



INDUSTRIES

LAKE CHARLES
VCM.

PPG INDUSTRIES, INC. INDUSTRIAL CHEMICAL DIVISION P. O. BOX 1000 LAKE CHARLES, LA. 70602

November 21, 1983

Mr. Tom Coerver
Department of Natural Resources
Air Quality Division
Office of Environmental Affairs
P.O. Box 44066
Baton Rouge, LA 70804

RE: VCM Leak Detection and Elimination Program

Dear Mr. Coerver:

We have received your comments of 10/26/83 concerning the deficiencies you noted on PPG's Leak Detection and Elimination Program. We have taken your comments into consideration and are resubmitting the written description of our program to you for review and approval.

As you will notice in each program, the frequency of leak patrols has been changed per your request to weekly instead of the monthly frequency which we had proposed. However, PPG would like to submit for your records, that based on several years of weekly leak patrol records, the frequency of once per week can not be justified from a practical point. PPG will, however, at a significant cost, conduct weekly leak patrols for six months beginning January 1, 1984. On or about July 1, 1984, if the records indicate, we will request a modification to our program.

If you should have any questions, please call me at 318/491-4576.

Sincerely,

A handwritten signature in black ink, appearing to read 'Phillip S. Trew'. The signature is fluid and cursive, with the first name 'Phillip' being more prominent.

Phillip S. Trew
Environmental Control Specialist

/bf

bbc: E. J. Tullier
R. J. Samelson
J. Hart/R. Byars
File #111.3.01B

11/21/83

SL 105317

PPG INDUSTRIES, INC.

LAKE CHARLES, LA

VCM-I

VINYL CHLORIDE

LEAK DETECTION AND ELIMINATION PROGRAM

- I. Monitoring Equipment
- II. Calibration and Maintenance
- III. Monitoring Program
- IV. Plan of Action
- V. Definition of a Leak

I. MONITORING EQUIPMENT

A. Fixed Point System

A ten point Arcas vinyl chloride air monitoring system using gas chromatography is the analyzing method. This system includes a continuous printout of data as they are completed and will be tied to a central computer. The computer will provide a listing of analyses above a predetermined level and the time thereof for each point. Shift and daily reports containing plant and point time-weighted averages will also be an output from this system. An audible alarm will indicate when the predetermined level has been exceeded.

B. Portable Detector

One Model P1-101 HNU organic vapor analyzer or an equivalent model will be used in the plant for leak detection. A description and specifications for this instrument can be found in Exhibits A attached to this leak detection and elimination program.

II. CALIBRATION AND MAINTENANCE

A. Fixed Point System

The vinyl chloride monitoring system is calibrated and span checked with a gas mixture containing 5 ppm vinyl chloride in nitrogen daily. A calibration gas cylinder, the gas analysis of which is traceable to the National Bureau of Standards, or an equivalent gas mixture and certified with a statement of shelf life, will be used. Maintenance will be performed on an as-needed basis based upon a daily check of the operation and condition of the system. In addition, on an annual basis, an accuracy test of the system is conducted by introducing a known concentration of VCM into each sample point.

B. Portable Detector

The portable hydrocarbon detector is checked weekly to verify that it has not lost its sensitivity to vinyl chloride. The gas used for this test will come from a gas cylinder containing 5 ppm VCM in air, the gas analysis of which will be traceable to the National Bureau of Standards, or from an equivalent gas mixture and be certified with a statement of shelf life. Maintenance will be performed on an as-needed basis based upon the operation and condition of the detector.

III. MONITORING PROGRAM

A. VCM Formation, Purification and Day Tank Areas

1. Eight of the ten monitoring system points are located in the VCM area as shown on the attached plot plan Dwg. No. 65A-2100.4. There is one point located in the plant laboratory and one used for calibration. The location of the points relative to equipment in vinyl chloride service (shaded areas) can be seen in the plot plan drawing. Samples will be obtained from ten points on a continuous sequential basis. Cycle time per point will be about 60 sec.
2. In addition to the fixed point system, the portable hydrocarbon detector is used routinely as required to check for and locate small leaks from equipment in vinyl chloride service. A schedule and checklist has been developed which insures that all sections of the VCM area are checked at least once per week. The items to be checked during this routine equipment check include control valve and block valve packing glands, flanges, pressure gauges, impulse lines and connections, sample points, and pump seals.

IV. PLAN OF ACTION

All indications of possible leakage by the monitoring equipment is reported to the lead operator and/or supervisor in charge. The supervisor will evaluate the leak detection information considering atmospheric conditions such as wind velocity, wind direction, and relative stability; current operations being undertaken such as opening equipment after the requirements for opening have been met in accordance with the regulations; and current operations being carried out in other portions of the complex that would tend to increase ambient concentrations temporarily. The proper action to be taken will be determined by the supervisor. A suspected leak will be searched for using the portable hydrocarbon detector until the leak has been found, has subsided or the problem has been otherwise identified. Personnel performing the leak search will wear appropriate protective equipment. Any corrective action necessary will be commenced immediately and will include but not be limited to:

- A. Isolating the source of the leak so that the leakage is stopped and the source repaired, replaced, or acted upon according to standard operating procedures as soon as it is feasible to do so.
- B. Repairing the equipment or acting upon the equipment in line by tightening, closing, etc., so that the leak is stopped.
- C. When necessary, curtailing operations until repairs can be made.
- D. Checking the source again after the leak has been corrected to insure that the leak has not reoccurred.

An on-going program of prevention of leakage and elimination of troublesome leakage problems will consist of:

- A. Implementing procedures for installation and operation of equipment so that possible leak sources will be eliminated (i.e., pressure testing equipment prior to its being put into service or making sure hoses, sample bombs, etc. are connected properly and securely).
- B. Checking known troublesome leak sources more frequently until the problem is resolved.
- C. Modifying the routine leak patrol schedule if such is indicated by experience in order to insure maximum effectiveness of this program.

Any source, which records a leak greater than 10 ppm from the portable hydrocarbon detector requires that appropriate corrective action will be taken in a timely manner in accordance with the severity of the leak.

Definition of a leak

The following guidelines are proposed as to when action to locate and eliminate a possible leak should be taken. These guidelines will be reviewed periodically and modified as needed in order to insure the continuing improvement of the leak detection and elimination program.

A. Fixed Point System

Normal background concentration levels range between 0.01 and 0.09 ppm. A VCM leak will be considered as indicated by two successive readings on the monitor of 5 ppm or above.

B. Portable Detector

A VCM leak found on the routine leak patrols is defined as any reading greater than 10 ppm when the detector's probe is held approximately six inches away from the source.

PPG INDUSTRIES, INC.

LAKE CHARLES, LA

TRI-ETHANE II

VINYL CHLORIDE

LEAK DETECTION AND ELIMINATION PROGRAM

- I. Monitoring Equipment
- II. Calibration and Maintenance
- III. Monitoring Program
- IV. Plan of Action
- V. Definition of a Leak

I. MONITORING EQUIPMENT

A. Fixed Point System

An eleven point Arcas vinyl chloride air monitoring system using gas chromatography is the analyzing method. This system includes a continuous printout of data as they are completed and will be tied to a central computer. The computer will provide a listing of analyses above a predetermined level and the time thereof for each point. Shift and daily reports containing plant and point time-weighted averages will also be an output from this system. An audible alarm will indicate when the predetermined level has been exceeded.

B. Portable Detector

One Model P1-101 HNU organic vapor analyzer or an equivalent model will be used in the plant for leak detection. A description and specifications for this instrument can be found in Exhibits A attached to this leak detection and elimination program.

II. CALIBRATION AND MAINTENANCE

A. Fixed Point System

The vinyl chloride monitoring system is calibrated and span checked with a gas mixture containing 5 ppm vinyl chloride in nitrogen daily. A calibration gas cylinder, the gas analysis of which is traceable to the National Bureau of Standards, or an equivalent gas mixture and certified with a statement of shelf life, will be used. Maintenance will be performed on an as-needed basis based upon a daily check of the operation and condition of the system. In addition, on an annual basis, an accuracy test of the system is conducted by introducing a known concentration of VCM into each sample point.

B. Portable Detector

The portable hydrocarbon detector is checked weekly to verify that it has not lost its sensitivity to vinyl chloride. The gas used for this test will come from a gas cylinder containing 5 ppm VCM in air, the gas analysis of which will be traceable to the National Bureau of Standards, or from an equivalent gas mixture and be certified with a statement of shelf life. Maintenance will be performed on an as-needed basis based upon the operation and condition of the detector.

III. MONITORING PROGRAM

A. VCM Formation and Purification Area

1. Nine of the eleven monitoring system points are located in the VCM area as shown on the attached plot plan Dwg. No. 69A-10,000. There is one point located in the plant laboratory and one used for calibration. The location of the points relative to equipment in vinyl chloride service (shaded areas) can be seen in the plot plan drawing. Samples will be obtained from ten of the eleven points on a continuous sequential basis. Cycle time per point will be about 60 sec.
2. In addition to the fixed point system, the portable hydrocarbon detector is used routinely as required to check for and locate small leaks from equipment in vinyl chloride service. A schedule and checklist has been developed which insures that all sections of the VCM area are checked at least once per week. The items to be checked during this routine equipment check include control valve and block valve packing glands, flanges, pressure gauges, impulse lines and connections, sample points and pump seals.

IV. PLAN OF ACTION

All indications of possible leakage by the monitoring equipment is reported to the lead operator and/or supervisor in charge. The supervisor will evaluate the leak detection information considering atmospheric conditions such as wind velocity, wind direction, and relative stability; current operations being undertaken such as opening equipment after the requirements for opening have been met in accordance with the regulations; and current operations being carried out in other portions of the complex that would tend to increase ambient concentrations temporarily. The proper action to be taken will be determined by the supervisor. A suspected leak will be searched for using the portable hydrocarbon detector until the leak has been found, has subsided or the problem has been otherwise identified. Personnel performing the leak search will wear appropriate protective equipment. Any corrective action necessary will be commenced immediately and will include but not be limited to:

- A. Isolating the source of the leak so that the leakage is stopped and the source repaired, replaced, or acted upon according to standard operating procedures as soon as it is feasible to do so.
- B. Repairing the equipment or acting upon the equipment in line by tightening, closing, etc., so that the leak is stopped.
- C. When necessary, curtailing operations until repairs can be made.
- D. Checking the source again after the leak has been corrected to insure that the leak has not reoccurred.

An on-going program of prevention of leakage and elimination of troublesome leakage problems will consist of:

- A. Implementing procedures for installation and operation of equipment so that possible leak sources will be eliminated (i.e., pressure testing equipment prior to its being put into service or making sure hoses, sample bombs, etc. are connected properly and securely).
- B. Checking known troublesome leak sources more frequently until the problem is resolved.
- C. Modifying the routine leak patrol schedule if such is indicated by experience in order to insure maximum effectiveness of this program.

Any source, which records a leak greater than 10 ppm from the portable hydrocarbon detector requires that appropriate corrective action will be taken in a timely manner in accordance with the severity of the leak.

Definition of a leak

The following guidelines are proposed as to when action to locate and eliminate a possible leak should be taken. These guidelines will be reviewed periodically and modified as needed in order to insure the continuing improvement of the leak detection and elimination program.

A. Fixed Point System

Normal background concentration levels of VCM range between 0.01 and 0.09 ppm. A VCM leak will be considered as indicated by two successive readings on the monitor of 5 ppm or above.

B. Portable Detector

A VCM leak found on the routine leak patrols is defined as any reading greater than 10 ppm when the detector's probe is held approximately six inches away from the source.

PPG INDUSTRIES, INC.

LAKE CHARLES, LA

VCH-II

VINYL CHLORIDE

LEAK DETECTION AND ELIMINATION PROGRAM

- I. Monitoring Equipment
- II. Calibration and Maintenance
- III. Monitoring Program
- IV. Plan of Action
- V. Definition of a Leak

MONITORING EQUIPMENT

A. Fixed Point System

Gas chromatography is the analyzing method incorporated in the three fixed point monitoring systems. A fifteen-point Bendix system is deployed in the VCM-II process area and a ten-point Bendix system in the low temperature storage area. Both systems, share a continuous printout of data in the VCM-II control room as they are completed and both are tied to a central computer located in the VCM-II control room. The computer provides a listing of analyses above a predetermined level and the time thereof for each point. Shift and daily reports containing plant and point time-weighted averages are also outputs from this system. An audible alarm in the VCM-II control room indicates when the predetermined level has been exceeded on the fifteen-point system. In addition, an alarm sounds in the storage area control room and at the refrigeration area if one of the ten-point system points exceeds the predetermined level. A description and specifications for the Bendix system are attached as Exhibit A.

A ten-point Arcas monitoring system is installed at the VCM tank car loading station. This system generates a continuous local printout of the data and is equipped with an audible alarm to indicate when the predetermined level has been exceeded. A description and specifications for the Arcas system are attached as Exhibit B.

- B. One Model P1-101 HNU organic vapor analyzer or an equivalent model is used in the plant for leak detection. A description and specifications for this instrument can be found in Exhibit C, attached to this leak detection and elimination program.

II. CALIBRATION AND MAINTENANCE

A. Fixed Point System

The vinyl chloride monitoring system is calibrated and span checked with a gas mixture containing 5 ppm vinyl chloride in nitrogen daily. A calibration gas cylinder, the gas analysis of which is traceable to the National Bureau of Standards, or an equivalent gas mixture and certified with a statement of shelf life, will be used. Maintenance will be performed on an as-needed basis based upon a daily check of the operation and condition of the system. In addition, on an annual basis, an accuracy test of the system is conducted by introducing a known concentration of VCM into each sample point.

B. Portable Detector

The portable hydrocarbon detector is checked weekly to verify that it has not lost its sensitivity to vinyl chloride. The gas used for this test will come from a gas cylinder containing 5 ppm VCM in air, the gas analysis of which will be traceable to the National Bureau of Standards, or from an equivalent gas mixture and be certified with a statement of shelf life. Maintenance will be performed on an as-needed basis based upon the operation and condition of the detector.

III. MONITORING PROGRAM

A. VCM Formation, Purification and Shift Storage Areas

Deployment of the fifteen monitoring system points in the VCM-II area is shown on attached plot plans (Dwgs. No. D-01-1N-11 and D-01-PD-2). The location of the points relative to equipment in vinyl chloride service (shaded areas) is also shown on the plot plan drawings. Cycle time per point will be about 90 seconds. Samples will be obtained on a continuous sequential basis.

B. VCM South Terminal Storage and Barge & Ship Loading Areas

Deployment of the ten-monitoring system points located in the South Terminal storage barge & ship loading areas is shown on the attached plot plan, Dwgs. No. 27A-60032 and 27A-50025.0. Cycle time per point will be about 90 seconds. Samples will be obtained on a continuous sequential basis.

C. VCM Tank Car Loading

Deployment of the Arcas monitoring points in the VCM tank car loading area is shown on the attached plan, Dwg. No. 65A-1100-3. There will be one point at each of the eight loading stations. Cycle time per point will be about 90 seconds. Samples will be obtained on a continuous sequential basis.

D. Sphere Storage Areas

The Sphere Storage Areas are physically separate and in one case remote from the vinyl chloride formation and purification area (see Dwg. No. 65A-1100). Due to the long distances which would be involved, these areas do not lend themselves to use of the same type fixed-point monitoring system used in the VCM formation and purification area. It should be noted that there are fewer potential sources of leakage in these areas as compared to the vinyl chloride formation and purification areas, and, furthermore, the equipment in these areas is not in continuous operation. Also, the equipment in these areas is relatively safe from internal or external corrosion since the material handled is produce-grade VCM which has been dried and filtered. For the reasons stated above, a leak detection program has been developed utilizing the portable hydrocarbon detector (see description of Leak Patrols below).

E. Leak Patrols

In addition to the fixed point systems, the portable hydrocarbon detector will be used routinely as required to check for and locate small leaks from equipment in vinyl chloride service. A schedule and checklist will be developed which insures that all sections of the VCM formation and purification area, South Terminal Storage area, tank car loading areas and sphere storage area are checked once per week. The items to be checked during this routine equipment check include control valve and block valve packing glands, flanges, pressure gauges, impulse lines and connections, sample points, and pump seals.

IV. PLAN OF ACTION

All indications of possible leakage by the monitoring equipment is reported to the lead operator and/or supervisor in charge. The supervisor will evaluate the leak detection information considering atmospheric conditions such as wind velocity, wind direction, and relative stability; current operations being undertaken such as opening equipment after the requirements for opening have been met in accordance with the regulations; and current operations being carried out in other portions of the complex that would tend to increase ambient concentrations temporarily. The proper action to be taken will be determined by the supervisor. A suspected leak will be searched for using the portable hydrocarbon detector until the leak has been found, has subsided or the problem has been otherwise identified. Personnel performing the leak search will wear appropriate protective equipment. Any corrective action necessary will be commenced immediately and will include but not be limited to:

- A. Isolating the source of the leak so that the leakage is stopped and the source repaired, replaced, or acted upon according to standard operating procedures as soon as it is feasible to do so.
- B. Repairing the equipment or acting upon the equipment in line by tightening, closing, etc., so that the leak is stopped.
- C. When necessary, curtailing operations until repairs can be made.
- D. Checking the source again after the leak has been corrected to insure that the leak has not reoccurred.

An on-going program of prevention of leakage and elimination of troublesome leakage problems will consist of:

- A. Implementing procedures for installation and operation of equipment so that possible leak sources will be eliminated (i.e., pressure testing equipment prior to its being put into service or making sure hoses, sample bombs, etc. are connected properly and securely).
- B. Checking known troublesome leak sources more frequently until the problem is resolved.
- C. Modifying the routine leak patrol schedule if such is indicated by experience in order to insure maximum effectiveness of this program.

Any source, which records a leak greater than 5 ppm from the portable hydrocarbon detector requires that appropriate corrective action will be taken in a timely manner in accordance with the severity of the leak.

Definition of a leak

The following guidelines are proposed as to when action to locate and eliminate a possible leak should be taken. These guidelines will be reviewed periodically and modified as needed in order to insure the continuing improvement of the leak detection and elimination program.

A. Fixed Point System

Normal background concentration levels of VCM range between 0.05 and 0.1 ppm. A VCM leak will be considered as indicated by two successive readings on the monitor of 5 ppm or above.

B. Portable Detector

A VCM leak found on the routine leak patrols is defined as any reading greater than 10 ppm when the detector's probe is held approximately six inches away from the source.