Manual Section 7	Issue Date 02/06/12	Revision Date 01/01/24	Policy Number LLCP-121
	Working on Pressurized Systems		

Purpose

The purpose of this document is to provide the requirements and procedures to follow when working on pressurized systems and piping.

Scope

All LLC Companies including, Blanchard Industrial, LLC, GIS Engineering, LLC, Grand Isle Shipyard, Inc., and GWIS, Mack Steel, NuWave, Sun Industries, Valvemax, Discovery Industries, Inc.; hereafter identified as "Company".

I. Responsibility

A. Person in Charge (PIC) or Supervisor shall:

1. Ensure that all aspects of the Company's LIFE process is performed prior to:
   a) Manual blow down-operation
   b) Hot bolting
2. Ensure necessary precautions are taken when personnel are working on pressurized systems and piping.

B. Employee and Contract Personnel shall:

1. Prepare and review LAW and JSEA prior to any manual blow-down operation.
2. Ensure every person involved in the manual blow-down operation understands the hazards and precautions identified in the JSEA.

II. Requirements / Procedures for Bleeders and Blow-down

A. Personnel Precautions

1. Do not stand in front of a bleeder or gas stream.
2. Do not place hands in these streams to test for fluid and other material.
   CAUTION: Pressure as low as 30 psi can inject air and fluids through the skin into the body. Sand and other particles may be injected at even lower pressures.
3. Do not use glass containers unless collecting a sample from an atmospheric vessel; such as a produced water sample.

B. Preparing Bleeder Lines

1. When preparing or constructing any bleeder lines the type and pressure of the material to be discharged shall be known. This information is critical to determine:
   a) What material and size of bleeder line to use.
   b) The acceptable point to discharge the material.

2. All bleeder lines shall be:
   a) Connected into any existing vent or flare system, if the systems are designed to accept expected discharges.
   b) Constructed with as few bends as possible.

c) Equipped with adequate tie-downs to prevent vertical or lateral movement.
d) Vented to the outside of any building
e) Take into account wind conditions, topography, and other local factors
f) Extended a safe distance from any possible ignition source.
g) Free of "L's", "T's" or other restrictions installed at the end of a bleeder lines:
   (1) Directed toward the working level of an emergency burning pit, tank, or vessel. Instead, the line should gradually dip at the end.
   (2) Installed at the ends of bleeder lines for gas-lift manifolds, pressure vessels, or any other installations that require the relief of water, steam, gas or air pressure.
   (3) When a fitting is needed for a vertical discharge, avoid using a downward-facing "L" without tie-downs.
   (4) If fluids potentially contain sand, bull plug tees should be used as turns instead of "L's" to reduce erosion potential.

3. Verify any permit limitations prior to discharging any material.

C. Atmospheric Releases

1. When it is necessary to release gas into the atmosphere, extreme caution should be taken to ensure there is no source of ignition nearby.
2. Weather conditions should be considered when blowing wells or lines into the atmosphere. A hazardous condition may exist if the wind is not strong enough to carry away material blown into the atmosphere.

D. Bleeding Pressure

1. A means of bleeding pressure from all wellheads, lines, and vessels must be provided.
2. When relieving pressures and / or blowing down lines, precaution should be taken against the release of sand or line scale.
3. The tubing must be made structurally sound and firmly secured the entire length of the run to prevent whipping or unscrewing when pressure is applied.
4. Never unscrew a connection to bleed off pressure through the threads.
   EXCEPTION: Plugs and gauges ¾" or smaller that are threaded directly into a valve. Care must be taken to ensure that the pressure has been released before the last thread has been turned out.
5. If a valve is frozen closed:
   a) Install a second valve before attempting to open the primary valve, if possible, and
   b) Use the secondary valve to control flow and to avoid cutting.

E. Before Repair Operations Begin

1. Sufficient time should be allowed for thawing out ice plugs which may have formed in the line
2. A test flow or other suitable means must be used to ensure that no plug is in the line.

F. If Freezing Occurs

1. When gas manifolds are frozen or a gas line develops an ice plug:
   a) Bleed off the upstream pressure until it is the same as the downstream pressure, and, if possible,
   b) Simultaneously reduce both pressures until each reaches atmospheric pressure.
2. If working alone, reduce pressures alternately on each side of the plug until both sides reach atmospheric pressure.
   NOTE: Check with supervisor for recommended procedures.
3. A block valve followed by a suitable smaller valve should be installed on a bleeder line from high-pressure drips and vessels where freezing can occur.
   NOTE: When installing these valves, thermal expansion needs to be considered.
4. The table below describes how to open and close bleeder line valves where freezing can occur.

IF YOU NEED TO …	THEN …
Blow down the drip or vessel	Fully open the block valve, and Use the smaller valve as control.
Shut off a bleeder line	Close the smaller valve, first, and then Close the block valve.

III. Requirements / Procedures for Working under Pressure

A. General

1. Working on equipment or lines under pressure should be avoided if practical.
2. If possible, all pressure should be removed from vessels, pumps, lines and other equipment before repair work is begun.

B. Working under Pressure Exceeding 5 psig

1. Pressure must be verified before work is begun on lines, fittings, pipe connections or unions.
2. Unless it has been verified that pressure is less than 5 psig, lines, fittings, pipe connections or unions must not be hammered, pounded, tightened or loosened.
3. If the pressure cannot be removed, the following operations are acceptable:
   a) Removal of plugs and gauges ¾” or smaller that are threaded directly into a valve. Ensure pressure has been released before the last thread has been turned out.

b) Hot bolting
c) Emergency line repairs utilizing clamps
d) Replacement of pump, valve or stuffing box packing
e) Tightening tank bolts
f) Maintenance procedures on valves and other equipment that is performed in a manner prescribed by manufacturer's guidelines.

C. Hot Bolting

1. Hot bolting refers to the replacement of any bolt and nut set in a flanged connection, one at a time, while the line is in service or under pressure.
2. Hot bolting shall not be performed on flanged connections with less than 6 bolts. (For further direction, refer to the Company's Hot Bolting policy)

D. Tightening Bolts under Pressure

1. Every effort shall be taken to bleed off pressure before tightening bolts under pressure.
2. If this cannot be done then proper planning must be done to ensure that all precautions are taken, including but not limited to:
   a) preparation of a JSEA
   b) discussing the proper steps with the Supervisor
   c) use of best practices, such as the use of a torque wrench when practical