



## Pressure Vessel Program

### 1. PURPOSE

- 1.1 This program provides guidance to University employees that work with or are responsible for pressure vessels. Conformance to this Program aids the University in ensuring that pressure vessels are properly registered, routinely inspected and do not present a hazard. This procedure also helps ensure an up to date inventory of pressure vessels at University facilities.

### 2. SCOPE

- 2.1 This procedure applies to all University owned property (including off site properties) that utilize pressure vessels. It does not include residential style water heaters less than 50 gallons in size.
  - 2.1.1 The pressure vessel procedure is not intended to identify means and methods for maintenance, inspection, or testing by University personnel. This service is provided by the University's property carrier and outside contractors.

### 3. DEFINITIONS

- 3.1 **Pressure Vessel** - A container larger than 5 gallons designed to hold liquid or gas at pressure above 15 psi or temperatures above 210 degrees F.
- 3.2 **Valve, Pressure-Temperature Relief** – An automatic relief device actuated the static pressure upstream of the valve or by the temperature of the fluid. Primary maximum temperature setting is 210 degrees F.

### 4. RESPONSIBILITIES

- 4.1 The Facilities Design and Operations Department (FDO) shall be responsible to manage the maintenance and repair of pressure vessels. FDO shall manage the pressure vessels per the requirements set forth in the ASME Boiler and Pressure Vessel Code (BPVC) and FM Global DS 12-1.

- 4.1.1 FDO shall direct the contract for jurisdictional pressure

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vessel inspection and testing with the University's property carrier (FM Global). FDO shall also direct the pressure vessel preventive maintenance program with a certified contractor. The contractor shall be directed to utilize ASME BPVC standards along with FM Global DS 12-1 standards.

- 4.1.2 FDO shall maintain the list of all University pressure vessels and modify (add to/subtract from) accordingly.
- 4.1.3 FDO shall work directly with the University's property carrier to ensure compliance with insurance requirements.
- 4.1.4 FDO shall manage the state boiler pressure vessel program including pressure vessel registrations, data maintenance and fees.
- 4.1.5 FDO shall serve as the University's technical representative for pressure vessels with regulatory agencies.
- 4.1.6 FDO shall develop and or maintain a pressure vessel data management program to track pressure vessels meeting the criteria of the program. The pressure vessel data management program shall be used to ensure that the pressure vessels are properly tracked, managed, inspected and maintained.

#### 4.2 Maintenance Department

- 4.2.1 Shall provide day to day management of the pressure vessel program.
- 4.2.1 Shall maintain all records include pressure vessel inventory, State inspection forms, notifications and etc.
- 4.2.2 Shall schedule all inspections with property carrier.
- 4.2.3 Shall schedule, order and approve maintenance work with the outside Contractor.
- 4.2.4 Shall submit payment for the state registration fee.
- 4.2.5 Shall review the outside contractor's contract on an annual basis.
- 4.2.6 Shall ensure that new pressure vessels are properly registered.
- 4.2.7 Shall notify RMS of changes to procedures, contracts or inventory on a semi-annual basis.

#### 4.3 The Risk Management & Safety Department shall:

- 4.3.1 Update the pressure vessel program as necessary.

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- 4.3.2 Audit the program to determine the effectiveness of the pressure vessel procedure.
  - 4.3.3 Facilitate communication of FDO and the University's insurance carrier.
  - 4.3.4 Notify FDO upon the identification of unregistered or unlabeled pressure vessels found during inspections or surveys.
  - 4.3.5 Work with Procurement Services to ensure that FDO is notified when pressure vessels are purchased.
- 4.4 Departments with pressure vessels
- 4.4.1 Shall notify Procurement Services when they wish to obtain a pressure vessel. See Appendix A.
  - 4.4.1 Shall not create or build their own pressure vessel, nor contract directly for the construction of a pressure vessel without Procurement Services knowledge and FDO approval.
  - 4.4.2 Shall notify FDO of pressure vessels in their lab, facility, building or department utilizing the google doc pressure vessel compliance checklist Appendix B.

## **5. GENERAL REQUIREMENTS OF PRESSURE VESSELS**

- 5.1 Pressure vessel inspections are provided by the University's Property Carrier based on ASME and FM Global pressure vessel standards.
- 5.2 FDO maintains a contract with a certified contractor to provide repair, maintenance and testing services on pressure vessels owned by the University. These services are not provided by University personnel. Maintenance staff shall not exercise safety valves.
- 5.3 If your department owns a pressure vessel, you shall contact FDO every three years for routine maintenance.
- 5.4 Power Plant safety valves for unfired pressure vessels are replaced by Plant personnel every five years (per FM Global DS 12-1). The procedure is maintained at the Power Plant .
- 5.5 Power Plant safety valves for fired pressure vessels are removed

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every three years (per FM Global DS 12-1) and provided to an outside contractor for recertification. This procedure is maintained by the Power Plant.

## **6. RECORD KEEPING**

6.1 The Maintenance Department shall be maintain all records related to the identification, tracking, maintenance, service, registration, and inspection of pressure vessels.

6.2 RMS shall maintain all records related to program audits.

## **7. AUDIT AND REVIEW**

7.1 On an annual basis, RMS will conduct an audit of the Pressure Vessel Program to determine compliance with and effectiveness of the program. This will be a paperwork review.

## **8. RESOURCES**

8.1 American Society of Mechanical Engineers (ASME), Boiler and Pressure Vessel Code (BPVC); Sections I, IV, VI, VII, X, XII, CSD-1 and PCC-2.

8.2 FM Global Data Sheet DS 12-1

8.3 OSHA STD 01-10-001



## PRESSURE VESSELS

### APPENDIX A

1. A department, laboratory, principal investigator or facility may identify a need for, or a desire to obtain a pressure vessel, or may find one in a space. Should that occur, the following steps shall be taken.
  - 1.1 Finding a pressure vessel.
    - 1.1.1 Contact the Maintenance Department to ensure that the pressure vessel is listed on the Maintenance Department inventory.
    - 1.1.2 The Maintenance Department shall determine the status of the vessel and if any additional inspection or testing is warranted.
  - 1.2 Obtaining a pressure vessel.
    - 1.2.1 Pressure vessels may not be fabricated (onsite or offsite) unless the work is performed by a qualified contractor with plans properly stamped by a professional engineer licensed to practice in the State of Indiana and meeting the ASME standard requirements.
    - 1.2.2 Contact the maintenance coordinator for your building to discuss the application and obtain their input.
    - 1.2.3. Should the vessel be available for purchase from a supplier, an order shall be placed with Procurement Services. The pressure vessel shall meet the design requirements set forth by the ASME Boiler and Pressure Vessel Code (BPVC).
    - 1.2.5 Should the vessel require custom fabrication, the request shall be submitted through the University's AIM system.
    - 1.2.5 Installation of the pressure vessel shall be performed by a contractor licensed for that type of work.
    - 1.2.6 When the vessel has been installed and prior to use, the responsible party shall inform the Maintenance Department and the vessel shall be placed on the University's pressure vessel list and schedule for routine inspection.
    - 1.2.7 Approvals for the purchase of pressure vessels or the approval for the building of a pressure vessel shall be made by the Maintenance Department.

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Appendix B

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PRESSURE VESSEL PROGRAM

A. PRESSURE VESSEL COMPLIANCE CHECKLIST

- 1. This checklist shall be used for reviewing compliance with the Indiana, National and FM Global
2. Pressure vessel standards.
3. The purpose of this checklist is to ensure that all pressure vessel equipment is appropriately inspected, maintained and registered.

B. Operational Area:

\_\_\_\_\_

C. Completed by:

Date:

\_\_\_\_\_

D. Types of Pressure Vessels within the Department:

- 1. \_\_\_\_\_ Room Number: \_\_\_\_\_
2. \_\_\_\_\_ Room Number: \_\_\_\_\_
3. \_\_\_\_\_ Room Number: \_\_\_\_\_
4. \_\_\_\_\_ Room Number: \_\_\_\_\_

If the answer to any of the following questions is "NO" please contact Facilities Design and Operations (FDO).

F. Applicable Standards:

- 1. Have all pressure vessels used within the department been affixed with the boiler ID plate and certification YES \_\_\_ NO \_\_\_
2. Have all pressure vessels been added to the pressure vessel data system maintained by FDO YES \_\_\_ NO \_\_\_
3. Have all pressure vessels that require registration been registered prior to use YES \_\_\_ NO \_\_\_
4. Have all alterations to the design of individual pressure vessels been approved by FDO YES \_\_\_ NO \_\_\_
5. Has FDO been notified of pressure vessels that have been removed from service YES \_\_\_ NO \_\_\_
6. Are pressure vessel records current (registrations, inspection schedules, maintenance) YES \_\_\_ NO \_\_\_

G. Additional Comments:

\*Upon Completion Please forward to FDO Maintenance

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