Regulations PS 48.0 – Pressure Testing Facility

PCFC- Entity (Business Unit) Name	:	Trakhees – Ports, Customs & Free Zone Corporation
Department Name	:	Civil Engineering Department (CED)
Section Name	:	Permits Section (Facilities)
Document Reference Number	:	PCFC-TRK-CED-PS-REG-48
Revision Number	:	01
Revision Date	:	December 2014
Classification	:	Public

info@pcfc.ae P.O. Box 2001, Dubai, U.A.E. | ص.ب. 2001، دبي، الإمارات العربية المتحدة Call Center مركز الاتصال 800 990
@pcfc_dubai | www.pcfc.ae

Regulation PS-48.0: Pressure Testing Facility

48.1 Aim/Scope:

The below Regulation requirements are to be followed while installing Pressure Testing Bay/Cell within the PCFC Jurisdiction area.

48.2 Bay Design introduction

a) The minimum length of the pressure test bay must be based on the consideration of the maximum length of the tool to be tested.

b) The minimum width of the bay should be sufficient for the Forklift movement for equipment handling. If the facility has an overhead crane, then the width can be considerably designed based on the equipment details.

48.3 Construction

a) The concrete walls and floor thickness shall be designed as per test pressure.

b) Internal side of the wall should be lined with energy absorbing material such as wood or compressed wood fiber panels.

c) The floor should be with proper drainage arrangements and with adequate slope for easy disposal of spilled fluids, floor must be covered with non-slippery material.

d) Proper anchor arrangement should be provided for blind flanges, vices and the stands have to be provided during testing process.

48.4 Sump

Sump should be provided to drain all testing fluid and the fluid should be recycled for reuse.

48.5 Doors

a) Doors size should be suitable to allow forklift to bring the test piece in facility or the overhead crane to access the test facility area

info@pcfc.ae P.O. Box 2001, Dubai, U.A.E. | ص.ب. 2001، دبي، الإمارات العربية المتحدة Call Center مركز الاتصال 800 990
@pcfc_dubai | www.pcfc.ae

b) It must be interlocked with the pressure bleeding pump, i.e. the door should not be opened until the whole pressure in test piece should reach atmospheric pressure

c) Beacon lamp should be provided at visible location, it should glow when the doors are in lock condition.

48.6 Window and Inspection Hatches

Windows in the enclosure should normally be avoided and closed circuit television to be used instead. If a window is installed, bullet proof glasses should be provided to view test piece directly through window or inspection hatches

48.7 Pressure Unit

- High pressure pump and fittings must be located inside the Pressure testing bay
- Control panel must be outside the safety enclosure but nearer to the viewing hatch or CCTV monitor, the arrangement can be like control room
- Control panels typically will carry Pump controls, pressure gauges, pressure recorder monitoring the test pressure, indicators and safety devices
- All pressure sensors should be electronic.
- High pressure fittings are not allowed outside the safety enclosure.
- Pressure pump, fittings and all auxiliaries rating must be higher than the testing pressure, which is the maximum pressure testing going to be conducted in the pressure testing facility
- Use control valves or needle valves in the flow line to the item being tested so that rate of pressure increase during the test can be kept low, In addition items being tested should never be subjected to the sudden pressure shocks which can result from the use of ball and similar wide opening valves.

info@pcfc.ae P.O. Box 2001, Dubai, U.A.E. | ص.ب. 2001، دبي، الإمارات العربية المتحدة Call Center مركز الاتصال 800 990
@pcfc_dubai | www.pcfc.ae

48.8 Cameras

a) Minimum of two cameras should be provided to monitor the ongoing pressure testing activity.

b) One camera must be focusing the whole bay towards the testing activity and second camera to monitor the door and the remaining fittings

c) Cameras can be fixed on the vertical walls, it should be having the capacity of moving up, down, zoom in and out, optionally torching the area if required and right and left movement

48.8 Fitting and Lines

The Working Pressure of all fittings and lines in the test bay must be equal to or higher than the highest pressure pump in the system. Therefore, the test bay's permanent equipment must have connections rated for the highest test pressure with a 1.5 Safety Factor hence the permanent equipment requires premium type fittings (e.g., Autoclave fittings).

48.8 Test Fixtures, Caps and Test Plugs

a) All test fixtures, caps and test plugs should be used only in the pressure test bay and must be clearly marked with the following:

- Working Pressure
- Maximum Test Pressure
- Local identification number
- FOR SHOP USE ONLY – not for offshore / rig location use

b) Adapters, blanking plugs and test plugs must have full traceability and must have a working pressure rating greater than or equal to the working pressure of the equipment to be tested. A full list of test fixtures referenced with individual identification number and ratings must be kept next to the pressure bay control panel.

info@pcfc.ae P.O. Box 2001, Dubai, U.A.E. | ص.ب. 2001، دبي، الإمارات العربية المتحدة Call Center 800 990 مركز الاتصال
@pcfc_dubai | www.pcfc.ae

c) All test fixtures, caps and test plugs must be certified at a minimum frequency of 1 year or according to the manufacture's specifications, whichever is lower. Visual inspection should be performed before and after each test for any signs of damage on the body or the threads.

48.9 Gauges and Recorders

Gauges used on the test unit control panel must have a range such that routine measurements are performed in the 25 percent to 75 percent full-scale range. Accuracy and resolution should be at least 0.5 percent of full scale. Gauges and recorders must be calibrated at regular intervals according to the manufacturers' specifications. All gauges and recorders must be certified at a minimum frequency of 1 year or per the manufacture's specifications, whichever is less.

48.10 Quality Files required to be maintained

Test Bay

- Manufacturer's bulletins for all test equipment
- A list of all test fixtures and adapters with their pressure ratings
- Certification and traceability documents for all the test bay pressure equipment as required
- Calibration certificates for the pressure gauges
- A schematic drawing of the pressure bay setup and of the safety interlocks
- Detailed test procedures and safety instructions.

Testing Equipment's

- Last test pressure and date
- Company performing third party testing
- Date of recertification

info@pcfc.ae P.O. Box 2001, Dubai, U.A.E. | ص.ب. 2001، دبي، الإمارات العربية المتحدة Call Center مركز الاتصال 800 990
@pcfc_dubai | www.pcfc.ae

Hazard Assessment

All pressure testing must be subjected to a thorough hazard assessment

Conduct of Test

Detailed step-by-step instructions for conducting test should be available in the written test procedure. The person conducting the test should read through these prior to start-up of the test to ensure the implementation.

Inspection

After each pressure test, the temporary fitting must be examined visually for damage and if found damaged, the fitting must be discarded.

info@pcfc.ae P.O. Box 2001, Dubai, U.A.E. | ص.ب. 2001، دبي، الإمارات العربية المتحدة Call Center مركز الاتصال 800 990
@pcfc_dubai | www.pcfc.ae