

E&B OILFIELD SERVICES INC.

DATE: 5/11/15

EXPIRES: Indefinite



PRESSURE TEST PROCEDURES

This document provides basic safety guidelines for the safety of all personnel and the general public during pressure (e.g., hydrostatic, pneumatic) testing operations. Plan and implement each pressure-testing event in a manner that mitigates unnecessary exposure to procedural hazards. All pressure tests must be conducted with due regard for the safety of life and property. All personnel have, and should use, "Stop Work" authority whenever there is concern for safety during pressure testing operations.

HAZARD ASSESSMENT

Hazard assessments are performed to identify and mitigate perceived and actual environmental and operational hazards. A Job or Test Plan, including procedures and controls related to safety, is prepared prior to conducting pressure testing.

Provide for and require that signs, barricades or other protective barriers are placed in a manner and at a distance sufficient to demarcate a safe zone to protect personnel and the public from unanticipated pressure release or equipment failure. Keep unauthorized personnel out of the test area.

HAZARD MITIGATION

Suspend a test when the testing personnel (including but not limited to: contractor, contractor's agents) or equipment are not working in a safe manner.

Consider the forces that would be present if any portion of the system failed while filling, under test, depressurizing or dewatering. Also consider potential for water hammer, potential for leakage of isolation valves, variable system pressures, potential for fill and dewatering pig velocity changes and other site specific conditions.

When performing pneumatic tests, the piping shall be inspected to determine if the inside surfaces are contaminated with a combustible or flammable material (e.g., iron oxide, condensate). If found, remove such materials prior to air testing.

Never tamper with or tighten any fittings (i.e., connections, bolts, hoses) while component is under any pressure. Never tighten connections that are under pressure. If a leak develops, you must depressurize to a safe level and then re-tighten.

The pressure recorders and deadweight gauge shall be located at a safe distance least 100 feet from the facility being tested.

Verify that test equipment and materials are rated to withstand the test pressures. Verify that all supply lines and hose connections are secure with retaining devices before and during the test. Visually inspect and ensure soundness and proper installation and valve positioning of all equipment used.

Safety equipment and supplies should be readily available and should include, but are not limited to:

- Emergency spill kit
- Drip pans
- Whip checks
- Warning signs and barricades

Precautions should be taken to see that persons not directly engaged in the testing operations remain out of the test area during the test period. A minimum distance of 100 feet shall be maintained between facilities that are being tested and the personnel conducting the test. The safe distance may be increased and the temperature probe, manifold and recorders may have to be set back further than 100 feet due to potential projectiles or extreme volume/pressure. Restrict access to the immediate area involving the pressure test (i.e., test shelter, manifolds, pressure pumps, instruments, etc.) to only those persons actively engaged in the testing operation.

Prior to commencing hydrostatic testing operations, the Company Representative and /or Contractor shall inspect test heads to confirm all components are in good condition and meet working pressure requirements. This will include an inspection and test of heads / manifolds to ensure that no components (e.g., gaskets, o-rings, fittings, valves) will leak or cause loss of test water and that the components conform to specified safety requirements.

Depressurizing / Dewatering

- All temporary fill and dewater piping should be connected with welded/screwed joints.
- Verify the length and integrity of welded/screwed connections prior to depressurizing.
- Properly de-pressurize connecting lines before attempting to seal or break joint components.
- When bleeding the pressure from a section of the line, use extreme caution, especially when deflectors are used. Slowly bleed pressure following a test.
- Confirm that the diversion of water and/or gas will follow a safe pathway (e.g., use of 90° or 45° angles).
- Always verify that complete depressurization has occurred through the use of pressure gauges and visible checks.
- The atmosphere shall be monitored for safety during any blow down, bleed off or depressurization.
- During the initial planning stage of a de-watering operation, an analysis of the existing and temporary piping system should be performed to identify the pressure associated with fluids and other forces that could adversely affect the integrity of the pipeline or the stability of the drainage and its components.
- Securely support and tie down dewatering lines at the discharge end to prevent uncontrolled movement during dewatering.

Once the test is complete

- Remove tools and equipment
- Report Pass or Failure to construction crew
- Download data from gauges
- Report or retain results as required
- Notify all personnel that the area is all clear.

When working around others, always ensure that clear communication is used via radio or telephone, or in person. **Never take any action** without alerting others, as such could result in serious harm or accident. Always work in a calm orderly fashion as to not create an unsafe environment. Be conscious of your surroundings and use your **STOP WORK AUTHORITY** when necessary.

I _____ have read and understand the **E&B PRESSURE TEST Procedures**

Updated: May 11, 2015.

I understand that I am required to follow these procedures. I also understand that my failure to do so may result in disciplinary action, termination and or increased personal liability.

Employee Signature

Date

Supervisor Signature

Date