



# TUBE FATIGUE SIMULATION FACILITY

## LABORATORY INFORMATION FACT SHEET

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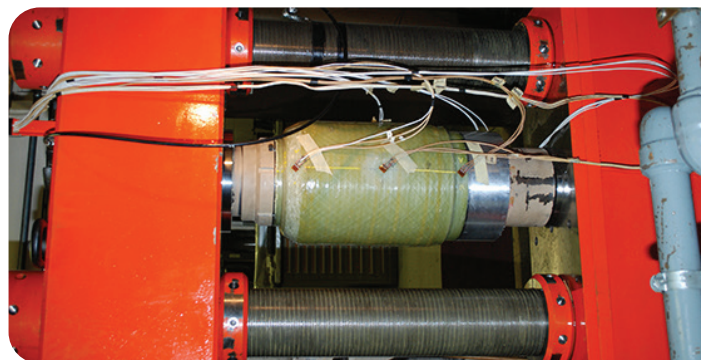
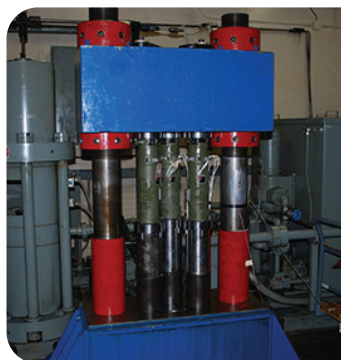


*Benét Laboratories' Tube Fatigue Laboratory provides a unique capability to facilitate constant amplitude cyclic hydraulic fatigue testing on cannon and artillery to establish their Safe Service Lives.*

### TECHNOLOGY/FACILITY DESCRIPTION:

The Lab has three independent hydraulic testing cells which can accommodate test specimens up to 5' in length and 1-1/2' in width. The armament of choice can be tested in any one of the three test cells depending upon assigned test

pressure. Given the test parameters, up to six mortar tube test specimens can be tested simultaneously. The results of the fatigue tests are evaluated from which an assigned Interim or Final Safe Service Life is determined in accordance with the International Test and Operation Procedure (ITOP 3-2-829). Broad maximum testing pressure capability range from 3,000 psi to 125,000 psi while safely containing up to 4.5 million pounds of force. Other components fatigue and/or burst tested in this facility include composite lined recoilless rifles, trunnion bearings and aircraft bearings. Composite and steel bore evacuator canisters have been pressure tested prior to field use.



### EQUIPMENT AND EXPERTISE AVAILABLE:

- Cell #1 - 3 million pound capacity end load fixed frame rigid press with a 120 ksi Single Acting (SA)-20" diameter intensification hydraulic power system
- Cell #2 - 2 million pound capacity adjustable load frame press with an 80 ksi/100 ksi SA-15 intensification hydraulic power system
- Cell #3 - 4.5 million pound capacity press with a built in computer operated/controlled intensifying ram capable of reaching 125 ksi test pressure
- Splitting Press houses a 50-ton jack to open and reveal fracture surfaces for post mortem study
- Any type of High Pressure Testing
- Burst Testing
- Constant Amplitude Fatigue Testing
- Pressure and Strain Gage Monitoring, Storage, and Data Reduction
- Non Destructive Testing including Ultrasonics and Magnetic Particle