

UTILITIES PROCEDURE NO. 600-15

UTILITIES DEPARTMENT
NAVY PUBLIC WORKS CENTER
SAN DIEGO, CA 92136-5294

TITLE: Two Valve Protection

Ref: (a) NAVSHIPSTECMANUAL 505.8.2.1

PURPOSE. To provide an optimum level of protection to our employees while maintaining, repairing and/or testing our steam systems.

SCOPE. This SOP applies to all Utility steam systems where the temperature of the fluid, or gas, exceeds 200 degrees Fahrenheit.

ACTION. CODE 200 Personnel

DEFINITION. Pressure Barrier - Closed valve, Blank Union, or Blank Flange capable of withstanding system pressure and temperature during performance of the maintenance evolution.

BACKGROUND. A Pressure Barrier prevents the escape of a pressurized or heated fluid or gas from a system, or part of a system to an adjacent part. Pressure Barriers are necessary when conducting maintenance on piping systems so as not to endanger personnel or equipment. These include injury due to high temperature, displacement of breathable air, projectiles from pressurized systems, wetting of electrical equipment, or unintentional venting or draining of adjacent systems.

Working on High Temperature Hot Water and Steam Systems are inherently dangerous as both can and will provide a continuous pressure source when released. This SOP is closely aligned with NSTM 505 (reference a), which provides guidance for shipboard steam systems.

PROCEDURE.

1. When opening up a pressurized or operating system for maintenance or repair, there shall be at least two pressure barriers between the maintenance area and any high temperature fluid or gas (200 degrees F or more) prior to beginning work. In areas where installed, open a tell-tale drain valve to warn if one barrier is leaking.

2. It is preferable to have valves accomplish the two pressure barrier protection. If using two valves is not feasible, using a properly rated blank flange in addition to one valve is

acceptable. Note** Employees installing the blank flange must be protected with two Pressure barrier protection. Any time two pressure barrier protection cannot be achieved, the system must be shut down and depressurized, and the system locked and tagged out before work can begin.

3. If two valve protection (or one valve and a blank flange) is not possible due to system design or operational necessity, the Commanding Officer, or a designated representative shall determine the need for urgent repairs using single valve protection.

4. In cases where the liquid is less than 200 degess F and the system is at atmospheric pressure, a pressure barrier is not required, provided the work will be performed above the level of liquid in the system. Pressure Barriers shall be installed, however, if the work will be performed below the level of liquid in the system.

5. A potential danger in system repair or maintenance lies in inadvertent or accidental operation of the isolation valves. Tag and lock out all valves, any remote actuators, and blank flanges, to prevent inadvertent operation. The system configuration, including confirmation of all locks and tags, shall be verified by the project leader or Code supervisor prior to beginning work on any project where our employees are protected from an operating steam or condensate system by two pressure barriers (valves).

Approved: _____ Date: _____
DAVID P. TYER
Utilities Department Head