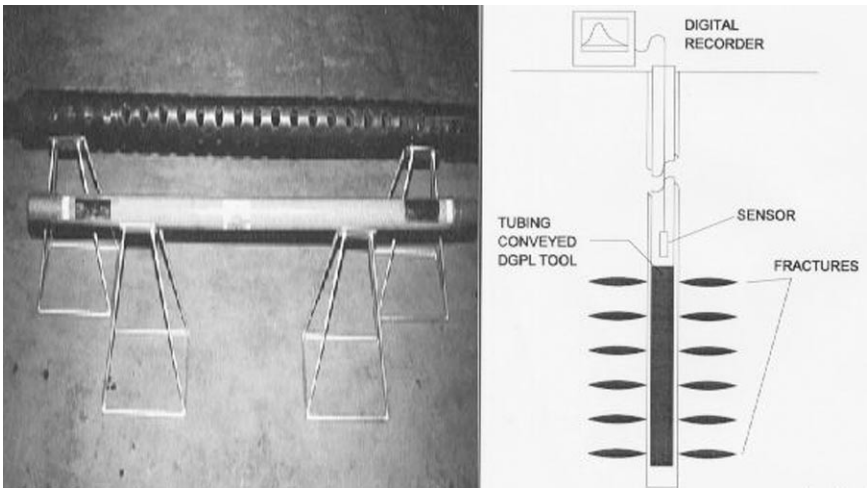
# Dynamic Gas Pulse Loading System

## Improved Instrumentation Allows Gas and Oil Wells to Flow Again

Hydraulic fracturing and acidizing are the principal methods used to extend the apparent radius of a wellbore, thereby increasing oil flow. However, these methods can cause problems if the fractures extend more vertically than horizontally. The oil flow can even diminish if thief zones or fluid-sensitive formations are penetrated by these hydraulic treatments. An alternate approach to these conventional well stimulations is the dynamic method of gas injection, which circumvents the problems inherent with liquid treatments. In contrast with hydraulic facturing and acidizing, the Dynamic Gas Pulse Loading® (DGPL®) system generates high-pressure gasses, which induce and propagate multiple fractures in the target zone in very short time frames. With the aid of a grant from the Department of Energy's Inventions and Innovation Program, Servo-Dynamics, Inc., developed DGPL as a well stimulation technology that uses propellant gas generators to create and extend multiple fractures.

The DGPL system uses mechanical pressure gauges to monitor the fracture response of the formation. Time-dependent pressure recording provides a more detailed picture of the fracture process. The DGPL system is lowered into a well on an electric wireline or by a modified tubing conveyance. The DGPL process employs a downhole pressure sensor connected by wireline to a digital recorder system at the surface. This system provides instant access to the data and does not risk damage to the digital recorder.

The basic DGPL system has proven to be more cost effective than other stimulation methods. In addition, DGPL has unique capabilities for fracturing fluid sensitive and other difficult formations. The instrumentation provides additional information about the details of the fracture process that can be helpful when applying DGPL to a new type of formation.




*DGPL Equipment and Schematic*

## Overview

- Developed and marketed by Servo-Dynamics, Inc.
- Looking to license the product to a larger worldwide organization

## Applications

- Preconditioning of wellbores for subsequent treatments
- Remedial treatments for improving injection profile and reducing injection pressure
- Secondary stimulation in wells that must be completed by hydraulic fracturing
- Primary stimulation in wells in highly porous and permeable conventional reservoirs damaged beyond perforating
- Horizontal and vertical wellbores

## Capabilities

- Fractures fluid-sensitive formations and other difficult completions.
- Provides details of the fracture process that can be helpful for a new type of formation.

## Benefits

- Produces multiple fractures radiating in all directions from the wellbore in short time frames.
- Costs less and is more effective than liquid treatments.
- Eliminates the need for heavy trucks, pumping equipment, or stored liquids on the surface.

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