlement between the Teamsters and the Association of General Contractors. Therefore, I am requesting the following:

1. All compliance schedule completion of on-site construction dates contained in your letter of July 5, 1977 be extended by the same number of days that the present work stoppage lasts, with the exception of those compliance dates which we have already reported as being complete.
2. The date of final compliance and the date on which the July 5, 1977 compliance waiver terminates be extended beyond the October 21, 1978 date by the same number of days that the present work stoppage lasts.

I will continue to keep your office informed related to the work stoppage. Once a settlement is reached I will be able to inform you of the exact number of days extension I am requesting.

Sincerely,



J. A. DeBernardi

is
CC:
James F. Coerver
Technical Secretary, LACC
P. O. Box 60530
New Orleans, LA 70160
BCC: :
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VVC 000012686