CHEMICALS

PPG INDUSTRIES

INTEROFFICE / LAKE CHARLES

TO All Concerned

DATE December 18, 1969

FROM A. T. Raetzsch

SUBJECT Loss Prevention Procedures

In February of 1968 the Industrial Engineering Department was formed within the Engineering Division and, coupled with other allied duties, was assigned the broad responsibility of establishing a program of safety inspections for process vessels and their associated safety devices. In order to fully implement this program, Standard Operating Procedures for the inspection of pressure vessels and testing of safety valves are attached.

In addition, other safety activities specifically classed as Loss Prevention functions, which this department has been engaged in to a considerable degree, are hereby formally made the responsibility of the Industrial Engineering Department.

By definition Loss Prevention functions are those activities principally concerned with the prevention of accidents usually associated with equipment failures or malfunctions, and the prevention of or minimization of losses resulting from fires and/or explosions.

In order to assist you in understanding the responsibilities of the Industrial Engineering Department with regard to Loss Prevention measures, a description of their duties is also enclosed. You will note in analyzing these responsibilities that they are of a staff or advisory nature, and that the direct responsibility for the condition of equipment in each area continues to remain with the supervisors in charge of the area.

It is logical to assume that the emphasis we have placed on Loss Prevention functions in the past few months through inspections, etc. has been of value in our overall efforts to reduce or prevent accidents. Due to the addition of new production units recently placed in operation, we must plan to increase these efforts if we are to continue to enjoy a good safety record.

Your usual whole-hearted cooperation in complying with methods and procedures designed to make the Lake Charles Plant a safer operation is anticipated and will be appreciated.

A. T. Raetzsch

ATR:gl

Attachments

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CHEMICALS PPG INDUSTRIES INTEROFFICE / LAKE CHARLES

TO All Concerned DATE December 18, 1969

FROM A. T. Raetzsch SUBJECT

LOSS PREVENTION RESPONSIBILITIES AND DUTIES OF THE INDUSTRIAL ENGINEERING DEPARTMENT

I. PRESSURE VESSEL AND TANK INSPECTIONS

A. Directly responsible for monitoring pressure vessel and tank inspection program.

B. Duties include inspection, issuance of reports, and maintaining necessary records and files as described in the Standard Operating Procedure for "Unfired Pressure Vessel Inspection".

II. SAFETY VALVE AND VACUUM BREAKER TESTING PROGRAM AND RUPTURE DISC REPLACEMENT PROGRAM

A. Safety Valves - Directly responsible for monitoring the program of safety valve testing as described in the Standard Operating Procedure for "Safety Valves Testing and Inspection".

B. Vacuum Breakers and Rupture Discs - Directly responsible for developing and monitoring programs which will provide for regularly scheduled inspections and testing of vacuum breakers on process vessels and tanks, and, the replacement of rupture discs as dictated by sound engineering practices.

III. PIPELINES WITHIN AND OUTSIDE OF PLANT

A. Pipelines Within Plant - Responsible for inspecting, including checking for wall thickness, all pipelines within the plant when requested to do so by supervisors in charge of area. Duties include issuance of reports and maintenance of records for all inspections made.

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B. Pipelines Outside of Plant - Directly responsible for developing and monitoring a program of regularly scheduled inspections of all company owned pipelines outside of the plant. Duties include inspecting for necessary safety signs, etc.; checking for wall thickness as deemed necessary by condition of pipe; monitoring pressure tests if required; issuance of reports and maintenance of records; and, supervision of cathodic protection systems protecting pipelines.

IV. FIRE WATER PROTECTION SYSTEMS

A. Inspection and Testing - Develop and monitor a program of inspecting and testing fire water mains, sprinkler systems, and hydro-shields. Included in these programs will be the inspection of physical condition of deluge valves, monitor nozzles, fire hydrants, pressure indicating valves, fire pumps, and other components of the fire water protection system.

B. Evaluation of Systems - Directly responsible for maintaining a program of up-to-date evaluation of the fire water distribution system. Duties include making necessary studies to insure that fire water mains, fire hydrants, pressure indicating valves, monitor nozzles, etc. are sized and located, etc. to insure adequate protection of the plant property. Duties also include coordination of efforts necessary to prepare and issue to all interested personnel (Fire Fighter Crew, Operations Supervisors, Insurance Company Engineers) up-to-date drawings and descriptions of the fire water protection systems.

C. Vapor Detector Heads - Monitor program of inspecting and testing all Vapor Detector Heads located in process areas to see that they are functioning as required. Included in duties are maintenance of records and issuance of reports necessary to sustain program.

D. Material and Installation Specifications - Prepare and maintain a program of material specifications for components of fire water protection systems; and specifications for installations of fire water protection systems.

E. Installation and Maintenance - Assist Construction Department Field Engineers as required to insure that fire water protection systems (sprinkler systems, deluge valves, etc.) are properly installed and meet PPG and fire insurance company requirements. Assist Maintenance Department engineer assigned to follow maintenance problems with sprinkler systems, fire pumps, etc. as required.

V. REVIEW OF PROCESS HAZARDS IN OPERATING UNITS

Monitor program of regularly scheduled review of process hazards in each operating unit as specifically regards fire and/or explosion potential. (Actual review is responsibility of Operations Area Supervisors. Industrial Engineering Department's duties consist of scheduling reviews, providing back-up services, and distribution of reports to interested personnel.)

VI. BARGE INSPECTIONS

Monitor program of barge inspections to see that PPG owned or leased barges meet PPG and governing agencies safety requirements. Specific duties include preparation of inspection schedules, making inspections, preparing and distributing reports to interested parties.

VII. PRESSURE VESSEL CONSTRUCTION REQUIREMENTS AND INSPECTIONS

A. Construction of New Vessels - Conduct program of working with engineering Project Teams and Maintenance Department engineers to insure that pressure vessel construction details meet PPG and applicable code requirements.

B. Alteration or Repairs to Pressure Vessels - Conduct program of working with Maintenance Department or Project Team engineers to review all proposed modifications or repairs to pressure vessels to insure that applicable code or PPG requirements are met.

C. Inspection of New or Repaired Pressure Vessels - Work with Project Team and Maintenance Department engineers to schedule type and frequency of inspections by PPG inspectors in vendors shops. Specific duties include furnishing inspection service where required on new construction and when requested by the Maintenance Department on repair jobs.

VIII. INSURANCE COORDINATOR

NOTE: The Industrial Engineering Department's responsibilities and duties are limited to the following types of insurance: Fire and Extended Coverage; Boiler and Machinery Insurance Coverage; and, General Liability Coverage.

A. Insurance Inspections - Coordinate all fire and extended coverage, boiler and machinery, and general liability insurance inspections. Follow up to see that recommendations are investigated and complied with when agreed to by PPG.

B. Other Insurance Matters - The Plant Industrial Engineer or his designated alternate serves as a liason agent between plant and insurance company personnel in order to establish and maintain a program of good communications between the two groups. Maintains an official file of all correspondence between the company and insurance companies.

C. Contacts With Corporate Insurance Office - The Plant Industrial Engineer serves as a liason agent for plant people and the corporate insurance manager's office. Specific duties include reporting all losses to the corporate insurance manager that result from accidents covered by insurance.

TITLE

UNFIRED PRESSURE VESSEL INSPECTION

I. PURPOSE

To establish minimum requirements for the inspection (and testing when necessary) of unfired pressure vessels; and the maintenance of records necessary to sustain the inspection program.

II. DEFINITIONS

For the purpose of this procedure the following definitions apply:

A. Unfired Pressure Vessel

Any vessel that is or can be subject to an internal or external pressure other than that due solely to a hydrostatic head pressure caused by the height of the contents of the vessel.

B. Internal Inspection

An inspection consisting of:

1. A visual inspection of the internal and external surfaces of the vessel and its supporting structure to examine for corrosion, erosion, cracking, broken braces, etc.

2. A determination of the thickness of the shell, head, jackets, nozzles, etc. This thickness may be measured by any reputable recognized method such as drilling, ultrasonic testing, x-ray, etc.

3. An inspection and/or test of all safety attachments such as safety valves or rupture discs.

C. External Inspection

An inspection consisting of:

1. A visual inspection of the vessel and its supporting structure to examine for corrosion, cracking, etc.

2. A visual inspection of the safety attachments of the vessel such as safety valves, rupture discs, to see that they are properly installed, etc.

III. INSPECTION FREQUENCY

A. All unfired pressure vessels must be inspected internally at least once every 24 months except as in Paragraph B below.

B. A maximum cycle of 36 months for internal inspections shall be permissable when it is established through prior inspections that this frequency is sufficient.

C. All unfired pressure vessels must be inspected externally at least once every 12 months.

D. If a vessel is out of service continuously for 12 months or longer it must be inspected internally before it is returned to service.

E. If the service of a vessel is changed it must be inspected internally before it is placed in the new service.

F. Extension of the inspection schedule by more than three months must have the approval of both the Production Superintendent and Plant Superintendent.

G. The internal inspection frequency of a vessel may be lengthened by written request of the Production Superintendent to the Plant Superintendent and upon approval of the request by the Plant Superintendent.

IV. INSPECTION RESPONSIBILITIES

A. Production, Power, and Shipping Departments

Operating supervision in these departments will be responsible for the scheduling and origination of any work orders necessary to remove vessels from service for internal inspections. (External inspections can be made without any scheduling efforts.)

B. Industrial Engineering Department

1. Inspection: The inspection of all unfired pressure vessels will be made by experienced and qualified inspectors from the Industrial Engineering Department.

2. Reports: Inspectors will be responsible for reporting the conditions found during inspections to the responsible Area Supervisor, either orally or in writing, immediately following the inspection. In all cases written reports must be prepared for all inspections and submitted as soon as practicable to all concerned parties.

C. Maintenance Department

The Maintenance Department will be responsible for determining the manner or procedures to be used in making any repairs to vessels deemed necessary following inspections.

V. RECORDS

The Industrial Engineering Department will be responsible for establishing and maintaining the records necessary to insure that a systematic schedule of inspections is followed. Included in these duties will be:

A. The preparation and distribution of inspection reports to the operating supervision.

B. The preparation of reports by areas showing the vessels requiring inspection in quarterly periods.

C. Summary reports on a quarterly schedule listing inspections made, overdue inspections, etc.

Data processing methods of inspection schedules and quarterly summary reports will be used where feasible.

TITLE

SAFETY VALVES - TESTING AND INSPECTION

I. PURPOSE

To establish minimum requirements for the testing and inspection of safety valves and maintenance of records.

II. DEFINITION

For the purposes of this procedure a safety valve is a spring-loaded valve used for relieving excess pressures. When the pressure in a tank, vessel, compressor, etc. increases to the set pressure, the valve opens, allowing the excess pressure to be relieved. As used herein the term safety valve is a generic term for relief valves commonly known as safety, safety-relief, and relief valves.

III. IDENTIFICATION AND TAGGING OF VALVES

A. All safety valves shall be identified with a PPG serial number. These numbers will be assigned sequentially by Production Area supervisors from blocks of numbers assigned to each area by the Industrial Engineering Department (see list below).

B. Each valve when tested will be tagged with a 1/8" thick x 2" wide x 2-1/2" long lead tag secured to the valve with monel wire and lead seals. The tag shall be stenciled with the valve serial number, the month and year of testing, and the set pressure. All numerals will be deeply stamped on the tags with 5/8" steel stencils.

C. Area Numbers

Area	Numbers
HCl	1-25
EC	26-50 and 1301-1400
VC	51-150
EDC	151-200
Per-Tri	201-300 and 1201-1300
OHC	301-350
Tri-Ethane and VDC	351-400
Liquefaction and Brine Treatment	401-500
Caustic (All Areas), Sodium Chlorate and IPP	501-600
Cell Area and Hydrogen Compression	601-650
Power House "A"	651-800
Power House "B" (Riverside)	801-950
Mercury Cells	951-1100
Silica Pigments	1101-1200
Portable Tanks and Miscellaneous	P1-P99

IV. TESTING AND INSPECTION

A. New Valves

All new valves must be visually inspected and tested before they are placed in service on either new or existing equipment.

B. Valves In Service

1. All safety valves in service shall be visually inspected and tested at least annually except as in Paragraph 2. Disassembled inspection of valves at their annual test is not required unless conditions such as plugging, corrosion, erratic operation, etc. are evident.

2. Minimum cycles of testing greater than one year are permissable when historical test data indicates that a longer period is practical. All safety valves regardless of service shall be tested at least every three years.

C. Pressure Setting

1. Safety valves protecting individual vessels, etc. shall have a maximum pressure setting not to exceed the design pressure at the design temperature rating of the object it is protecting.

2. A safety valve used to protect a system of pressure vessels, piping, etc. shall be set at a pressure not to exceed the design pressure of the lowest rated component in the system.

3. The spring in a safety valve in service for pressures up to and including 250 psig shall not be reset for any pressure more than 10 per cent above or 10 per cent below that for which the valve is marked. For valves in service at higher pressures the spring shall not be reset for any pressure more than 5 per cent above or 5 per cent below that for which the valve is marked.

V. RESPONSIBILITY FOR TESTING

A. Area Production supervisors are responsible for the scheduling of tests of safety valves in their areas.

B. Deviations from the testing cycle of inspections for valves, once established, must have the approval of the Area General Foreman, Area Superintendent, and reported to the Plant Industrial Engineer.

VI. RECORDS

The Industrial Engineering Department is responsible for establishing and maintaining the records necessary to insure that a systematic schedule of testing all safety valves is followed. Included in these duties will be:

A. The preparation and distribution of test reports to operating supervision.

B. The preparation of reports by areas listing the safety valves due for test in quarterly periods.

C. Summary reports on a quarterly schedule listing tests made, overdue tests, etc.

Data processing methods of preparing test schedules and quarterly summary reports will be used where feasible.