CONFIDENTIAL

COMPLIANCE PLAN

ABERDEEN CHEMICAL PLANT

ABERDEEN, MISSISSIPPI

INTRODUCTION

This Compliance Plan (hereafter "Plan") is being submitted by Conoco Inc. and Vista Polymers Inc. in satisfaction of one of the conditions of the Consent Decree entered in the United States District Court, Northern District of Mississippi (Civil Action No. EC-84-37-NB-D) on August 19, 1985.

The Plan has a threefold purpose: (1) to describe measures, procedures and equipment already in effect at the 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 retraining for plant personnel, aimed at maintaining compliance with the requirements of the National Emission Standard for Hazardous Air Pollutants (NESHAP) for vinyl chloride; (3) to describe proposed equipment revisions for maintaining compliance with the NESHAP requirements for vinyl chloride.

The Plan provides a sectional review of plant compliance with the NESHAP for vinyl chloride. The Plan includes:

1. Proposed modifications to the plant or its practices are covered under the appropriate sections.
2. Descriptions of pertinent operating and maintenance procedures utilized to ensure compliance with the NESHAP for vinyl chloride or are referenced if previously submitted to EPA.
3. A description of plant maintenance and training procedures.

A process description of plant areas which are in vinyl chloride service, including processes installed to assure compliance with the NESHAP, was included in the information submitted under section III. A. of the Consent Decree.

This document updates compliance plans previously submitted to the EPA dated December 20, 1976 and August 14, 1978.

Plant equipment and procedures as described, and including those modifications proposed in this Plan, will ensure continued compliance with each section of the NESHAP for vinyl chloride.

Nothing in this Plan or its Attachments constitutes an admission, direct or implied, that equipment, methods, procedures, training programs etc. heretofore implemented 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 CFR 61 Subpart F).

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COMPLIANCE WITH THE NESHAP

FOR VINYL CHLORIDE

ABERDEEN CHEMICAL PLANT

VISTA POLYMERS INC.

§ 61.64

An owner or operator of a polyvinyl chloride plant shall comply with the requirements of this section and Section 61.65.

(a) Reactor. The following requirements apply to reactors:
(1) The concentration of vinyl chloride in all exhaust gases discharged to the atmosphere from each reactor is not to exceed 10 ppm, except as provided in paragraph (a)(2) of this section and section 61.65(a).

STATUS OF COMPLIANCE

Vents from the reactors during the charge, polymerization, and recovery/stripping phases of the reactor cycle are routed to the vapor recovery system. This system compresses and condenses the VCM vapors so that they can be recycled. Noncondensible gases collect in the vapor space of the recovered VCM receivers in reactor Module No. 1 and are vented along with a small quantity of VCM to the VCM incinerator where the VCM content is incinerated to less than 10 ppm before being released to the environment.

Emissions from the reactor during the slurry stripping step of the batch cycle are addressed in section 61.64(b).

§ 61.64

(a) Reactor.
(2) The reactor opening loss from each reactor is not to exceed 0.02 g vinyl chloride/kg (0.00002 lb vinyl chloride/lb) of polyvinyl chloride product, with the product determined on a dry solids basis. This requirement applies to any vessel which is used as a reactor or as both a reactor and a stripper. In the bulk process, the product means the gross product of prepolymerization and postpolymerization.

STATUS OF COMPLIANCE

The Aberdeen PVC Plant uses a batch suspension polymerization process to produce polyvinyl chloride resin. The polymerization reactors are also used as batch slurry strippers. Following each stripping operation, the reactor/stripper is opened to the atmosphere and the slurry is drained from the reactor.

Compliance with 61.64(a)(2) is currently attained by operating under the equivalent equipment and procedures approved by EPA Region IV on March 27, 1986.

ADDITIONAL MEASURES TO BE COMPLETED

Retraining on steam stripping procedures and reactor slurry sampling and handling procedures will be conducted each calendar year. Initial retraining required by the Plan will be completed within 270 days after Plan approval.

§ 61.64
(a) Reactor.
(3) Manual vent valve discharge: Except for an emergency manual vent valve discharge, there is to be no discharge to the atmosphere from any manual vent valve on a polyvinyl chloride reactor in vinyl chloride service. An emergency manual vent valve discharge means a discharge to the atmosphere which could not have been avoided by taking measures to prevent the discharge. Within 10 days of any discharge to the atmosphere from any manual vent valve, the owner or operator of the source from which the discharge occurs shall submit

A

61.64(a)(3) (continued)

to the Administrator a report in writing containing information on the source, nature and cause of the discharge,the date and time of the discharge, the approximate total vinyl chloride loss during the discharge, the method used for determining the vinyl chloride loss, the action that was taken to prevent the discharge, and measures adopted to prevent future discharges.

STATUS OF COMPLIANCE

When the vinyl chloride standard was written, industry and plant practice was to use a valve on a reactor or receiver to manually vent inerts to the atmosphere to maintain control. This action was prohibited by section 61.64 (a)(3) except for emergency manual venting. The Aberdeen Chemical Plant has installed incinerators to receive and incinerate the inerts that are generated by the process. No manual venting to the atmosphere is required by the process and it does not occur.

§ 61.64

(b) Stripper. The concentration of vinyl chloride in all exhaust gases discharged to the atmosphere from each stripper is not to exceed 10 ppm, except as provided in Section 61.65(a). This requirement does not apply to equipment that has been opened, is out of operation, and met the requirement in Section 61.65(b)(6)(i) before being opened.

STATUS OF COMPLIANCE

Vents from the reactor/stripper during the polymerization and recovery/steam stripping parts of the reactor batch cycle are routed to the vapor recovery system. This system compresses and condenses the VCM vapors so that they can be recycled. Noncondensible gases collect in the vapor space of the recovered VCM receivers in reactor Module No. 1 and are vented along with a small quantity of VCM to the incinerator where the VCM content is incinerated to less than 10 ppm before being released to the environment.

§ 61.64

(c) Mixing, weighing, and holding containers. The concentration of vinyl chloride in all exhaust gases discharged to the atmosphere from each mixing, weighing, or holding container in vinyl chloride service which precedes the stripper (or the reactor if the plant has no stripper) in the plant process flow is not to exceed 10 ppm, except as provided in Section 61.65(a). This requirement does not apply to equipment that has been opened, is out of operation, and met the requirement in Section 61.65(b)(6)(i) before being opened.

STATUS OF COMPLIANCE

The Aberdeen Chemical Plant does not have any mixing or weighing containers in VCM service. The plant does utilize a number of vinyl chloride storage vessels . These units are:

	No. of Vessels
VCM Storage Bullet*	Two
VCM Storage Sphere	One
Fresh VCM Receiver	Two
Recovered VCM Receiver	Four

*A bullet is a horizontal cylindrical drum designed for pressurized storage.

The sphere and bullets are located in the tank farm. Vents from these vessels are routed to the Emission Recovery System through the dedicated vent header system. This system compresses and condenses the VCM vapors so that they can be recycled. Noncondensible gases from these vents collect in the vapor space of the Module No. 1 recovered VCM receivers. Vents from the Fresh VCM receivers also flow directly to the Module No. 1 recovered VCM receivers. Vents from the Module No. 2 recovered VCM receivers flow to the Module No. 1 recovered VCM receivers. The Module No. 1 recovered VCM

61.64(c) (continued)

STATUS OF COMPLIANCE (continued)

receivers are in turn vented to the VCM incinerator where the VCM content is incinerated to less than 10 ppm before being released to the environment.

§ 61.64

(d) Monomer recovery system. The concentration of vinyl chloride in all exhaust gases discharged to the atmosphere from each monomer recovery system is not to exceed 10 ppm, except as provided in Section 61.65(a). This requirement does not apply to equipment that has been opened, is out of operation, and met the requirement in Section 61.65(b)(6)(i) before being opened.

STATUS OF COMPLIANCE

The Aberdeen Chemical Plant utilizes three vapor recovery systems. Non-condensible inert gases containing VCM are vented to these units from a number of sources as discussed in other sections of the plan. These units are designed and operated such that these inert gases collect in the vapor space of the Module No. 1 recovered VCM receivers. These collected gases are ducted from this system to the VCM incinerator. Continuous venting of inerts from the VCM receivers to the incinerator is not required.

§ 61.64

(e) Sources following the stripper(s). The following requirements apply to emissions of vinyl chloride to the atmosphere from the combination of all sources following the stripper(s) [or the reactor(s) if the plant has no stripper(s)] in the plant process flow including but not limited to, centrifuges, concentrators, blend tanks, filters, dryers, conveyor air discharges, baggers, storage containers, and inprocess wastewater:

(1) In polyvinyl chloride plants using stripping technology to control vinyl chloride emissions, the weighted average residual vinyl chloride concentration in all grades of polyvinyl chloride resin processed through the stripping operation on each calendar day, measured immediately after the stripping operation is completed, may not exceed:

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61.64(e)(1) (continued)

(i) 2000 ppm for polyvinyl chloride dispersion resins, excluding latex resins;

(ii) 400 ppm for all other polyvinyl chloride resins, including latex resins, averaged separately for each type of resin; or

STATUS OF COMPLIANCE

The plant produces polyvinyl chloride by a batch suspension polymerization process. Compliance with section 61.64(e)(1)(ii) is achieved using in-reactor stripping technology to reduce the vinyl chloride content of the stripped slurry averaged over each calendar day to less than 400 ppm vinyl chloride, the product being on a dry weight basis.

Test method 107 or an EPA approved alternate method will be used to determine the vinyl chloride content of the stripped slurry as follows:

(i) One representative sample of polyvinyl chloride resin will be taken from each batch of resin immediately following the completion of the stripping operation, and be identified by resin type and grade and date and time the batch was completed. The corresponding quantity of material processed in each stripper will be recorded and identified by resin type and grade and the date and time the batch was completed.

(ii) The quantity of material processed by each reactor/stripper batch on a dry solids basis will be determined using the normal vinyl chloride charge volume for the specific reactor and the calculated conversion of vinyl chloride to polyvinyl chloride for the particular grade of resin produced.

The calculation of the weighted daily average vinyl chloride content of the stripped slurry will be made according to the following equation:

$$A = \frac{P_1M_1 + P_2M_2 + \ldots + P_n M_n}{Q}$$

61.64(e) (continued)

Where:

A = 24-hour average concentration of vinyl chloride in the stripped slurry on a dry solids basis in ppm.
P = Production of resin represented by the sample, in kg (lb).
M = Concentration of vinyl chloride in one sample of resin, in ppm.
N = Total number of batches of resin produced during the 24-hour period.
Q = Total production of resin over the 24-hour period on a dry solids basis in kg (lb).

ADDITIONAL MEASURES TO BE COMPLETED

Retraining on steam stripping procedures and reactor slurry sampling and handling procedures will be conducted each calendar year. Initial retraining required by this Plan will be completed within 270 days after Plan approval.

§ 61.64
(e) Sources following the stripper.
(2) In polyvinyl chloride plants controlling vinyl chloride emissions with technology other than stripping or in addition to stripping, emissions of vinyl chloride to the atmosphere may not exceed:

(i) 2 g/Kg (0.002 lb/lb) product from the stripper(s) [or reactor(s) if the plant has no stripper(s)] for dispersion polyvinyl chloride resins, excluding latex resins, with the product determined on a dry solids basis;

(ii) 0.4 g/kg (0.0004 lb/lb) product from the strippers [or reactor(s) if the plant has no stripper(s)] for all other polyvinyl chloride resins, including latex resins, with the product determined on a dry solids basis.

STATUS OF COMPLIANCE

The Aberdeen Chemical Plant utilizes slurry stripping technology in all of its PVC production. This part of the standard is therefore not applicable.

§ 61.65

An Owner or operator of an ethylene dichloride, vinyl chloride, and/or polyvinyl chloride plant shall comply with the requirements of this section.

(a) Relief valve discharge. Except for an emergency relief discharge, there is to be no discharge to the atmosphere from any relief valve on any equipment in vinyl chloride service. An emergency relief discharge means a discharge which would not have been avoided by taking measures to prevent the discharge. Within 10 days of any relief valve discharge, the owner or operator of the source from which the relief valve discharge occurs shall submit to the Administrator a report in writing containing information on the source, nature and cause of the discharge, the date and time of the discharge, the approximate total vinyl chloride loss during the discharge, the method used for determining the vinyl chloride loss, the action that was taken to prevent the discharge, and measures adopted to prevent future discharges.

STATUS OF COMPLIANCE

All relief valve discharges from equipment in vinyl chloride service at the plant are reported to the Administrator within ten days of the incident.

The following are items currently in place at the Aberdeen Chemical Plant to prevent relief valve discharges:

1. The pressure, temperature and agitator amperage of each reactor is indicated and recorded in the control room.
2. Each reactor has a high pressure and high temperature alarm that sound in the control room. These alarms must be acknowledged by the panel operator to silence them.
3. The cooling water flow to the jacket and condenser of each reactor is indicated and recorded in the control room.
4. The position of remote operated on-off valves is indicated in the control room.
5. The outside operators and shift supervisors are equipped with a two-way radio and are in constant communication with the panel operators.

6. The outside operators
   a) check reactor rupture discs before each charge to assure they are not ruptured or leaking before the reactor is charged.
   b) monitor and regulate flush water to the reactor agitator seal.
   c) monitor and regulate flush water to the reactor spray nozzle.
7. There is a 24 volt d.c. battery back up system that keeps the control room instrumentation operational during power failures.
8. To prevent an operator from making errors that could result in a runaway reaction or other upset conditions, numerous reactor interlocks which include the following are in place.
   a) An interlock prevents a reactor from being charged if the agitator is not running.
   b) An interlock prevents a reactor from being charged if the agitator is drawing more than no load amps.
   c) An interlock prevents charging the larger formula used in the larger reactors to the smaller reactors in the same module.
   d) A precharge interlock prevents the overcharging of reactors by limiting the amount of charge ingredients that can be included in the charge formula.
9. A severe weather radio is located in the control room and is used to warn operating personnel of approaching storms that could interfere with normal operation.
   a) Plant practice is not to charge reactors during severe thunderstorm conditions because of the possibility of a power outage.
   b) The Shift Supervisor is to kill reactors in the polymerization mode of the cycle if he feels the weather is severe enough that a power failure will likely occur.
10. A very effective polymerization kill system has been developed and installed in the plant which since its installation has killed all reactors in the polymerization cycle in various emergency situations without any reactor relief valve discharges due to uncontrolled pressure buildup. To ensure the operability of the system the following instrumentation and operational checks are conducted on the systems.

61.65(a)(10) (continued)

STATUS OF COMPLIANCE (continued)

a) Each injection pot is equipped with a low pressure alarm which is activated when the pressure is below 250 pounds per square inch.

b) There is a low pressure alarm on the nitrogen supply to the automatic valve actuators which sounds when the pressure in the cylinder is less than 600 pounds per square inch.

c) All the kill pots in a reactor module may be connected with flexible hoses in such a manner to allow the killing agent to be injected manually to a reactor in the module from any injection pot.

d) The injection nozzles on each reactor are checked weekly to assure they are not plugged with polymer buildup.

e) When the ambient temperature is below 20°F, kill agent is injected into each reactor once per shift to assure the injection lines are not frozen.

f) In addition to the checks made by the operator before each reactor batch is charged, an audit of the emergency kill system is conducted weekly.

11. A diesel generator has been installed which is used to power two air compressors to provide instrument air during power failures. The diesel operated generator is operated once per week to ensure reliability.

12. Modifications have been made to provide cooling water to each reactor module from the fire water system. This system can be used during power failures to supply cooling water to the reactors. These emergency cooling water pumps are operated once per week to ensure reliability.

13. A chain transfer agent has been developed and is used in the plant. This allows certain molecular weight resins to be produced at lower polymerization pressures. Use of the chain transfer agent allows the plant to operate at lower run pressures on these resins.

14. The pressure rating of the reactors installed in the 1982 expansion is 25 pounds per square inch greater than the previously installed reactors.

61.65(a) (continued)

STATUS OF COMPLIANCE (continued)

15. The operating procedures state a temperature and a pressure at which reactors must be killed.
16. Two high level alarms are installed on each of the fresh vinyl chloride receivers.
17. Rupture disc holders which are assembled and pretorqued in the shop prior to installation have been purchased and installed below all relief valves that are on vessels in vinyl chloride service.
18. Operating procedures require that the vinyl chloride receivers are not filled to greater than 80% of their volume.
19. The material of construction of the rupture discs has been changed to nickel from stainless steel to eliminate the possibility of a premature disc failure caused by chloride stress corrosion cracking.
20. The plant has a very comprehensive procedure for ordering, inspecting, testing and installing rupture discs. This procedure is included as Attachment A.
21. The settings of all the blowdown rings on all the reactor relief valves have been changed to reduce the likelihood of a relief valve discharge if a rupture disc should fail prematurely.
22. The rupture discs on the reactors are replaced with new discs on an annual basis.
23. The pre-charge agitator amperage is recorded on each reactor batch sheet and must indicate the proper amperage before the batch can be charged.
24. A procedure was developed and is in practice to assure a reactor is empty of liquid before it is charged. Remote controlled cameras are installed to enable the panel operator to conduct the procedure from the control room. If the camera is not functional, an outside operator conducts the procedure.
25. Operators have been and are given disciplinary suspensions for not following established operating procedures.
26. Operating procedures require that the addition of water to the reactors from the catalyst charge pots cannot take place unattended. The outside operator must stay at the water injection control valve when water is being added to the injection pot.

61.65(a)(continued)

STATUS OF COMPLIANCE (continued)

27. A pressure alarm light has been added to the control panel to indicate to the panel operator when there is pressure in the catalyst injection pot.
28. An audible alarm has been added to the control panel which sounds if the catalyst injection pot remains pressurized for longer than normal.
29. The water flush flow rates to the reactor agitator seals and spray nozzles are reduced if for some reason a reactor must contain liquid or slurry for a long period of time.
30. Dual meters are installed for measuring the reactor charge amounts of both vinyl chloride and water.
31. A batch water stripping system with the stripping vessels designed for 150 pounds per square inch has been installed.
32. Thermal relief valves on equipment in vinyl chloride service are ducted to a vinyl chloride containment system.
33. Operators have been instructed on the proper valves to have open during the unloading of vinyl chloride from railroad tank cars to the sphere and a checklist denoting the valve position is filled out before the unloading operation is started.
34. A pressure switch has been added to the vinyl chloride railcar unloading system which automatically shuts down all the unloading compressors on high discharge pressure.
35. Each vinyl chloride unloading compressor has been equipped with an automatic high temperature shutdown switch. The temperature sensor is located on the compression cylinder.
36. Operators have been instructed to have both inlet and outlet valves open on vessels in vinyl chloride service if external heating or steaming is required.
37. A polymerization inhibitor is added to the recovery system seal water system to minimize the polymerization of vinyl chloride in the recovery system.
38. Pressure recorders and high pressure alarms have been added in the control room for monitoring the pressure of the discharge of the recovery system compressors.

61.65(a) (continued)

STATUS OF COMPLIANCE (continued)

39. An instrument air dryer capable of drying the instrument air to a dew point of less than minus 40°F has been installed to serve the vinyl unit.

ADDITIONAL MEASURES TO BE COMPLETED

In addition to the extensive action described above which is more fully explained in our response to Section III.A. of the Consent Decree, listed below are additional items that will be implemented to further minimize the possibility of relief valve discharges.

1. Module No. 2 Blowdown Tank Level Indicator

Inprocess wastewater accumulates in a blowdown tank in Module No. 2 before transfer to the batch water strippers. The blowdown tank is presently equipped with a local level indicator and a high level alarm in the control room. This project will install a level indicator located on the control panel. This new instrumentation will provide the panel operator continuous indication of the blowdown tank level and will reduce the possibility of a relief valve discharge on the vessel due to hydrostatically overfilling with inprocess wastewater. Operations will be informed of the purpose of the new level indicator prior to the completion of the project.

Commencing on the first calendar quarter after entry of this Plan as an addendum to the Consent Decree a quarterly progress report will be submitted within fifteen days of the end of such quarter. The report will provide the status of meeting the following milestone dates for the installation of the blowdown tank level indicator. Milestone dates for completion of the project are as follows:

		Days After Plan Becomes An Addendum to the Decree
a.	Definitive Process Design Completed	60
b.	Contracts or Purchase Orders Awarded or Executed	180
c.	Initial On-Site Construction Started	210
d.	Construction or Installation Complete	300
e.	Commencement of Operation of Equipment	330

ADDITIONAL MEASURES TO BE COMPLETED (continued)

Quarterly progress reports for this project will terminate with the quarterly report reporting commencement of operation of equipment.

2. Training

Retraining of vinyl operators on power failure procedures, emergency kill procedures, reactor emptying procedures, cold weather operating procedures, emergency air system procedures and emergency generator system procedures will be conducted each calendar year. Retraining of maintenance employees on rupture disc handling and installation procedures will be conducted each calendar year. Retraining required by this Plan will be completed within 270 days after Plan approval.

§ 61.65

(b) Fugitive emission sources.

(1) Loading and unloading lines: Vinyl chloride emissions from loading and unloading lines in vinyl chloride service which are opened to the atmosphere after each loading or unloading operation are to be minimized as follows:

(i) After each loading or unloading operation and before opening a loading or unloading line to the atmosphere, the quantity of vinyl chloride in all parts of each loading or unloading line that are to be opened to the atmosphere is to be reduced so that the parts combined contain no greater than 0.0038 m^3 (0.13 ft^3) of vinyl chloride, at standard temperature and pressure; and

(ii) Any vinyl chloride removed from a loading or unloading line in accordance with paragraph (b)(1)(i) of this section is to be ducted through a control system from which the concentration of vinyl chloride in the exhaust gases does not exceed 10 ppm, or equivalent as provided in Section 61.66.

STATUS OF COMPLIANCE

The Aberdeen Chemical Plant receives its supply of VCM in railroad tank-cars. All of the loading and unloading is accomplished using a dedicated system. The tank cars are connected to the unloading system with flexible stainless steel lines. Standard operating procedures have been developed and are followed. These procedures specify that before the hose connections

61.65(b) (continued)

STATUS OF COMPLIANCE (continued)

are opened to the atmosphere, the pressure in the unloading lines must be below a specified pressure to ensure that the amount of VCM released is less than 0.13 cubic feet of VCM vapor per hose coupling. The VCM vapor is removed from the unloading lines with the use of the recovery system. The VCM recovered during this process is then sent to the recovered VCM receivers.

ADDITIONAL MEASURES TO BE COMPLETED

Retraining on VCM unloading procedures will be conducted each calendar year. Initial retraining required by this Plan will be completed within 270 days after Plan approval.

§ 61.65
(b) Fugitive emission sources.
(2) Slip Gauges: During loading or unloading operations, the vinyl chloride emissions from each slip gauge in vinyl chloride service are to be minimized by ducting any vinyl chloride discharged from the slip gauge through a control system from which the concentration of vinyl chloride in the exhaust gases does not exceed 10 ppm, or equivalent as provided in Section 61.66.

STATUS OF COMPLIANCE

The Aberdeen Chemical Plant does not utilize slip gauges and no exhaust emissions occur from slip gauges. This section of the standard is therefore not applicable.

§ 61.65
(b) Fugitive emission sources.
(3) Leakage from pump, compressor, and agitator seals:
(i) Rotating pumps: Vinyl chloride emissions from seals on all rotating pumps in vinyl chloride service are to be minimized by installing sealless pumps, pumps with double mechanical seals, or equivalent as provided in Section 61.66. If double mechanical seals are used, vinyl chloride emissions from the seals are to be minimized by

61.65(b)(3) (continued)

maintaining the pressure between the two seals so that any leak that occurs is into the pump; by ducting any vinyl chloride between the two seals through a control system from which the concentration of vinyl chloride in the exhaust gases does not exceed 10 ppm; or equivalent as provided in Section 61.66.

STATUS OF COMPLIANCE

The Aberdeen Chemical Plant has 13 rotating pumps in vinyl chloride service. These are listed below:

Description	Location
East Bullet Pump	Tank Farm
West Bullet Pump	Tank Farm
North Sphere Pump	Tank Farm
South Sphere Pump	Tank Farm
East VCM Charge Pump	Reactor Module No. 1
West VCM Charge Pump	Reactor Module No. 1
RVCM Charge Pump	Reactor Module No. 1
East Collect Tank Pump	Reactor Module No. 1
West Collect Tank Pump	Reactor Module No. 1
East VCM Charge Pump	Reactor Module No. 2
West VCM Charge Pump	Reactor Module No. 2
East RVCM Charge Pump	Reactor Module No. 2
West RVCM Charge Pump	Reactor Module No. 2

Nine of the process pumps in vinyl chloride service are located in the Module No. 1 or Module No. 2 reactor areas. These pumps have each been equipped with double mechanical seals. The sealing fluid is high pressure water. The double mechanical seals are operated in such a manner that vinyl chloride emissions from the seals are minimized by maintaining the pressure between the two seals so that any leak that occurs is into the pump.

61.65(b)(3)(i) (continued)

STATUS OF COMPLIANCE (continued)

The remaining four pumps are located in the vinyl chloride unloading area. These pumps are also equipped with double mechanical seals. The sealing fluid is an oil which is contained in a small reservoir above the pump. Circulation is via thermosiphon action. The reservoir is vented to a recovery system.

§ 61.65

(b) Fugitive emission sources.
(3) Leakage from pump, compressor, and agitator seals:
(ii) Reciprocating pumps. Vinyl chloride emissions from seals on all reciprocating pumps in vinyl chloride service are to be minimized by installing double outboard seals, or equivalent as provided in Section 61.66. If double outboard seals are used, vinyl chloride emissions from the seals are to be minimized by maintaining the pressure between the two seals so that any leak that occurs is into the pumps; by ducting any vinyl chloride between the two seals through a control system from which the concentration of vinyl chloride in the exhaust gases does not exceed 10 ppm; or equivalent as provided in Section 61.66.

STATUS OF COMPLIANCE

The Aberdeen Chemical Plant does not have any reciprocating pumps in VCM service. This part of the VCM emission standard is therefore not applicable.

§ 61.65

(b) Fugitive emission sources.
(3) Leakage from pump, compressor, and agitator seals:
(iii) Rotating compressor: Vinyl chloride emissions from seals on all rotating compressors in vinyl chloride service are to be minimized by installing compressors with double mechanical seals, or equivalent as provided in Section 61.66. If double mechanical seals are used, vinyl chloride emissions from the seals are to be minimized by maintaining the pressure between the two seals so that any leak that occurs is into the compressor; by ducting any vinyl chloride between the two seals through a control system from which the concentration of vinyl chloride in the exhaust gases does not exceed 10 ppm; or equivalent as provided in Section 61.66.

61.65(b)(3)(ii) (continued)

STATUS OF COMPLIANCE

The Aberdeen Chemical Plant utilizes rotating compressors in the handling of VCM vapor streams. These units in VCM service are:

Description	No. in Service	Location
Vacuum Pump	Two	Emission Recovery System
Recovery Compressor	Two	Emission Recovery System
Vacuum Pump	Two	Reactor Module No. 1 Recovery System
Recovery Compressor	Two	Reactor Module No. 1 Recovery System
Vacuum Pump	Two	Reactor Module No. 2 Recovery System
Recovery Compressor	Three	Reactor Module No. 2 Recovery System

Each of these compressors is equipped with double mechanical seals. The double mechanical seals are operated in such a manner that vinyl chloride emissions from the seals are minimized by maintaining the pressure between the two seals so that any leak that occurs is into the compressor.

§ 61.65
(b) Fugitive emission sources.
(3) Leakage from pump, compressor, and agitator seals:
(iv) Reciprocating compressors: Vinyl chloride emissions from seals on all reciprocating compressors in vinyl chloride service are to be minimized by installing double outboard seals or equivalent as provided in Section 61.66. If double outboard seals are used, vinyl chloride emissions from the seals are to be minimized by maintaining the pressure between the two seals so that any leak that occurs is into the compressor; by ducting any vinyl chloride between the two seals through a control system from which the concentration of vinyl chloride in the exhaust gases does not exceed 10 ppm; or equivalent as provided in Section 61.66.

STATUS OF COMPLIANCE

The Aberdeen Chemical Plant uses five reciprocating compressors for unloading railcars. These compressors are equipped with an enclosed seal area, commonly referred to as a "double distance piece". The seal space is

61.65(b)(3)(iv) (continued)

STATUS OF COMPLIANCE (continued)

vented to the emission recovery system. Leakage through these seals is therefore vented to a closed process system.

§ 61.65
(b) Fugitive emission sources.
(3) Leakage from pump, compressor, and agitator seals:
(v) Agitator: Vinyl chloride emissions from seals on all agitators in vinyl chloride service are to be minimized by installing agitators with double mechanical seals or equivalent as provided in Section 61.66. If double mechanical seals are used, vinyl chloride emissions from the seals are to be minimized by maintaining the pressure between the two seals so that any leak that occurs is into the agitated vessel; by ducting any vinyl chloride between the two seals through a control system from which the concentration of vinyl chloride in the exhaust gases does not exceed 10 ppm; or equivalent as provided in Section 61.66.

STATUS OF COMPLIANCE

The Aberdeen Chemical Plant has an agitator on each of the PVC reactors. Each agitator is equipped with a double mechanical seal. The double mechanical seals are operated in such a manner that vinyl chloride emissions are minimized by maintaining the pressure between the two seals so that any leak that occurs is into the vessel.

§ 61.65
(b) Fugitive emission sources.
(4) Leakage from relief valves: Vinyl chloride emissions due to leakage from each relief valve on equipment in vinyl chloride service are to be minimized by installing a rupture disk between the equipment and the relief valve, by connecting the relief valve discharge to a process line or recovery system or equivalent as provided in Section 61.66.

STATUS OF COMPLIANCE

The Aberdeen Chemical Plant utilizes relief valves to protect equipment from overpressure conditions. Relief valves on equipment in VCM service are either tied into collection headers or have rupture discs placed under them.

61.65(b)(4) (continued)

STATUS OF COMPLIANCE (continued)

Emissions from relief valves tied into collection headers are routed either to a VCM storage vessel or to the emission recovery system.

§ 61.65

(b) Fugitive emission sources

(5) Manual venting of gases: Except as provided in § 61.64(a)(3), all gases which are manually vented from equipment in vinyl chloride service are to be ducted through a control system from which the concentration of vinyl chloride in the exhaust gases does not exceed 10 ppm; or equivalent as provided in Section 61.66.

STATUS OF COMPLIANCE

Operating procedures prohibit the venting of gases from equipment in vinyl chloride service directly to the atmosphere. Vents are routed to either the reactor recovery or emission recovery systems. These units compress and condense the VCM vapors so that they can be recycled. Noncondensible gas collects in the vapor space of the recovered VCM receiver and is vented along with a small quantity of VCM to the incinerator where the VCM is incinerated to less than 10 ppm before being released to the environment.

§ 61.65

(b) Fugitive emission sources

(6) Opening of equipment: Vinyl chloride emissions from opening of equipment (including loading or unloading lines that are not opened to the atmosphere after each loading or unloading operation) are to be minimized as follows:

(i) Before opening any equipment for any reason, the quantity of vinyl chloride is to be reduced so that the equipment contains no more than 2.0 percent by volume vinyl chloride or 0.0950 m^3 (25 gal) of vinyl chloride, whichever is larger at standard temperature and pressure; and

(ii) Any vinyl chloride removed from the equipment in accordance with paragraph (b)(6)(i) of this section is to be ducted through a control system from which the concentration of vinyl chloride in the exhaust gases does not exceed 10 ppm, or equivalent as provided in Section 61.66.

61.65(b)(6)(ii) (continued)

STATUS OF COMPLIANCE

The vinyl chloride content of equipment that can contain more than 0.0950 m^3 (25 gal) of vinyl chloride at standard temperature and pressure is reduced to below 2.0 percent by volume by one of the following methods.

1. Vinyl chloride in equipment is ducted to a recovery system and steam is added at the same time to purge the equipment for a minimum of 15 minutes or the pressure in the equipment is reduced to a level such that the equipment contains less than 25 gallons of vinyl chloride at standard temperature and pressure.
2. Vinyl chloride is displaced with water and the water is then stripped in the vessel to below 10 ppm vinyl chloride or is routed to the batch water stripping system.

ADDITIONAL MEASURES TO BE COMPLETED

Retraining on equipment opening procedures will be conducted each calendar year. Initial retraining as required by this Plan will be completed within 270 days of Plan approval.

§ 61.65
(b) Fugitive emission sources.
(7) Samples: Unused portions of samples containing at least 10 percent by weight vinyl chloride are to be returned to the process, and sampling techniques are to be such that sample containers in vinyl chloride service are purged into a closed process system.

STATUS OF COMPLIANCE

Samples are collected on a nonroutine basis from the PVC polymerization reactors prior to stripping . These samples are taken to inspect the quality of the PVC formed during polymerization. The VCM content of these samples is reduced to less than 10 percent by pulling a vacuum on the

61.65(b)(7) (continued)

STATUS OF COMPLIANCE (continued)

sample container with the Emission Recovery System. The VCM recovered from the sample is returned to the process by the recovery system.

Samples of other streams containing greater than 10 percent VCM are periodically taken. These are usually associated with special engineering studies or are used to confirm the quality of raw materials. Sampling procedures are established at the time of the studies and all unused portions of these samples are returned to the process.

All other samples taken by the plant are taken from process streams containing less than 10 percent VCM.

§ 61.65

(b) Fugitive emission sources.

(8) Leak detection and elimination: Vinyl chloride emissions due to leaks from equipment in vinyl chloride service are to be minimized by instituting and implementing a formal leak detection and elimination program. The owner or operator shall submit a description of the program to the Administrator for approval. The program is to be submitted within 45 days of the effective date of these regulations, unless a waiver of compliance is granted under Section 61.11. If a waiver of compliance is granted, the program is to be submitted on a date scheduled by the Administrator. Approval of a program will be granted by the Administrator provided he finds:

(i) It includes a reliable and accurate vinyl chloride monitoring system for detection of major leaks and identification of the general area of the plant where a leak is located. A vinyl chloride monitoring system means a device which obtains air samples from one or more points on a continuous sequential basis and analyzes the samples with gas chromatorgraphy or, if the owner or operator assumes that all hydrocarbons measured are vinyl chloride, with infared spectrophotometry, flame ion detection, or an equivalent or alternative method.

61.65(b)(8) (continued)

(ii) It includes a reliable and accurate portable hydrocarbon detector to be used routinely to find small leaks and to pinpoint the major leaks indicated by the vinyl chloride monitoring system. A portable hydrocarbon detector means a device which measures hydrocarbons with a sensitivity of at least 10 ppm and is of such design and size that it can be used to measure emissions from localized points.

(iii) It provides for an acceptable calibration and maintenance schedule for the vinyl chloride monitoring system and portable hydrocarbon detector. For the vinyl chloride monitoring system, a daily span check is to be conducted with a concentration of vinyl chloride equal to the concentration defined as a leak according to paragraph (b)(8)(vi) of this section.

The calibration is to be done with either:

(A) A calibration gas mixture prepared from gases specified in section 5.2.1 and 5.2.2 of Test Method 106 and in accordance with section 7.1 of Test Method 106, or

(B) A calibration gas cylinder standard containing the appropriate concentration of vinyl chloride. The gas composition of calibration gas cylinder standard is to have been certified by the manufacturer. The manufacturer must have recommended a maximum shelf life of each cylinder so that the concentration does not change greater than ±5 percent from the certified value. The date of gas cylinder preparation, certified vinyl chloride concentration and recommended maximum shelf life must have been affixed to the cylinder before shipment from the manufacturer to the buyer. If a gas chromatograph is used as the vinyl chloride monitoring system, these gas mixtures may be directly used to prepare a chromatograph calibration curve as described in section 7.3 of Test Method 106. The requirements in section 5.2.3.1 and 5.2.3.2 of Test Method 106 for certification of cylinder standards and for establishment and verification of calibration standards are to be followed.

(iv) The location and number of points to be monitored and the frequency of monitoring provided for in the program are acceptable when they are compared with the number of pieces of equipment in vinyl chloride service and the size and physical layout of the plant.

(v) It contains an acceptable plan of action to be taken when a leak is detected.

(vi) It contains a definition of leak which is acceptable when compared with the background concentrations of vinyl chloride in the areas of the plant to be monitored by the vinyl chloride monitoring system. Measurements of background concentrations of vinyl chloride in the areas of the plant to be monitored by the vinyl chloride monitoring system are to be included with the description of the program. The definition of leak for a given plant may vary among the different areas within the plant and is also to change over time as background concentrations in the plant are reduced.

61.65(b)(8) (continued)

STATUS OF COMPLIANCE

The Aberdeen Chemical Plant submitted the Leak Detection and Elimination Plan to Region IV of the Environmental Protection Agency on May 16, 1977. Approval of this plan was granted on June 30, 1977. Since this time, the plan has been revised and approved several times. These are listed below.

DATE OF SUBMITTAL OF PROPOSED REVISION	REQUEST SUBMITTED TO	DATE OF APPROVAL FROM AGENCY
April 6, 1979	EPA Region IV	July 6, 1979
November 21, 1979	EPA Region IV	December 17, 1979
August 15, 1983	Mississippi DNR	August 23, 1983
October 16, 1985	EPA Region IV	December 31, 1985

The plant follows the approved Leak Detection and Elimination Plan.

ADDITIONAL MEASURES TO BE COMPLETED

Retraining on the Leak Detection and Elimination Plan will be conducted on an annual basis. Initial retraining required by this Plan will be completed within 270 days of Plan approval.

To further reduce the possibility of leaks, the plant proposes to install a new type of valve position indicator on selected valves. The current position indicator is mounted on the valve operator, not the valve. Thus if the coupling between the operator and the valve fails, a false indication of the valve position may be provided. In addition, the magnetic portion of the valve indicator assembly is not securely fastened to the assembly.

61.65(b)(8) (continued)

ADDITIONAL MEASURES TO BE COMPLETED (continued)

The plant has consulted with a limit switch manufacturer and in conjunction with the manufacturer developed a new design whereby a standard proximity switch can be used to provide positive indication of the valve stem rather than the actuator position. The design involves the use of a standard proximity switch with a custom designed indicator bracket. One unit has been tested in the shop and then installed in the field. The performance on this test unit has been favorable. This new type valve indicator will be installed on 70 valves that have been identified as having the highest potential for causing a leak to the atmosphere based on the type of service or history of leaks. Operations will be informed of the operational aspects of this project prior to installation.

This project will greatly reduce the possibility of accidental leakage to the atmosphere due to valve position switch indicator failure.

Commencing on the first calendar quarter after entry of this Plan as an addendum to the Consent Decree a quarterly progress report will be submitted within fifteen days of the end of such quarter. The report will provide the status of meeting the following milestone dates for the installation of the new type valve position indication switches. Milestone dates for completion of the project are as follows:

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61.65(b)(8) (continued)

ADDITIONAL MEASURES TO BE COMPLETED (continued)

	Days After Plan Becomes An Addendum to the Decree
a. Definitive Process Design Completed	60
b. Contracts or Purchase Orders Awarded or Executed	180
c. Initial On-Site Construction Started	210
d. Construction or Installation Complete	300
e. Commencement of Operation of Equipment	330

Quarterly progress reports for this project will terminate with the quarterly report reporting commencement of operation of equipment.

§ 61.65

(b) Fugitive emission sources.

(9) Inprocess wastewater: Vinyl chloride emissions to the atmosphere from inprocess wastewater are to be reduced as follows:

(i) The concentration of vinyl chloride in each inprocess wastewater stream containing greater than 10 ppm vinyl chloride measured immediately as it leaves a piece of equipment and before being mixed with any other inprocess wastewater stream is to be reduced to no more than 10 ppm by weight before being mixed with any other inprocess wastewater which contains less than 10 ppm vinyl chloride; before being exposed to the atmosphere; before being discharged to a wastewater treatment process; or before being discharged untreated as a wastewater. This paragraph does apply to water which is used to displace vinyl chloride from equipment before it is opened to the atmosphere in accordance with Section 61.64(a)(2) or paragraph (b)(6) of this section, but does not apply to water which is used to wash out equipment after the equipment has already been opened to the atmosphere in accordance with Section 61.64(a)(2) or paragraph (b)(6) of this section.

61.65(b)(9) (continued)

STATUS OF COMPLIANCE

The plant has made several significant improvements to the inprocess wastewater stripping system since the preparation of the August 14, 1978 Compliance Manual. At that time there was one water stripping vessel in each reactor module that collected and stripped the water from VCM contaminated sources. The pressure rating of the stripping vessel in the Module No. 1 was derated after a pressure vessel inspection, which made replacement of the vessel necessary. The decision was made to install a set of two batch water strippers in Module No. 1 to handle stripping of all VCM contaminated water in the plant. Each stripper would alternate between being a collector and a stripper. The installation of this system was complete in 1981. A compliance test took place on July 29, 1981 with Mr. Joe Riley of Environmental Protection Agency Region IV observing. An additional improvement was completed in 1984 when the Emission Recovery System vacuum pumps and compressors were replaced. This improved the capacity of the emission recovery system as the old vacuum pumps and compressors were not delivering rated capacity due to wear.

ADDITIONAL MEASURES TO BE COMPLETED

In order to further ensure that process water is stripped to required levels, a pressure and temperature recorder will be installed on the batch water strippers. Currently, temperature and pressure are indicated, but if a process upset causes the system pressure to increase briefly during the stripping operation, the operator may not notice the pressure increase.

61.65(b)(9)(i) (continued)

ADDITIONAL MEASURES TO BE COMPLETED (continued

The current proven stripping procedure is to hold the batch water stripper at specified temperature and pressure limits for a specified time. This recorder will document whether the pressure limitation has been exceeded during the critical stripping period. The operating procedures will call for a batch to be restripped if abnormalities are observed in the pressure and temperature history of the batch.

Commencing on the first calendar quarter after entry of this Plan as an addendum to the Consent Decree a quarterly progress report will be submitted within fifteen days of the end of such quarter. The report will provide the status of meeting the following milestone dates for the installation of the pressure and temperature indicators on the batch water strippers. Milestone dates for completion of the project are as follows:

	Days After Plan Becomes An Addendum to the Decree
a. Definitive Process Design Completed	60
b. Contracts or Purchase Orders Awarded or Executed	180
c. Initial On-Site Construction Started	210
d. Construction or Installation Complete	300
e. Commencement of Operation of Equipment	330

Quarterly progress reports for this project will terminate with the quarterly report reporting commencement of operation of equipment.

61.65(b)(9)(8) (continued)

ADDITIONAL MEASURES TO BE COMPLETED (continued)

Retraining on waste water stripping procedures will be conducted each calendar year. Initial retraining required by this Plan will be completed within 270 days of Plan approval.

61.65
(b) Fugitive emission sources.
(9) Inprocess wastewater
(ii) Any vinyl chloride removed from the inprocess wastewater in accordance with paragraph (b)(9)(i) of this section is to be ducted through a control system from which the concentration of vinyl chloride in the exhaust gases does not exceed 10 ppm, or equivalent as provided in Section 61.66.

STATUS OF COMPLIANCE

The Aberdeen Chemical Plant routes all vapor emissions from the water strippers to the Emission Recovery System or the main recovery systems. These units compress and condense the VCM vapors for recycle to the process. Noncondensible gases collect in the vapor space of the recovered VCM receivers and are vented along with a small quantity of VCM to the incinerator where the VCM is incinerated to less than 10 ppm before being released to the environment.

§ 61.65
(c) The requirements in paragraphs (b)(1), (b)(2), (b)(5), (b)(6), (b)(7) and (b)(8) of this section are to be incorporated into a standard operating procedure and made available upon request for inspection by the Administrator. The standard operating procedure is to include provisions for measuring the vinyl chloride in equipment 4.75m^3 (1,250 gal) in volume for which an emission limit is prescribed in Section 61.65(b)(6)(i) prior to opening the equipment and using Test Method 106, a portable hydrocarbon detector, or an equivalent or alternative method. The method of measurement is to meet the requirements of Section 61.67(g)(5)(i)(A) or (g)(5)(i)(B).

61.65(c) (continued)

STATUS OF COMPLIANCE

Loading and Unloading Lines [61.65(b)(1)]

Standard operating procedures for unloading of vinyl chloride monomer including procedures that ensure compliance with section 61.65(b) are available at the plant.

Slip Gauges [61.65(b)(2)]

The plant does not utilize slip gauges and therefore standard operating procedures are not applicable.

Manual Venting of Gases [61.65(b)(5)]

As explained under status of compliance for 61.65(b)(5), vents from equipment in vinyl chloride service are routed to a recovery system. The vapors from the recovery system are compressed, condensed and routed to the recovered VCM receivers. Inerts from the receivers are routed to the incinerator. Standard operating procedures prohibit manual venting of equipment in vinyl chloride service and are available at the plant.

Opening of Equipment [61.65(b)(6)]

Before opening equipment which contains more than 25 gallons of vinyl chloride at standard temperature and pressure, the procedures given under status of compliance for 61.65(b)(6)(i) are followed. The plant has the following vessels that are larger than 1,250 gallons in vinyl chloride service.

61.65(c) (continued)

STATUS OF COMPLIANCE (continued)

Opening of Equipment [61.65(b)(6) (continued)

Vessel	Number
Storage Sphere	1
Storage Bullet	2
Fresh VCM Receivers	2
Recovered VCM Receivers	4
Wastewater Receiving/Stripping Vessels	3
New Module Recovery Knockout Pots	2

The Aberdeen PVC Plant complies with 61.65 (b)(6) by using the alternate test method approved by EPA Region IV on March 27, 1986.

Samples [61.65(b)(7)]

Sampling procedures for sampling reactors prior to stripping are available at the plant. Sampling procedures for special tests are developed for the specific test as required.

Leak Detection and Elimination Plan [61.65(b)(8)]

The approved Leak Detection and Elimination Plan is available at the plant.

§ 61.66 Equivalent Equipment and Procedures.
Upon written application from an owner or operator, the Administrator may approve use of equipment or procedures which have been demonstrated to his satisfaction to be equivalent in terms of reducing vinyl chloride emissions to the atmosphere to those prescribed for compliance with a specific paragraph of this subpart. For an existing source, any request for using an equivalent method as the initial measure of control is to be submitted to the Administrator within 30 days of the effective date. For a new source, any request for using an equivalent method is to be submitted to the Administrator with the application for approval of construction of modification required by Section 61.07.

STATUS OF COMPLIANCE

The Aberdeen PVC Plant does operate under Waivers of Testing and Alternate Test Methods as referenced in this plan

§ 61.67 Emission Tests.
(a) Unless a waiver of emission testing is obtained under Section 61.13, the owner or operator of a source to which this subpart applies shall test emissions from the source,
(1) Within 90 days of the effective date in the case of an existing source or a new source which has an initial startup date preceding the effective date, or
(2) Within 90 days of startup in the case of a new source, initial startup of which occurs after the effective date.

STATUS OF COMPLIANCE

An initial emission test was conducted during the period September 26 to September 28, 1978 and a test report was sent to EPA Region IV on October 25, 1978. Since this time, the following emission tests have been conducted and reports submitted.

Equipment	Date of Test	Date of Report	Report Submitted To
Batch Water Strippers	July 29, 1981	August 19, 1981	EPA Region IV
D-700 Reactor	June 8-10, 1982	June 21, 1982	Mississippi DNR
D-745 Reactor	March 9-10, 1982	April 7, 1982	Mississippi DNR
Spare Inert Vent Incinerator	September 1-3, 1982	October 1, 1982	Mississippi DNR

61.67 Emission tests.
(b) The owner or operator shall provide the Administrator at least 30 days prior notice of an emission test to afford the Administrator the opportunity to have an observer present during the test.

STATUS OF COMPLIANCE

Notice of emission testing is given at least 30 days prior to the emission test.

61.67 Emission tests.
(c) Any emission test is to be conducted while the equipment being tested is operating at the maximum production rate at which the equipment will be operated and under other relevant conditions as may be specified by the Administrator based on representative performance of the source.

STATUS OF COMPLIANCE

Production information is given for periods of time covering emission testing.

61.67 Emission tests.
(d) [Reserved]

61.67 Emission tests.
(e) When at all possible, each sample is to be analyzed within 24 hours, but in no case in excess of 72 hours of sample collection. Vinyl chloride emissions are to be determined within 30 days after the emission test. The owner or operator shall report the determinations to the Administrator by a registered letter dispatched before the close of the next business day following the determination.

STATUS OF COMPLIANCE

During emission testing, samples are analyzed within 24 hours when at all possible, but no later than 72 hours after sample collection. Results are reported in a timely fashion.

A

61.67 Emission tests.

(f) The owner or operator shall retain at the plant and make available, upon request, for inspection by the Administrator, for a minimum of 2 years records of emission test results and other data needed to determine emissions.

STATUS OF COMPLIANCE

Emission test results and records are retained for a minimum of two years.

61.67 Emission tests.

(g) Unless otherwise specified, the owner or operator shall use test Methods in Appendix B to this part for each test as required by paragraphs (g)(1), (g)(2), (g)(3), (g)(4), and (g)(5) of this section, unless an equivalent method or an alternative method has been approved by the Administrator. If the Administrator finds reasonable grounds to dispute the results obtained by an equivalent or alternative method, he may require the use of a reference method. If the results of the reference and equivalent or alternative methods do not agree, the results obtained by the reference method prevail, and the Administrator may notify the owner or operator that approval of the method previously considered to be equivalent or alternative is withdrawn. Whenever Test Method 107 is specified, and the conditions in Section 1.1, "Applicability" of Method 107A are met, Method 107A may be used.

(1) Test Method 106 is to be used to determine the vinyl chloride emissions from any source for which an emission limit is prescribed in Section 61.62(a) or (b) Section 61.63(a), or Section 61.64(a)(1), (b),(c), or (d), or from any control system to which reactor emissions are required to be ducted in Section 61.64 (a)(2) or to which fugitive emissions are required to be ducted is Section 61.65(b)(1)(ii), (b)(2), (b)(5), (b)(6)(ii), or (b)(9)(ii).

(i) For each run, one sample is to be collected. The sampling site is to be at least two stack or duct diameters downstream and one half diameter upstream from any flow disturbance such as a bend, expansion, contraction, or visible flame. For a rectangular cross section an equivalent diameter is to be determined form the following equation:

equivalent diameter=2 (length) (width)/length+width

The sampling point in the duct is to be at the centroid of the cross section. The sample is to be extracted at a rate proportional to the gas velocity at the sampling point. The sample is to be taken over a minimum of one hour, and is to contain a minimum volume of 50 liters corrected to standard conditions.

(ii) Each emission test is to consist of three runs. For the purpose of determining emissions, the average of results of all runs is to apply. The average is to be computed on a time weighted basis.

61.67(g) (continued)

(iii) For gas streams containing more than 10 percent oxygen the concentration of vinyl chloride as determined by Test Method 106 is to be corrected to 10 percent oxygen (dry basis) for determination of emissions by using the following equation:

$C_{b(corrected)} = C_b$ 10.9/20.9-percent O_2

Where:

$C_{b\ (corrected)}$ = The concentration of vinyl chloride in the exhaust gases, corrected to 10-percent oxygen.
C_b = The concentration of vinyl chloride as measured by Test Method 106.
20.9 = Percent oxygen in the ambient air at standard conditions.
10.9 = Percent oxygen in the ambient air at standard conditions, minus the 10.0 percent oxygen to which the correction is being made.
Percent O_2 = Percent oxygen in the exhaust gas as measured by Reference Method 3 in Appendix A of Part 60 of this chapter.

(iv) For those emission sources where the emission limit is proscribed in terms of mass rather than concentration, mass emissions in kg/100 kg product are to be determined by using the following equation:

$C_{ax} = [C_b(2.60)\ Q\ 10^{-6}]\ [100]/Z$

Where:

C_{ax} = kg vinyl chloride/100 kg product.
C_b = The concentration of vinyl chloride as measured by Test Method 106.
2.60 = Density of vinyl chloride at one atmosphere and 20° C in kg/m^3.
Q = Volumetric flow rate in m^3/hr as determined by Reference Method 2 of Appendix A to Part 60 of this chapter.
10^{-6} = Conversion factor for ppm.
Z = Production rate (kg/hr).

STATUS OF COMPLIANCE

Compliance with section 61.67(g)(1) is described under status of compliance with section 61.67(a).

(2) Test Method 107 is to be used to determine the concentration of vinyl chloride in each inprocess wastewater stream for which an emission limit is prescribed in Section 61.65(b)(9)(i).

61.67(g) (continued)

STATUS OF COMPLIANCE

Compliance with section 61.67(g)(2) is described under status of compliance with section 61.67(a).

(3) Where a stripping operation is used to attain the emission limit in Section 61.64(e), emissions are to be determined using Test Method 107 as follows:

(i) The number of strippers and samples and the types and grades of resin to be sampled are to be determined by the Administrator for each individual plant at the time of the test based on the plant's operation.

(ii) Each sample is to be taken immediately following the stripping operation.

(iii) The corresponding quantity of material processed by each stripper is to be determined on a dry solids basis and by a method submitted to and approved by the Administrator.

(iv) At the prior request of the Administrator, the owner or operator shall provide duplicates of the samples required in paragraph (g)(3)(i) of this section.

STATUS OF COMPLIANCE

Compliance with section 61.67(g)(3) is described under status of compliance with section 61.67(a).

(4) Where control technology other than or in addition to a stripping operation is used to attain the emission limit in Section 61.64(e), emissions are to be determined as follows:

(i) Test Method 106 is to be used to determine atmospheric emissions from all of the process equipment simultaneously. The requirements of paragraph (g)(1) of this section are to be met.

(ii) Test Method 107 is to be used to determine the concentration of vinyl chloride in each inprocess wastewater stream subject to the emission limit prescribed in Section 61.64(e). The mass of vinyl chloride in kg/100 kg product in each inprocess wastewater stream is to be determined by using the following equation:

$$C_{bx} = [C_d R 10^{-6}]\ [100]/Z$$

Where:

C_{bx} = kg vinyl chloride/100 kg product.
C_d = the concentration of vinyl chloride as measured by Test Method 107.
R = water flow rate in l/hr, determined in accordance with a method which has been submitted to and approved by the Administrator.
10^{-6} = Conversion factor for ppm.
Z = Production rate (kg/hr), determined in accordance with a method which has been submitted and approved by the Administrator.

61.67(g) (continued)

STATUS OF COMPLIANCE

The Aberdeen Chemical Plant uses in-reactor stripping technology to control emissions specified in 61.64(e) and therefore, the requirements listed in 61.64(g)(4) are not applicable.

(5) The reactor opening loss for which an emission limit is prescribed in Section 61.64 (a)(2) is to be determined. The number of reactors for which the determination is to be made is to be specified by the Administrator for each individual plant at the time of the determination based on the plant's operation. For a reactor that is also used as a stripper, the determination may be made immediately following the stripping operation.

(i) Except as provided in paragraph (g)(5)(ii) of this section, the reactor opening loss is to be determined using the following equation:

$C=W(2.60)\ (10^{-6})\ (Cb)/YZ$

Where:

C = kg vinyl chloride emissions/kg product.
W = Capacity of the reactor in m^3.
2.60 = Density of vinyl chloride at one atmosphere and 20° C in kg/m^3.
10^{-6} = Conversion factor for ppm.
C_b = ppm by volume vinyl chloride as determined by Test Method 106 or a portable hydrocarbon detector which measures hydrocarbons with a sensitivity of at least 10 ppm.
Y = Number of batches since the reactor was last opened to the atmosphere.
Z = Average kg of polyvinyl chloride produced per batch in the number of batches since the reactor was last opened to the atmosphere.

(A) If Method 106 is used to determine the concentration of vinyl chloride (Cb), the sample is to be withdrawn at a constant rate with a probe of sufficient length to reach the vessel bottom from the manhole. Samples are to be taken for 5 minutes within 6 inches of the vessel bottom, 5 minutes near the vessel center, and 5 minutes near the vessel top.

(B) If a portable hydrocarbon detector is used to determine the concentration of vinyl chloride (Cb), a probe of sufficient length to reach the vessel bottom from the manhole is to be used to make the measurements. One measurement will be made within 6 inches of the vessel bottom, one near the vessel center and one near the vessel top. Measurements are to be made at each location until the reading is stabilized. All hydrocarbons measured are to be assumed to be vinyl chloride.

(C) The production rate of polyvinyl chloride (Z) is to be determined by a method submitted to and approved by the Administrator.

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61.67(g)(5) (continued)

(ii) A calculation based on the number of evacuations, the vacuum involved, and the volume of gas in the reactor is hereby approved by the Administrator as an alternative method for determining reactor opening loss for postpolymerization reactors in the manufacture of bulk resins.

STATUS OF COMPLIANCE

Compliance with 61.67(g)(5) is described under status of compliance for

for 61.64(a)(2).

§ 61.68 Emission Monitoring.

(a) A vinyl chloride monitoring system is to be used to monitor on a continuous basis the emissions from the sources for which emission limits are prescribed in Section 61.62(a) and (b), Section 61.63(a), and Section 61.64(a)(1), (b), (c), and (d), and for any control system to which reactor emissions are required to be ducted in Section 61.64(a)(2) or to which fugitive emissions are required to be ducted in Section 61.65 (b)(1)(ii), and (b)(2), (b)(5), (b)(6)(ii), and (b)(9)(ii).

(b) The vinyl chloride monitoring system(s) used to meet the requirement in paragraph (a) of this section is to be a device which obtains air samples from one or more points on a continuous sequential basis and analyzes the samples with gas chromotography or, if the owner or operator assumes that all hydrocarbons measured are vinyl chloride, with infrared spectrophotometry, flame ion detection, or an equivalent or alternative method. The vinyl chloride monitoring system used to meet the requirements in Section 61.65(b)(8)(i) may be used to meet the requirements of this section.

(c) A daily span check is to be conducted for each vinyl chloride monitoring system used. For all of the emission sources listed in paragraph (a) of this section, except the one for which an emission limit is prescribed in Section 61.62(b), the daily span check is to be conducted with a concentration of vinyl chloride equal to 10 ppm. For the emission source for which an emission limit is prescribed in Section 61.62(b), the daily span check is to be conducted with a concentration of vinyl chloride which is determined to be equivalent to the emission limit for that source based on the emission test required by Section 61.67. The calibration is to be done with either:

(1) A calibration gas mixture prepared from the gases specified in sections 5.2.1 and 5.2.2 of Test Method 106 and in accordance with section 7.1 of Test Method 106, or

(2) A calibration gas cylinder standard containing the appropriate concentration of vinyl chloride. The gas composition of the calibration gas cylinder standard is to have been certified by the manufacturer. The manufacturer must have recommended a maximum shelf life for each cylinder so that the concentration does not change greater than ±5 percent from the certified value. The date of gas cylinder preparation, certified vinyl chloride concentration and recommended maximum shelf life must have been affixed to the

61.68 (continued)

cylinder before shipment from the manufacturer to the buyer. If a gas chromatograph is used as the vinyl chloride monitoring system, these gas mixtures may be directly used to prepare a chromatograph calibration curve as described in section 7.3 of Test Method 106. The requirements in sections 5.2.3.1 and 5.2.3.2 of Test Method 106 for certification of cylinder standards and for establishment and verification of calibration standards are to be followed.

STATUS OF COMPLIANCE

As explained in various sections of this plan, all vents are directed to the vapor recovery systems which compress and condense the VCM vapors. The VCM liquid is then recycled to polymerization. The noncondensible gases pass through these vapor recovery systems and collect in the vapor space of the recovered VCM receivers. These vapors are vented along with a small quantity of VCM vapor to the incinerator. The incinerator combustion gases are the only vapor vent to the atmosphere from vessels in VCM service. Emissions from the incinerator are monitored continuously by a gas chromotograph. Details on the maintenance and operating procedures are given in the approved Leak Detection and Elimination Plan. The plant follows the maintenance and operating procedure given in the Leak Detection and Elimination Plan.

§ 61.69 Initial Report.

(a) An owner or operator of any source to which this subpart applies shall submit a statement in writing notifying the Administrator that the equipment and procedural specifications in Section 61.65 (b)(1), (b)(2), (b)(3), (b)(4), (b)(5), (b)(6), (b)(7), and (b)(8) are being implemented.

61.69 (continued)

(b) (1) In the case of an existing source or a new source which has an initial startup date preceding the effective date, the statement is to be submitted within 90 days of the effective date, unless a waiver of compliance is granted under Section 61.11, along with the information required under Section 61.10. If a waiver of compliance is granted, the statement is to be submitted on a date scheduled by the Administrator.

(2) In the case of a new source which did not have an initial startup date preceding the effective date, the statement is to be submitted within 90 days of the initial startup date.

(c) The statement is to contain the following information:

(1) A list of the equipment installed for compliance,

(2) A description of the physical and functional characteristics of each piece of equipment,

(3) A description of the methods which have been incorporated into the standard operation procedures for measuring or calculating the emissions for which emission limits are prescribed in Section 61.65(b)(1)(i) and (b)(6)(i),

(4) A statement that each piece of equipment is installed and that each piece of equipment and each procedure is being used.

STATUS OF COMPLIANCE

The initial report and waiver of compliance application for the Aberdeen Chemical Plant was submitted December 20, 1976 and acknowledged by the EPA Region IV on December 29, 1976. Since that time, initial reports have been submitted on the following dates:

ITEM	DATE OF INITIAL REPORT
Batch Water Strippers	August 19, 1981
Reactor D-745	March 18, 1982
Reactor D-700	May 13, 1982
Increased Unloading Facilities	June 28, 1982
Spare Inert Vent Incinerator	July 13, 1982

§ 61.70 Semiannual Report.

(a) The owner or operator of any source to which this subpart applies shall submit to the Administrator on September 15 and March 15 of each year a report in writing containing the information required by this section. The first semiannual report is to be submitted following the first full 6 month reporting period after the initial report is submitted.

(b) (1) In the case of an existing source or a new source which has been initial startup date preceding the effective date, the first report is to be submitted within 180 days of the effective date, unless a waiver of compliance is granted under Section 61.11. If a waiver of compliance is granted, the first report is to be submitted on a date scheduled by the Administrator.

(2) In the case of a new source which did not have an initial startup date preceding the effective date, the first report is to be submitted within 180 days of the initial startup date.

STATUS OF COMPLIANCE

The Aberdeen Chemical Plant submits semiannual reports as required by 61.70(a).

61.70 Semiannual Report.

(c) Unless otherwise specified, the owner or operator shall use the Test Methods in Appendix B to this part to conduct emission tests as required by paragraphs (c)(2) and (c)(3) of this section, unless an equivalent or an alternative method has been approved by the Administrator. If the Administrator finds reasonable grounds to dispute the results obtained by an equivalent or alternative method, he may require the use of a reference method. If the results of the reference and equivalent or alternative methods do not agree, the results obtained by the reference method prevail, and the Administrator may notify the owner or operator that approval of the method previously considered to be equivalent or alternative is withdrawn.

(1) The owner or operator shall include in the report a record of any emissions which averaged over any hour period (commencing on the hour) are in excess of the emission limits prescribed in Section 61.62(a) or (b), Section 61.63(a), or Section 61.64(a)(1), (b), (c), or (d), or for any control system to which reactor emissions are required to be ducted in Section 61.64(a)(2) or to which fugitive emissions are required to be ducted in Section 61.65 (b)(1)(ii), (b)(2),(b)(5),(b)(6)(ii), or (b)(9)(ii). The emissions are to be measured in accordance with Section 61.68.

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61.70(c)(1) (continued)

STATUS OF COMPLIANCE

The incinerator is monitored continuously by a gas chromotograph as described in the status of compliance for section 61.68. Records of the measurements made by the gas chromotograph during monitoring are searched and any exceedances of 61.70(c)(1) are reported in the semiannual report.

61.70 Semiannual Report

(2) In polyvinyl chloride plants for which a stripping operation is used to attain the emission level prescribed in Section 61.64(e), the owner or operator shall include in the report a record of the vinyl chloride content in the polyvinyl chloride resin. Test Method 107 is to be used to determine vinyl chloride content as follows:

STATUS OF COMPLIANCE

The Aberdeen PVC Plant utilizes the alternate test method 107VA in lieu of Test Method 107 as approved by EPA Region IV on March 27, 1986.

61.70 Semiannual Report.

(i) If batch stripping is used, one representative sample of polyvinyl chloride resin is to be taken from each batch of each grade of resin immediately following the completion of the stripping operation, and identified by resin type and grade and the date and time the batch is completed. The corresponding quantity of material processed in each stripper batch is to be recorded and identified by resin type and grade and the date and time the batch is completed.

STATUS OF COMPLIANCE

Compliance with 61.70 (c)(2)(i) is described under status of compliance for section 61.64(e)(1)(ii).

61.70 Semiannual Report. (continued)

(ii) If continuous stripping is used, one representative sample of polyvinyl chloride resin is to be taken for each grade of resin processed or at intervals of 8 hours for each grade of resin which is being processed, whichever is more frequent. The sample is to be taken as the resin flows out of the stripper and identified by resin type and grade and the date and time the sample was taken. The corresponding quantity of material processed by each stripper over the time period represented by the sample during the 8 hour period, is to be recorded and identified by resin type and grade and the date and time it represents.

STATUS OF COMPLIANCE

Continuous stripping is not used at the Aberdeen Chemical Plant. This section is not applicable.

61.70 Semiannual Report.

(iii) The quantity of material processed by the stripper is to be determined on a dry solids basis and by a method submitted to and approved by the Administrator.

STATUS OF COMPLIANCE

Compliance with 61.70 (c)(2)(iii) is described under status of compliance for section 61.64(e)(1)(ii).

61.70 Semiannual Report.

(iv) At the prior request of the Administrator, the owner or operator shall provide duplicates of the samples required in paragraphs (c)(2)(1) and (c)(2)(ii) of this section.

STATUS OF COMPLIANCE

Upon request, the Aberdeen Chemical Plant will provide duplicate samples to the Administrator as required in 61.70(c)(2)(i) and 61.70(c)(2)(ii).

61.70 Semiannual Report. (continued)

(v) The report to the Administrator by the owner or operator is to include the vinyl chloride content found in each sample required by paragraphs (c)(2)(i) and (c)(2)(ii) of this section, averaged separately for each type of resin, over each calendar day and weighted according to the quantity of each grade of resin processed by the stripper(s) that calendar day, according to the following equation:

$$AT_i = \frac{\sum_{i}^{n} {}_{=1}P_{Gi}M_{Gi}}{Q_{Ti}} = \frac{P_{G1}\,M_{G1} + P_{G2}\,M_{G2} + \ldots + P_{Gn}\,M_{Gn}}{Q_{Ti}}$$

Where:

A = 24-hour average concentration of type, $_{Ti}$ resin in ppm (dry weight basis).
Q = Total production of type Ti resin over the 24-hour period, in kg.
T_i = Type of resin; i=1,2...m where m is total number of resin types produced during the 24-hour period.
M = Concentration of vinyl chloride in one sample of grade Gi resin, in ppm.
P = Production of grade G_i resin represented by the sample, in kg.
G_i = Grade of resin; e.g., G_1, G_2, and G_3.
n^i = Total number of grades of resin produced during the 24-hour period.

STATUS OF COMPLIANCE

Compliance with 61.70(c)(2)(v) is described under section 61.64(e).

61.70 Semiannual Report

(vi) The owner or operator shall retain at the source and make available for inspection by the Administrator for a minimum of 2 years records of all data needed to furnish the information required by paragraph (c)(2)(v) of this section: The records are to contain the following information:

(A) The vinyl chloride content found in all samples required in paragraphs (c)(2)(i) and (c)(2)(ii) of this section, identified by the resin type and grade and the time and date of the sample, and

(B) The corresponding quantity of polyvinyl chloride resin processed by the stripper(s), identified by the resin type and grade and the time and date it represents.

61.70(vi) (continued)

STATUS OF COMPLIANCE

Records of the vinyl chloride content of the slurry stripped in the reactors and corresponding production for the batch are maintained at the plant for a minimum of two years.

61.70 Semiannual Report.

(3) The owner or operator shall include in the report a record of the emissions from each reactor opening for which an emission limit is prescribed in Section 61.64(a)(2). Emissions are to be determined in accordance with Section 61.67(g)(5), except that emissions for each reactor are to be determined. For a reactor that is also used as a stripper, the determination may be made immediately following the stripping operation.

STATUS OF COMPLIANCE

Compliance with 61.70(c)(3) is described under status of compliance for section 61.64(a)(2).

§ 61.71 Recordkeeping.

(a) The owner or operator of any source to which this subpart applies shall retain the following information at the source and make it available for inspection by the Administrator for a minimum of two years;

(1) A record of the leaks detected by the vinyl chloride monitoring system, as required by Section 61.65(b)(8), including the concentrations of vinyl chloride measured, analyzed, and recorded by the vinyl chloride detector, the location of each measurement and the date and approximate time of each measurement.

(2) A record of the leaks detected during routine monitoring with the portable hydrocarbon detector and the action taken to repair the leaks, as required by Section 61.65(b)(8), including a brief statement explaining the location and cause of each leak detected with the portable hydrocarbon detector, the date and time of the leak, and any action taken to eliminate that leak.

(3) A record of emissions measured in accordance with Section 61.68.

(4) A daily operating record for each polyvinyl chloride reactor, including pressures and temperatures.

61.70(vi) (continued)

STATUS OF COMPLIANCE

Records of the vinyl chloride content of the slurry stripped in the reactors and corresponding production for the batch are maintained at the plant for a minimum of two years.

61.70 Semiannual Report.

(3) The owner or operator shall include in the report a record of the emissions from each reactor opening for which an emission limit is prescribed in Section 61.64(a)(2). Emissions are to be determined in accordance with Section 61.67(g)(5), except that emissions for each reactor are to be determined. For a reactor that is also used as a stripper, the determination may be made immediately following the stripping operation.

STATUS OF COMPLIANCE

Compliance with 61.70(c)(3) is described under status of compliance for section 61.64(a)(2).

§ 61.71 Recordkeeping.

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(2) A record of the leaks detected during routine monitoring with the portable hydrocarbon detector and the action taken to repair the leaks, as required by Section 61.65(b)(8), including a brief statement explaining the location and cause of each leak detected with the portable hydrocarbon detector, the date and time of the leak, and any action taken to eliminate that leak.

(3) A record of emissions measured in accordance with Section 61.68.

(4) A daily operating record for each polyvinyl chloride reactor, including pressures and temperatures.

61.70(vi) (continued)

STATUS OF COMPLIANCE

Records of the vinyl chloride content of the slurry stripped in the reactors and corresponding production for the batch are maintained at the plant for a minimum of two years.

61.70 Semiannual Report.

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STATUS OF COMPLIANCE

Compliance with 61.70(c)(3) is described under status of compliance for section 61.64(a)(2).

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(2) A record of the leaks detected during routine monitoring with the portable hydrocarbon detector and the action taken to repair the leaks, as required by Section 61.65(b)(8), including a brief statement explaining the location and cause of each leak detected with the portable hydrocarbon detector, the date and time of the leak, and any action taken to eliminate that leak.

(3) A record of emissions measured in accordance with Section 61.68.

(4) A daily operating record for each polyvinyl chloride reactor, including pressures and temperatures.

61.70(vi) (continued)

STATUS OF COMPLIANCE

Records of the vinyl chloride content of the slurry stripped in the reactors and corresponding production for the batch are maintained at the plant for a minimum of two years.

61.70 Semiannual Report.

(3) The owner or operator shall include in the report a record of the emissions from each reactor opening for which an emission limit is prescribed in Section 61.64(a)(2). Emissions are to be determined in accordance with Section 61.67(g)(5), except that emissions for each reactor are to be determined. For a reactor that is also used as a stripper, the determination may be made immediately following the stripping operation.

STATUS OF COMPLIANCE

Compliance with 61.70(c)(3) is described under status of compliance for section 61.64(a)(2).

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(2) A record of the leaks detected during routine monitoring with the portable hydrocarbon detector and the action taken to repair the leaks, as required by Section 61.65(b)(8), including a brief statement explaining the location and cause of each leak detected with the portable hydrocarbon detector, the date and time of the leak, and any action taken to eliminate that leak.

(3) A record of emissions measured in accordance with Section 61.68.

(4) A daily operating record for each polyvinyl chloride reactor, including pressures and temperatures.

61.70(vi) (continued)

STATUS OF COMPLIANCE

Records of the vinyl chloride content of the slurry stripped in the reactors and corresponding production for the batch are maintained at the plant for a minimum of two years.

61.70 Semiannual Report.

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STATUS OF COMPLIANCE

Compliance with 61.70(c)(3) is described under status of compliance for section 61.64(a)(2).

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(2) A record of the leaks detected during routine monitoring with the portable hydrocarbon detector and the action taken to repair the leaks, as required by Section 61.65(b)(8), including a brief statement explaining the location and cause of each leak detected with the portable hydrocarbon detector, the date and time of the leak, and any action taken to eliminate that leak.

(3) A record of emissions measured in accordance with Section 61.68.

(4) A daily operating record for each polyvinyl chloride reactor, including pressures and temperatures.

61.70(vi) (continued)

STATUS OF COMPLIANCE

Records of the vinyl chloride content of the slurry stripped in the reactors and corresponding production for the batch are maintained at the plant for a minimum of two years.

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(3) The owner or operator shall include in the report a record of the emissions from each reactor opening for which an emission limit is prescribed in Section 61.64(a)(2). Emissions are to be determined in accordance with Section 61.67(g)(5), except that emissions for each reactor are to be determined. For a reactor that is also used as a stripper, the determination may be made immediately following the stripping operation.

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(3) A record of emissions measured in accordance with Section 61.68.

(4) A daily operating record for each polyvinyl chloride reactor, including pressures and temperatures.

61.70(vi) (continued)

STATUS OF COMPLIANCE

Records of the vinyl chloride content of the slurry stripped in the reactors and corresponding production for the batch are maintained at the plant for a minimum of two years.

61.70 Semiannual Report.

(3) The owner or operator shall include in the report a record of the emissions from each reactor opening for which an emission limit is prescribed in Section 61.64(a)(2). Emissions are to be determined in accordance with Section 61.67(g)(5), except that emissions for each reactor are to be determined. For a reactor that is also used as a stripper, the determination may be made immediately following the stripping operation.

STATUS OF COMPLIANCE

Compliance with 61.70(c)(3) is described under status of compliance for section 61.64(a)(2).

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(2) A record of the leaks detected during routine monitoring with the portable hydrocarbon detector and the action taken to repair the leaks, as required by Section 61.65(b)(8), including a brief statement explaining the location and cause of each leak detected with the portable hydrocarbon detector, the date and time of the leak, and any action taken to eliminate that leak.

(3) A record of emissions measured in accordance with Section 61.68.

(4) A daily operating record for each polyvinyl chloride reactor, including pressures and temperatures.

A

61.70(vi) (continued)

STATUS OF COMPLIANCE

Records of the vinyl chloride content of the slurry stripped in the reactors and corresponding production for the batch are maintained at the plant for a minimum of two years.

61.70 Semiannual Report.

(3) The owner or operator shall include in the report a record of the emissions from each reactor opening for which an emission limit is prescribed in Section 61.64(a)(2). Emissions are to be determined in accordance with Section 61.67(g)(5), except that emissions for each reactor are to be determined. For a reactor that is also used as a stripper, the determination may be made immediately following the stripping operation.

STATUS OF COMPLIANCE

Compliance with 61.70(c)(3) is described under status of compliance for section 61.64(a)(2).

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(3) A record of emissions measured in accordance with Section 61.68.

(4) A daily operating record for each polyvinyl chloride reactor, including pressures and temperatures.

61.70(vi) (continued)

STATUS OF COMPLIANCE

Records of the vinyl chloride content of the slurry stripped in the reactors and corresponding production for the batch are maintained at the plant for a minimum of two years.

61.70 Semiannual Report.

(3) The owner or operator shall include in the report a record of the emissions from each reactor opening for which an emission limit is prescribed in Section 61.64(a)(2). Emissions are to be determined in accordance with Section 61.67(g)(5), except that emissions for each reactor are to be determined. For a reactor that is also used as a stripper, the determination may be made immediately following the stripping operation.

STATUS OF COMPLIANCE

Compliance with 61.70(c)(3) is described under status of compliance for section 61.64(a)(2).

§ 61.71 Recordkeeping.

(a) The owner or operator of any source to which this subpart applies shall retain the following information at the source and make it available for inspection by the Administrator for a minimum of two years;

(1) A record of the leaks detected by the vinyl chloride monitoring system, as required by Section 61.65(b)(8), including the concentrations of vinyl chloride measured, analyzed, and recorded by the vinyl chloride detector, the location of each measurement and the date and approximate time of each measurement.

(2) A record of the leaks detected during routine monitoring with the portable hydrocarbon detector and the action taken to repair the leaks, as required by Section 61.65(b)(8), including a brief statement explaining the location and cause of each leak detected with the portable hydrocarbon detector, the date and time of the leak, and any action taken to eliminate that leak.

(3) A record of emissions measured in accordance with Section 61.68.

(4) A daily operating record for each polyvinyl chloride reactor, including pressures and temperatures.

61.71(a) (continued)

STATUS OF COMPLIANCE

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

Specific Training

Aberdeen will prepare and maintain a document containing updated procedures for which training will be done as specified under Sections 61.64(a)(2), 61.65(a), 61.65(b)(1)(i)&(ii), 61.65(b)(5), 61.65(b)(6)(i)&(ii), 61.65(b)(7), 61.65(b)(8) and 61.65(b)(9)(i) of this Plan. This retraining will be a minimum of four hours per year. Updating and initial retraining as required by this Plan will be completed within 270 days of Plan approval.

Commencing on the first calendar quarter after entry of this Plan as an addendum to the Consent Decree a quarterly progress report will be submitted within fifteen days of the end of such quarter. The report will provide the following information regarding operator/maintenance personnel training for the above listed sections of the NESHAP for vinyl chloride.

1. The dates the training was offered.
2. The topic or subject-matter of the training.
3. An indication of the job titles of the attendees.
4. A list of the names of the attendees completing the instruction.
5. A certificate of the above information by the Plant Manager or the Director of Environmental Control.

The quarterly reports shall cease upon termination of the Consent Decree.

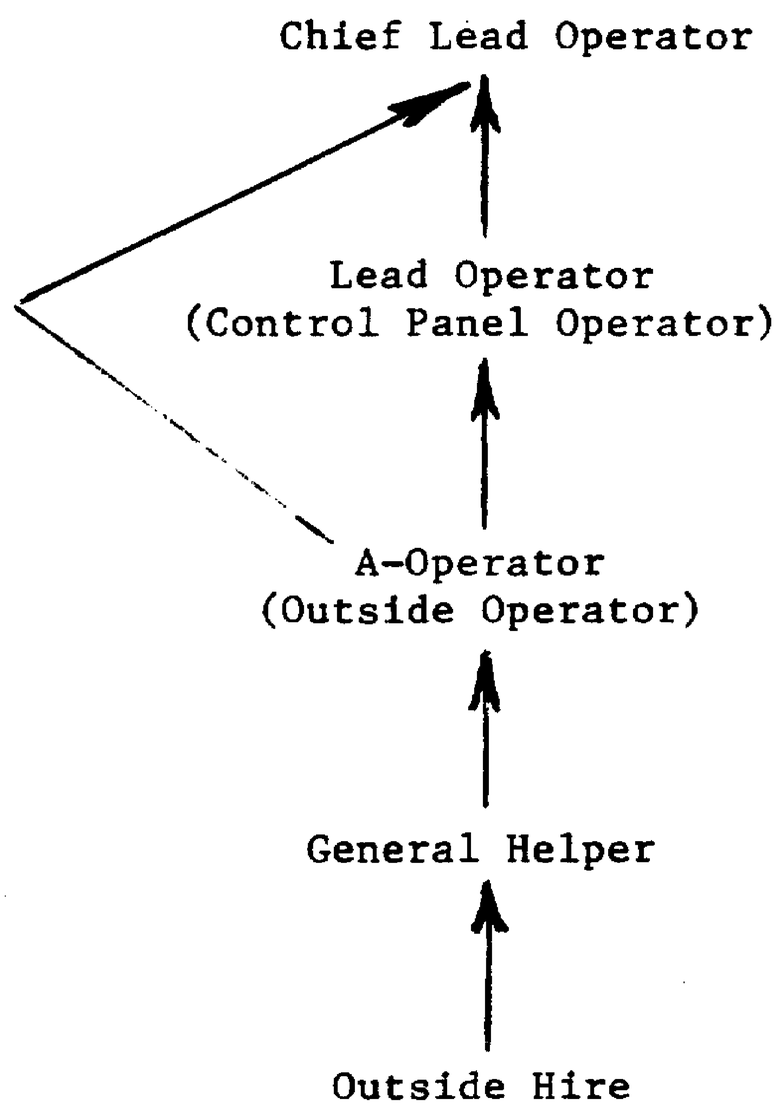
61.70 (continued)

General Training

The Aberdeen Chemical Plant will continue with the general training program in the Vinyl unit which ensures trained personnel operating equipment. A description of this training program is listed below.

A new hire enters the plant in the General Helper classification. In this classification the employee may work in any of the production areas depending on overall manpower requirements. The Aberdeen plant consists of four major production areas which are polyvinyl chloride, dry blend, compound and plasticizer. The NESHAP for vinyl chloride covers only the operation of the polyvinyl chloride production area.

Normal progression in the polyvinyl chloride production area is illustrated below:



61.70 (continued)

General Training (continued)

A General Helper working in the polyvinyl chloride production area does not perform operator functions until he starts his training to become an A-Operator. Prior to starting the training program the General Helper does such tasks as bagging PVC resin, cleaning dryers, changing dust collector socks, pumping pond resin and being a fire watch.

The current training program in the polyvinyl chloride area consists of on-the-job training, training by supervision and testing. Often operators are trained such that they are qualified to perform the duties of the next higher position. This is done to assure qualified personnel are available to provide coverage for vacations, sickness, National Guard Duty etc. When an employee is selected to train up, the first step is an orientation introduction conducted by the Operations Supervisor and the Shift Supervisor. In this session the functions of the position are discussed and the importance of knowing the unit and understanding the process is stressed. Safety and environmental responsibilities are also covered in this first meeting. The trainee then starts on-the-job training with a qualified operator. The trainee works alongside the qualified operator to observe and learn the routine duties and responsibilities required to satisfactorily perform the job. The on-the-job training is conducted for approximately 300 hours. During the on-the-job training period the progress of the trainee is monitored by the Chief Lead Operator and the Shift Supervisor. Also during the on-the-job training period the trainee is given a list of questions which he studies and must answer verbally and in writing to successfully

61.70 (continued)

General Training (continued)

complete the training. The employee must also demonstrate to the Shift Supervisor that he/she has learned all the duties of the new position. This is accomplished with the use of check lists. Upon approval by the Shift Supervisor and the Operations Supervisor the employee is then officially deemed to be qualified for the job and at the time is then allowed to perform the job on his/her own.

In case there is an open position which needs to be filled and the person selected is not completely trained, the training program described above is used to qualify the person for the new position. The normal progression of a General Helper is to A-Operator to either the Lead Operator or to Chief Lead Operator. The Lead Operator can also progress to the Chief Lead Operator.

The Shift Supervisors observe and train the personnel on their shifts on a continuing basis. The normal make up of a shift includes the Shift Supervisor, Chief Lead Operator, Lead Operators and A-Operators. Since the number of operators on a shift is quite small, the Shift Supervisor personally checks their performance and corrects any problems if they should occur.

61.70 (continued)

General Training (continued)

Several possibilities exist during the training program. If the operator in training decides for some reason he does not want to continue the training for the next level, he can return to his previous position. If after the 300 hours of on-the-job training the Shift Supervisor and the Operations Supervisor consider the employee does not have the ability to master the new position, the employee returns to his/her previous position. If the Shift Supervisor and the Operations Supervisor consider the trainee is making progress and learning the new position but is not fully capable to handle the new job after the 300 hours of on-the-job training, more on-the-job training is continued until the person is fully trained to do the new position on his/her own.

ATTACHMENT A

CONFIDENTIAL

A

RUPTURE DISC/RELIEF VALVE

PRACTICES MANUAL

VISTA POLYMERS INC.

ABERDEEN, MS

UPDATED SEPTEMBER 16, 1985

CONFIDENTIAL

RUPTURE DISC/RELIEF VALVE

PRACTICES MANUAL

TABLE OF CONTENTS

CONFIDENTIAL

I. INTRODUCTION

Section 61.65 (b)(4) of the National Emission Standards for Hazardous Air Pollutants requires that a rupture disc be installed underneath any relief valve in vinyl chloride service minimize leakage through the relief valve to the atmosphere. In accordance with this requirement, Vista Polymers Inc. has installed a large number of rupture discs in vinyl chloride service throughout the plant. In addition to preventing relief valve leakage, rupture discs also serve the vital function of protecting the relief valve from polymer buildup on the relief valve seat, which could hinder the proper functioning of the relief valve in an emergency. In either case, proper functioning of the rupture disc/relief valve combination is essential for plant safety.

This program has been developed because of the importance of maintaining the integrity of rupture discs during their handling and installation. Adherence to the procedures outlined in this manual will help to ensure that the chance of rupture disc/relief valve malfunctions will be minimized, and that thorough documentation will be available whenever such a malfunction does occur. This documentation may become extremely critical in the event of a VCM release caused by a premature rupture disc failure or other process upset conditions.

II. RUPTURE DISC ORDERING AND PRE-INSTALLATION CHECKOUT

A. Specification of Rupture Discs

All rupture discs in VCM service are listed on Table 1. The following specifications should be noted on the purchase order when ordering these rupture discs.

1. Disc size (specify).
2. Type S-90.
3. Nickel material.
4. 0% Manufacturing range.
5. Burst pressure (specify).
6. Burst temperature.
7. Certification of performance.
8. ASME code stamped and certified.
9. Test each disc to 90% of rated burst pressure.
10. Replaces lot no. . . . (specify).
11. Serially number all discs in the lot.

B. Lot Inspection and Pre-Testing

All new rupture disc lots received at the plant receiving dock must be thoroughly inspected and tested before they are moved to the storeroom. The following procedures are to be used when new rupture disc lots are received at the Plant:

1. When a lot of rupture discs arrives at the receiving dock, care must be exercised when unloading the discs from the truck so as not to damage the discs.

II. RUPTURE DISC ORDERING AND PRE-INSTALLATION CHECKOUT - Continued

B. Lot Inspection and Pre-Testing - continued

2. The receiver must notify Processing Engineering that there are new rupture discs at receiving, and a Process Engineer or other trained personnel will count the number of discs in the lot and inspect each individual disc for flaws.

3. A flaw in a disc is defined as follows:

a. Any scratch or indentation which can be felt on the opposite side of the disc.

b. Any irregularity in the shape of the domed portion of the disc that can be seen with the eye or felt.

c. A pinhole or scratch which could cause the disc to leak.

d. A disc without a tag.

e. A disc that will not fit the pins of a holder.

f. A disc that is labeled differently than the other discs in the same lot.

4. Flawed discs must be removed from the lot and returned to the manufacturer. Discs which pass inspection are initialed on the box by the inspector.

5. Rupture discs which are to be installed on vessels in VCM service must be approved by lot before they can be placed in the storeroom. One disc from each of these lots will be sent to the maintenance shop and burst using the procedures specified in the destructive testing section of this manual.

II. RUPTURE DISC ORDERING AND PRE-INSTALLATION CHECKOUT - Continued

B. Lot Inspection and Pre-Testing - continued

6. If any rupture disc does not burst within 5% of its rated burst pressure, the entire lot from which the disc was taken must be returned to the manufacturer. Maintenance must notify receiving that these discs have either passed or failed this test.

7. Rupture discs which pass inspection and testing are ok'd for placement in the storeroom. Rupture disc boxes which have not been initialed are not to be placed in the storeroom.

C. Recordkeeping

Administrative Services must keep a record of rupture disc receiving and inspection data. An example logsheet is attached. This information must be stored in the plant for a period of at least two years.

III. RUPTURE DISC INSTALLATION

A qualified maintenance installation observer must be present during all phases of rupture disc installation (vinyl reactors only). The Mechanical Superintendent will keep an updated list of qualified maintenance installation observers.

A. Installation in Holders

All rupture discs must be installed in the holders according to the manufacturer's specifications. These written specifications come with each rupture disc. The following steps outline the general procedure which is to be used when installing rupture discs in holders:

III. RUPTURE DISC INSTALLATION (Continued)

A. Installation in Holders - continued

1. Before a disc is placed in the holder, the disc, the holder and the holder bolts must be inspected for flaws.

2. Flaws are defined as follows:

a. A disc that has any of the defects listed in Section II (B)(3).

b. A holder face that is covered with dirt or debris, or is deeply gouged such that it will leak when installed.

c. Set screws that are galled or cannot be screwed into the holder by hand.

d. A holder with a damaged bite ring. A holder is considered damaged if there are indentations or flat spots on the bite ring. This is determined from a visual inspection of the holder. Also, the height of the bite ring must be checked. This is done by the inspector running his fingernail around the bite ring. The bite ring has sufficient height to be reused if it holds the fingernail all the way around the circumference of the bite ring.

3. Flaw components must not be installed in the Plant.

4. Place the disc in the holder and hand install the holder bolts. Using a torque wrench, tighten the holder bolts to the torque specified by the manufacturer. This tightening must be performed in at least four passes; i.e. 25%, 50%, 75% and 100% of the final torque. A criss-cross tightening pattern must be used when torquing the bolts.

III. RUPTURE DISC INSTALLATION - Continued

A. Installation in Holders - continued

5. When the installation of the disc in the holder is complete, visually inspect the disc again to see if it has been distorted or otherwise damaged.

6. Rupture discs must not be removed from the holders after installation, otherwise the rupture disc must be discarded.

B. Pressure Testing in the Shop

All reactor rupture discs are to be pressure tested in the maintenance shop to 90% of their rated burst pressure before being installed in the plant. The following testing procedure must be used when pressure testing rupture discs in the maintenance shop.

1. Clean the flanges of the test bench and the faces of the rupture disc holder where the two surfaces meet. Use an asbestos gasket between the flange and the holder.
2. Install the holder on the test bench and tighten the bolts in a criss-cross pattern, making several passes on each bolt.
3. Warn nearby personnel that a rupture disc is being pressure tested.
4. Using pressurized air, slowly open the test valve and pressurize the space underneath the rupture disc. Increase the pressure to 90% of the rupture disc burst pressure at $72^{o}F$.
5. Slowly depressurize the space underneath the rupture disc and remove the assembly from the test bench. If the disc appears to have been distorted or otherwise damaged during the test, do not install the disc in the plant.

III. RUPTURE DISC INSTALLATION - Continued

B. Pressure Testing in the Shop - continued

6. If a rupture disc bursts prematurely (less than 90% of its rated burst pressure) or is damaged by the test, the disc must be given intact to Process Engineering.

7. The calibration of the test bench pressure gauge will be checked with a dead weight pressure gauge every six months.

C. Installation In The Plant

Rupture disc assemblies must be installed in the plant accordingly:

1. Before installing the holder assembly between the companion flanges, thoroughly clean the flange faces with a putty knife to remove any solid buildup or debris.

2. Check to see that the flange faces are not gouged or otherwise damaged. Place the rupture disc between the flanges, with the bulged-out side of the disc facing the process.

3. On reactors, use asbestos-type gaskets only. Flexatalik gaskets may be used elsewhere in the plant if desired.

4. When tightening the companion flanges, torque the bolts to the manufacturer's specification using a criss-cross tightening pattern. Make at least four passes on each bolt.

D. Pressure Checking After Installation on the Reactor

After a rupture disc has been installed on a reactor, the reactor will be pressure checked before it is charged. The reactors will be pressure checked to 90% of the pressure of the lowest rated rupture disc on the reactor or 170 #/in^2, whichever pressure is lower.

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III. RUPTURE DISC INSTALLATION - Continued

D. Pressure Checking After Installation on the Reactor - continued

The pressure check must be witnessed by an approved pressure check observer. A list of approved pressure check observers is kept on the Vinyl Shift Supervisor's bulletin board.

The pressure checking consists of filling the reactor with water and then increasing the pressure in the reactor to the desired pressure per established procedures. The operators involved must be extremely careful during pressure check procedures not to burst or damage a rupture disc. Bursting a disc during the pressure check will cause reactor downtime to change the disc. A disc can be damaged by hydraulic shock if the reactor becomes liquid full during the pressure check. A damaged rupture disc may burst at lower than the rated pressure, causing leakage through the reactor relief valve. In addition, a damaged disc may not burst at the rated pressure, which could allow a reactor to overpressure. The pressure check observer must witness the pressure check from the field and must verify the final reactor pressure. The reason for the pressure check, the signature of the approved observer, the final reactor pressure, and other test findings will be noted in the reactor pressure check log kept in the Vinyl control room.

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IV. RUPTURE DISC REMOVAL

A. Rupture Disc Changeout

Rupture discs are to be removed from service and changed accordingly:

1. Any rupture disc which fails in service must be changed as soon as possible after it is discovered that the disc has failed.
2. Any rupture disc which is believed to be covered with resin or otherwise damaged must be changed as soon as possible.
3. All rupture discs on reactors will be changed at least once every twelve months.
4. When a reactor is taken out of service for condenser drilling, the condenser rupture disc(s) will be removed or guard(s) will be installed over the rupture disc nozzle(s) before the drilling operation is started.
5. Any rupture disc which fails in reactor service must be given to Process Engineering.

B. Destructive Testing

All rupture discs taken off of vinyl reactors must be burst in the maintenance shop when taken out of service permanently. The following procedures also apply to new rupture discs which are to be burst when they arrive at the Plant.

1. When removing the holder assembly from the reactor and when transporting the holder assembly to the maintenance shop, use caution so as not to damage the disc or the holder.

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IV. RUPTURE DISC REMOVAL - Continued

B. Destructive Testing - continued

2. When destructively testing a vinyl reactor rupture disc, a qualified maintenance installation observer must be present to observe the testing.

3. Install the holder assembly on the test bench and pressurize the disc with air until the disc bursts.

4. If a rupture disc bursts prematurely (less than 90% of its rated burst pressure), the disc must be given to Process Engineering. Use care so as not to damage these discs.

V. RECORDKEEPING

A record must be kept of all rupture disc installation and testing data. An example logsheet is attached. This information must be stored in the plant for a period of at least two years.

VI. TRAINING

All maintenance and engineering personnel involved in this program are to receive hands-on training in the installation and handling of rupture discs once each calendar year. Records of all personnel who attend these training sessions are to be kept for a period of at least two years.

VII. RELIEF VALVES

All relief valves in vinyl chloride service will be periodically checked to assure that they will operate properly in an emergency situation.

VII. RELIEF VALVES - Continued

A. Reactor Relief Valves

The past practice of testing the relieving pressure of reactor relief valves in place can no longer be used due to the change in the setting of the blowdown ring. With the new settings, the quantity of nitrogen available to test the relief valves only results in "simmering" rather than "popping" of the valves. Thus a true relieving pressure cannot be determined with the relief valves in place on the reactors.

Current practice is to remove the relief valves from the reactors and to send them to a relief valve repair shop for testing, inspection and reworking. The rework includes disassembly, cleaning and replacing/refurbishing internal parts as required so that the relief valve meets the original manufacturers specifications.

Initially, all reactor relief valves will be sent to a relief valve repair shop on a scheduled basis. The valves will be disassembled, cleaned and refurbished as necessary. The set pressure on each of the relief valves will also be increased approximately 10 psi while at the repair shop.

After the initial testing and refurbishing, the valves will be reinstalled on the reactors. The information obtained on valve condition versus period of time between the rework will be analyzed. From this data, a decision on the frequency of testing and refurbishing the valves will be established.

VII. **RELIEF VALVES** - Continued

A. Reactor Relief Valves - continued

All new reactor relief valves purchased will be pretested by the manufacturer. Upon installation, the relief valves will be removed and tested at a relief valve shop per the frequency established above.

B. Other Relief Valves in Vinyl Chloride Service

Relief valves in the vinyl chloride service, except those on the reactors, will be tested and refurbished at either a relief valve repair shop or by the plant maintenance personnel. The frequency of testing and refurbishing will be established by the plant maintenance department.

C. Recordkeeping

The maintenance department shall keep a record of all tests and repairs made on the relief valves.

ENG Disc/9-85/rah

RUPTURE DISC CHECK-IN

DATE RECEIVED	LOT NUMBER	STOCK NUMBER	DISC SIZE	DESIGN PRESSURE A 72°F	NUMBER OF DISCS	LOT INSPECTED BY	DESTRUCTIVE TEST REQUIRED*	LOT APPROVED (YES, NO)	COMMENTS

* All rupture discs in VGI service.

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REACTOR _____

RUPTURE DISC

Disc Removed

Date Removed _____

Specific Location _____

Lot No. _____

Burst Pressure at 70°F _____

Burst Pressure at Higher Temp. _____

Disc Size _____

Destructive Test Burst Pressure _____

Holder No. _____

Individual(s) Removing Disc _____

Individual(s) Performing Destructive Test _____

Reason for Removal _____

Disc Installed

Date Installed _____

Specific Location _____

Lot No. _____

Rated Burst Pressure at 70°F _____

Rated Burst Pressure at Higher Temperature _____

Disc Size _____

Tested to 90°F By _____

Test Observed By _____

Installed on Reactor By _____

Installation on Reactor Observed By _____

Holder No. _____

Stock No. _____

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A

TABLE I

RUPTURE DISCS IN VCM SERVICE

AVAILABLE AT THE PLANT