LATERAL
COMPLETIONS

“DissolvaPerf – Stage 1 Cluster Initiation System for Horizontal Fracturing Operations”

Corporate Overview

- Founded in 2017 to develop Dissolvable Tools and innovations
- 90+years experience in downhole tools, completions, & optimization
- 50+ years machining & manufacturing
- Multiple Patents
- Full-service R&D company with in-house machining & testing.
  - Completions: Dissolvable Products, composite frac plugs, Toe initiation systems.
  - Optimization: 5 & 10K wellhead lubricators & accessories

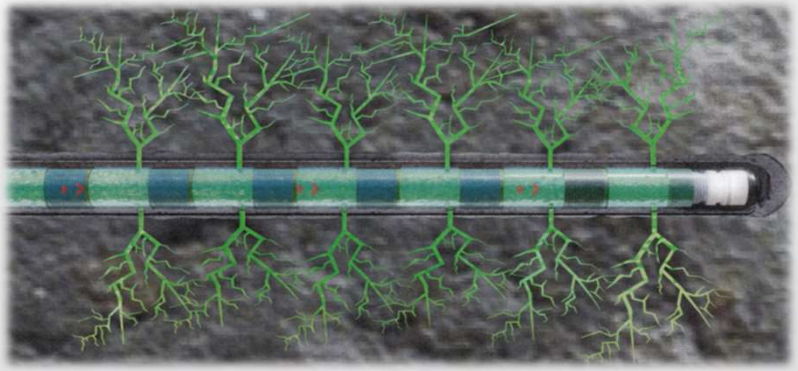
Wellbore design – Extended Reach Horizontals

Why Dissolva-Perf.....

- Wellbore design (Extended reach Horizontal, Mono-bore and Frac technology) have developed past the functional capability of both Wireline and Coil tubing operations
- First stage communication with formation must be 100% reliable in activation
  - Reduce Risk when gaining formation access to the first stage
- Eliminate ballistic perforating where possible
- Reduce costs to initiate wellbore/formation access
- Improve HSE through CO2 reductions, water consumption, & decreased wellhead exposure hours for personnel

= over 1500 Pre-perforated dissolvable

casing subs installed to date



Dissolva-Perf – Design & Installation

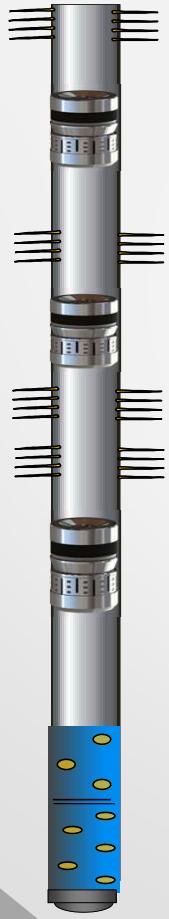
Sub Design

- Customizable to fit any application:
  - Any size tubing or casing.
  - Any configuration of phasing, or # of holes to simulate ballistic perforating. (capable of 24spf vs. 6spf ballistic perforating)
  - Threaded to match casing or tubing – No crossovers needed.
    - VAM, Tenaris, Hunting, GBCD, DWC, BTC, LTC, etc.
- Full drift ID to parent casing
- Customized dissolve times in 12hrs to 20 days
- Pressure tested in shop before deployment

Operations

- Dissolution time is determined by:
  - Pressure / Temperature / Salinity
- Installed between casing joints on the drilling rig
- Casing floatation system compatible.
- Creates first-point access to formation in HZ wellbores
- Eliminate the requirement of toe ports (mechanical/burst)

DISSOLVA-PERF – DEPLOYMENT METHODS

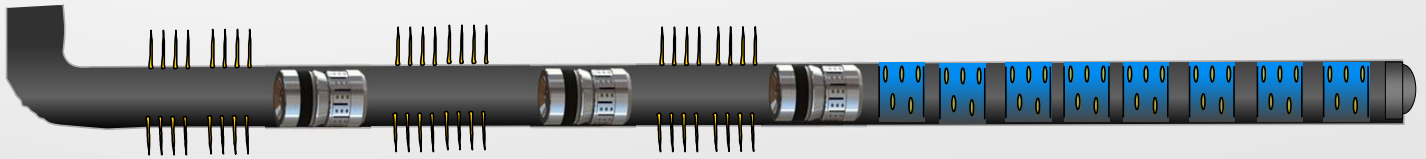


VERTICAL WELLS

- FIRST ZONE DISSOLVAPERF
- UPPER ZONES ISOLATED W/ REVOLUTION 2.0 DISSOLVABLE FRAC PLUGS

HORIZONTAL WELLS – STAGE #1 CLUSTER INITIATION SYSTEM

- ELIMINATE TOE PORTS
- SIMULATE FIRST STAGE CLUSTER PERFORATIONS



Dissolva-Perf – What it brings to your operations

Cost Savings:

- Eliminate Pre-Pad preparation operations
  - Eliminate first stage ballistic perforating and all associated costs with explosives.
  - Eliminate first stage prep operations,
    - ie:'Plug n Perf' applications before frac crew arrives.
- Decrease overall completion time.
- No remedial perforating by coiled tubing or Wireline tractor required -- mechanical toe port failures.

Mitigation of risk:

- Failed Mechanical Toe initiation systems
- Gun string issues
- Human error

Benefits:

- Fully pressure testable to MACP.
- Full drift ID.
- Perform cementing operations at higher pressures due to no pressure activated downhole tools in BHA.
- Decreased erosion vs. conventional perforations.
- Uniform entry hole size reduces erosion.
- Complete extended reach laterals with increased efficiency

HSE:

- Reduced risks associated with the movement of explosives
- Reduced water consumption.
- CO2 reduction due to decreased equipment onsite to initiate first stage
- Complete extended reach laterals with increased efficiency

DISSOLVA-PERF - BENEFITS

	Dissolva-Perf	Conventional Perforating	Burst Port/ Mechanical Sleeve
Create Cluster or Limited Entry scenarios with full access to formation	✓	✓	✗
Increase Shot Density (Tighter entry hole spacing vs. perforating)	✓	✗	✗
Eliminate Pad Preparation Days Full First stage access --- Ready-To-Go	✓	✗	✗
Full formation access through all ports w/ consistent/uniform entry hole size	✓	✗	✗
Allow for MACP test to be performed, open at lower pressure	✓	✓	✗
Reduced Water Consumption	✓	✗	✗
No escort, mobilization, of explosives	✓	✗	✓
Disruptive Technology with growth potential	✓	✗	✗
Compatible with casing floatation options	✓	✓	✓

Dissolva-Perf – Proven Success

- ~1700 subs deployed to date.
- +22,000m^3 (138,000bbls) Estimated water savings
- Zero failures during deployment & cementing
- 100% successful dissolving to full opening
- 100% frac stage placement
- 99% accuracy on calculated dissolve time

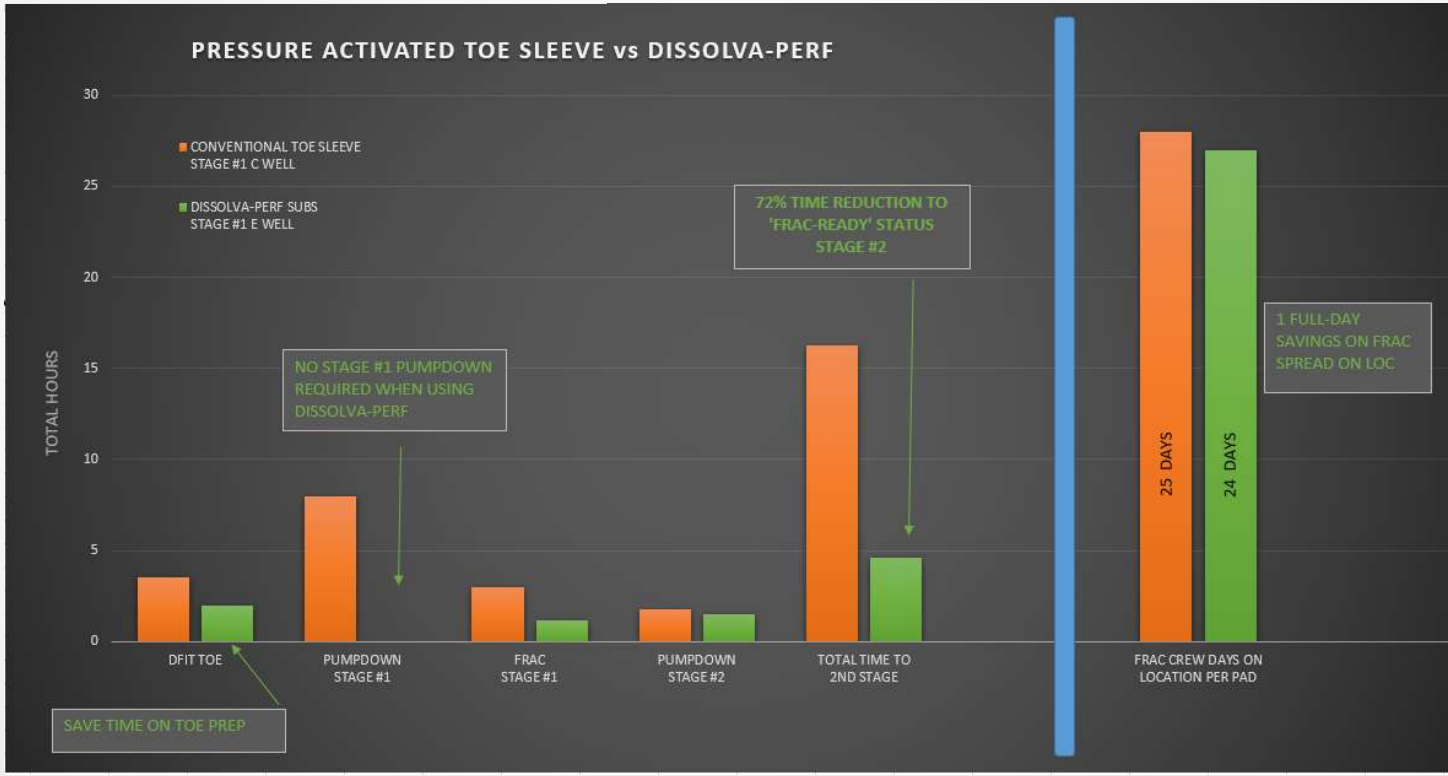
COST SAVINGS COMPARISON IN PNP OPERATIONS

		Methods of Toe Initiation & First Stage Completion				
Equipment	**Per**	**Toe Prep w/ Coiled Tubing**	**Hydraulic Toe Port & Pump down 1st stage**	**Burst Port & Pump Down first stage**	**Toe Prep w/ Wireline Tractor**	**Dissolva-Perf Run as first stage**
Pump Truck	/well					
Perforating charge	/well					
Explosive handling & transportation	/well					
Crane Unit to hold wireline lube	/well					
Wireline Tractor Unit	/well					
Lease Operation Costs during toe initiation	/hr					
Coiled Tubing Unit	/well					
Mechanical Sleeve toe ports	/ea					
Burst Toe port	/ea					
Fluid costs for pumpdown	/ea					
Intervention Cost due to primary Completion Method Failure						
DissolvaPerf First Stage Initiation System	/ea					
Total Cost of Operation		$ -	$ -	$ -	$ -	$ -
Risk Matrix						
Mechanical Failure of Toe Port			3	3		1
Premature opening during cementing			3	3		1
Multi-Cluster, first stage entry points		2	3	3	2	1
Reduction in total days on site		3	2	2	3	1
Overall time to Production		3	2	2	3	1
Wellhead Exposure Hours (HSE)		3	2	2	3	1
Stuck in hole, lost equipment/tools		3	2	2	3	1
Overall Cost of Completion		3	2	2	3	1
SCORE		**17**	**19**	**19**	**17**	**8**

CASE STUDY 1: COST & TIME SAVINGS

WHAT DID OUR CLIENT SAVE ON FIRST INSTALLATION?

- ESTIMATED $200,000/ 4-WELL PAD
- 1 FULL-DAY OF FRAC OPS TIME
- 72% REDUCTION IN TIME TO REACH STAGE #2 FRAC OPS



ACHIEVEMENTS:

- NO COILED TUBING RUN TO OPEN FAILED TOE PORTS
- CLIENT PREVIOUSLY AVERAGED 1 IN 8 WELLS, THAT REQUIRED INTERVENTION ON THE TOE STAGE.
- CLIENT MOVED AWAY FROM PRE-PAD PREPARATION OF TOE STAGE ON SUBSEQUENT PADS RESULTING IN MORE SAVINGS.

CASE STUDY 2: PERFORMANCE GAINS

TEST PLAN

- 6 WELL COMPLETION PROGRAM (WELLS A-F)
- 'A-D,F' WELLS UTILIZED CONVENTIONAL PNP BALLISTIC PERFORATING METHODOLOGY FOR FIRST STAGE COMPLETION
- 'E' WELL - **5 DISSOLVA-PERF SUBS** INSTALLED SIMULATING CLIENTS REQUIRED LIMITED ENTRY SETUP.

HIGHLIGHTS

- ACHIEVED REQUIRED HOLD & DISSOLVE TIME
- FULL OPEN ACCESS OF ALL PORTS TO FORMATION
- NO RESTRICTIONS IN FLOW AREA
- HIGHER THAN AVERAGE TREATING RATE
  - (NO STRESS CAGE CREATED FROM BALLISTIC PERFORATING EVENT)
- TREATING RATE OUTPERFORMED THE PERFORATED STAGES