

'Slow & Easy' Stimulation Process for Enhanced Production from Unconventional Resources

Terralog Technologies Inc.™ offers a unique, cost effective & sustainable stimulation process for unconventional resources including shale play exploitation.

Terralog Technologies Inc. (TTI) has developed and pioneered the use of an innovative hydraulic stimulation technique, called the **'Slow & Easy'** process. The **'Slow & Easy'** process is an alternative stimulation method for unconventional and shale resource development.

TTI's Slow & Easy Stimulation Process

The **'Slow & Easy'** process is ideal for shale reservoirs and other unconventional plays such as tight sand and conglomeratic reservoirs. This stimulation process uses continuous-cyclic injection, lower rates and net pressures to develop complex formation yielding. The result is optimized

SRV development in low permeability and naturally fractured reservoirs. The premise is that these low-permeability and stiff formations can be successfully stimulated by enhancing the conductivity of the reservoir's natural fracture system.

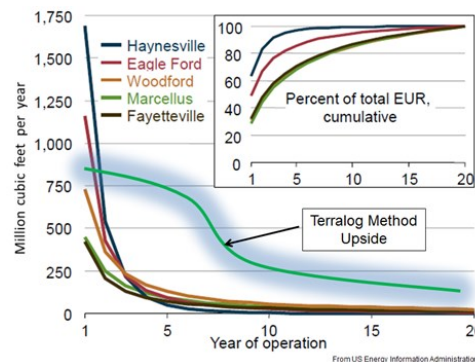
The Slow & Easy process is ideal for re-fracturing and/or initial stimulation applications at a lower cost; and with significantly improved operational and economic efficiencies for sustainable unconventional resource development. This process also mitigates many of the environmental impacts associated with current development strategies used for unconventional resources.

Slow & Easy Objectives:

- ✓ Use longer-term, cyclic, lower injection rates for development of complex geomechanic mechanisms.
- ✓ Enhancement of the natural fracture network system in unconventional plays, which is a key element to improved and sustained production.
- ✓ Achieve more stable & sustainable production rates over the life of the well.
- ✓ Optimized Stimulated Reservoir Volume (SRV), leading to increased Estimated Ultimate Recovery (EUR).
- ✓ Mitigation of environmental impacts related to large scale multi-stage hydraulic fracturing (MSHF) for unconventional/shale resource development.

Slow & Easy Advantages:

- ✓ **Significantly reduced stimulation & completion costs:**
 - Less field equipment/personnel mobilized to location (reduced traffic, equipment footprint, and noise);
 - Reduced usage of proppant and chemicals during stimulation.
- ✓ **Optimized field development with increased well spacing.**
- ✓ **Reduced environmental risks (improved wellbore integrity, reduced risk of induced seismicity, etc).**
- ✓ **Ideally suited for re-frac operations:**
 - Nature of treatment makes it less dependent on design of original well completion;
 - Provides a cost effective alternative for conducting re-fracs.
- ✓ **Improved water management:**
 - The process does not require fresh water;
 - Produced water/flow-back water can be used as the stimulation fluid (with minimal or no pre-treatment);
 - Reduced post-treatment flow-back water volumes (vs other stimulation techniques).
- ✓ **Unique opportunity to integrate re-frac stimulation operations with water management.**
- ✓ **Asset protection - reduced risk and intensity of frac hits/well interference.**



How Is The Terralog 'Slow & Easy' Process Different?

- Slow & Easy process utilizes low injection rates, continuous-cyclic injection for conductivity enhancement of the natural fracture system.
- Complex geomechanic mechanisms improve and enhance overall SRV.
- SRV occurs expansively from the well into the reservoir.
- Increased well spacing due to increased SRV.
- Slow & Easy is an innovative stimulation process for shale resource development. **Benefits include:**
 - ✓ **Reduced stimulation & completion costs**
 - ✓ **Reduced environmental impact from field development operations.**
 - ✓ **Improved water management.**
 - ✓ **Reduced induced seismicity.**
 - ✓ **Reduced risk of 'frac hits'.**

Slow & Easy Applications:

- Shale resource development.
- Stimulation of low permeability, stiff reservoirs.
- Ideal for re-fracturing of wells.
- **Optimized water management:**
 - ✓ Re-use of flow-back wastewater/produced water.
 - ✓ Allows for integrated water disposal-refrac operations.

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