



**Energize the CEE Region  
Focusing Reliable Energy Security**

**Workshop**

**16-17 November 2023, Visegrád**

**Society of Petroleum Engineers**

# Novel production enhancement technique - achieving more with less



Ina Hadziavdic  
Business Development Engineer  
StimStixx Technologies Inc.



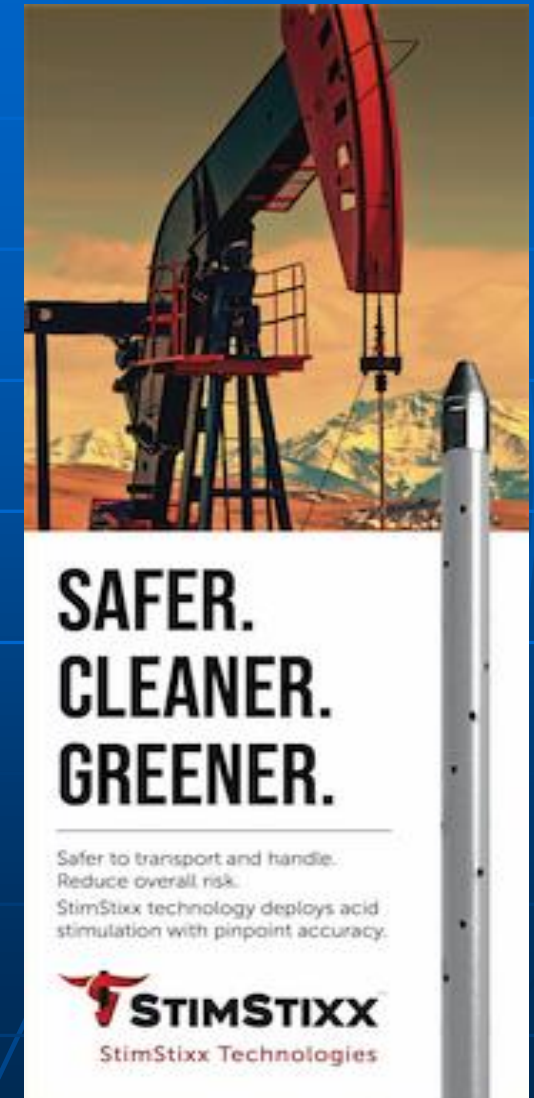
# AGENDA

- Company Profile
- Functionality of the Tool
- Tool Sizes and Types
- Stimulation Process
- Efficiency
- SPE publications and Case Histories
- Reduction of Carbon Footprint
- Applications
- Questions / Feedback



# Who are We

- StimStixx Technology Inc. is a Calgary - Canada based company, founded in 2015.
- First concept tool deployed in 2016, hundreds of successful stimulations have been performed across the globe.
- Endeavour to make a concerted change in the industry by developing and manufacturing new tools to improve the efficiency.
- Strive to dramatically reduce the Carbon Footprint.
- Minimise the risk to employees and the environment.
- Dedicated to develop a win-win technology to extend the reservoir life.





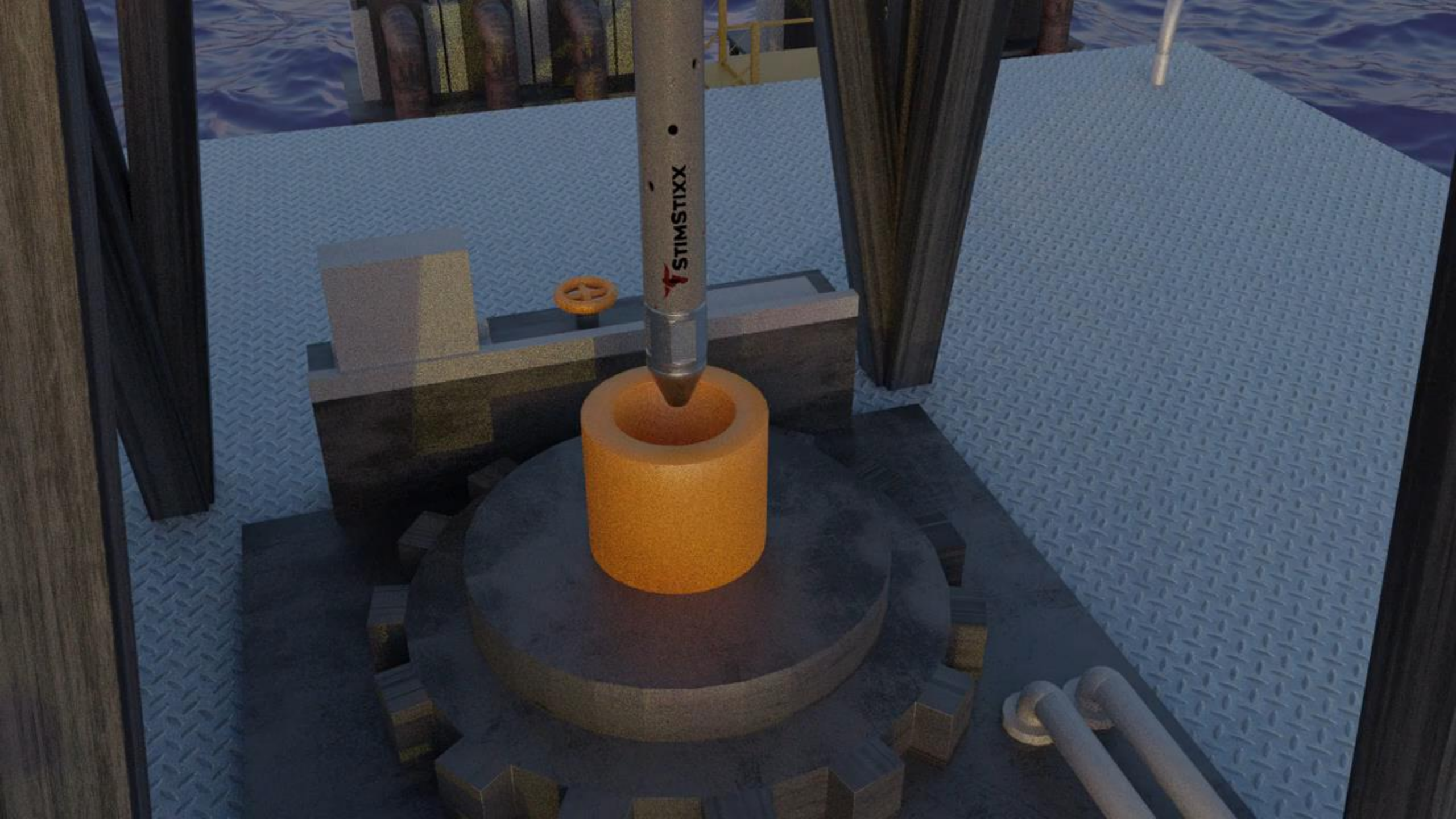
5



# How does the Tool Function








- Deployed as single or stackable sticks
- Available in HCl and HCL/HF
- Wireline, slickline or tractor conveyed
- Non-explosive, Non-Radioactive
- Pinpoint accurate









# Type and Size of Tool

Tool Name	TOOL OD IMPERIAL / METRIC	TOOL LENGTH IMPERIAL / METRIC
Thru-Tubing MatrixStixx	2" / 50.8 mm	12' 1" / 3.7 m
Thru-Tubing MatrixStixx	2 ¼" / 57.2 mm	12' 1" / 3.7 m
Thru-Tubing MatrixStixx	2 ½" / 63.5 mm	12' 1" / 3.7 m
Thru-Tubing MatrixStixx	3" / 76.2 mm	12' 1" / 3.7 m
Thru-Tubing MatrixStixx	3 ½" / 88.9 mm	12' 1" / 3.7m

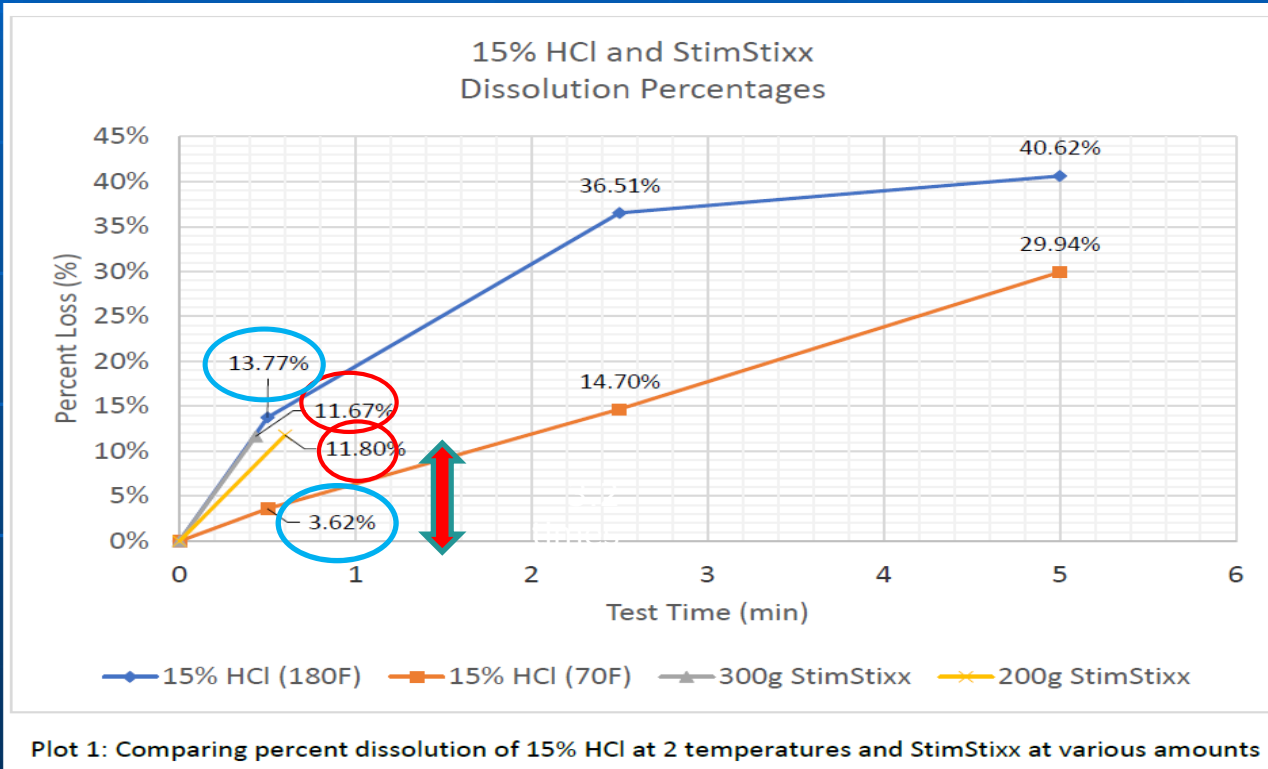
- Available in HCl and HCL/HF
- Deployed as single or stackable sticks

Single Tool String Diagram																																									
<div> <div>Country: Abu Dhabi</div> <div>Client: ADNOC</div> <div>Field: Offshore</div> <div>Well: 1</div> </div> <div>STIMSTIXX</div> <div>Stimulation Run No. 1</div>																																									
Part Name	Tool Assembly	O.D. Inch	Length Meter	Weight Kg.	Description																																				
Islet Sub		1.25	0.10	0.45	Islet Sub/ Firing Head																																				
Contact Sub		2.50	0.11	3.26	Dual Contact Sub - Used for 2.50 inch																																				
Carrier		2.50	2.88	32.32	Use For HCL Applications																																				
Dispersion Tube		2.50	0.32	2.55	Dispersion Tube - Used for 2.50 inch																																				
Bull Nose		2.50	0.10	1.70	Bull Nose - Used for 2.50 inch																																				
<table border="1"> <thead> <tr> <th colspan="3">Tool Data</th><th colspan="3">QA/QC Check</th></tr> </thead> <tbody> <tr> <td>Configuration</td><td>Single</td><td>Carrier</td><td>Made by</td><td>: Jo. Eng</td><td></td></tr> <tr> <td>Max O.D.</td><td>2.50</td><td>Inch</td><td>Verified By</td><td>: Project Engineer</td><td></td></tr> <tr> <td>Weight</td><td>40.28</td><td>Kg.</td><td>Drawing No.</td><td>: ABC 123</td><td></td></tr> <tr> <td>Total Length</td><td>3.51</td><td>Meter</td><td>Date</td><td>: 15/01/2023</td><td></td></tr> <tr> <td></td><td></td><td></td><td>Revision</td><td>: 0</td><td></td></tr> </tbody> </table>						Tool Data			QA/QC Check			Configuration	Single	Carrier	Made by	: Jo. Eng		Max O.D.	2.50	Inch	Verified By	: Project Engineer		Weight	40.28	Kg.	Drawing No.	: ABC 123		Total Length	3.51	Meter	Date	: 15/01/2023					Revision	: 0	
Tool Data			QA/QC Check																																						
Configuration	Single	Carrier	Made by	: Jo. Eng																																					
Max O.D.	2.50	Inch	Verified By	: Project Engineer																																					
Weight	40.28	Kg.	Drawing No.	: ABC 123																																					
Total Length	3.51	Meter	Date	: 15/01/2023																																					
			Revision	: 0																																					
COPYRIGHT 2022 STIMSTIXX INC. THE NEXT GENERATION OF MATRIX ACIDIZING.																																									

Dual Tool String Diagram																																									
<div> <div>Country: Abu Dhabi</div> <div>Client: ADNOC</div> <div>Field: Offshore</div> <div>Well: 1</div> </div> <div>STIMSTIXX</div> <div>Stimulation Run No. 1</div>																																									
Part Name	Tool Assembly	O.D. Inch	Length Meter	Weight Kg.	Description																																				
Islet Sub		1.25	0.10	0.45	Islet Sub/ Firing Head																																				
Contact Sub		2.50	0.11	3.26	Dual Contact Sub - Used for 2.50 inch																																				
Upper Carrier		2.50	2.88	32.32	Use For HCL/HF 12-3 Applications																																				
Lower Carrier		2.50	2.88	32.78	Use For HCL Applications																																				
Dispersion Tube		2.50	0.32	2.55	Dispersion Tube - Used for 2.50 inch																																				
Bull Nose		2.50	0.10	1.70	Bull Nose - Used for 2.50 inch																																				
<table border="1"> <thead> <tr> <th colspan="3">Tool Data</th><th colspan="3">QA/QC Check</th></tr> </thead> <tbody> <tr> <td>Configuration</td><td>Dual</td><td>Carrier</td><td>Made by</td><td>: Jo. Eng</td><td></td></tr> <tr> <td>Max O.D.</td><td>2.50</td><td>Inch</td><td>Verified By</td><td>: Project Engineer</td><td></td></tr> <tr> <td>Weight</td><td>73.06</td><td>Kg.</td><td>Drawing No.</td><td>: ABC 123</td><td></td></tr> <tr> <td>Total Length</td><td>6.29</td><td>Meter</td><td>Date</td><td>: 15/01/2023</td><td></td></tr> <tr> <td></td><td></td><td></td><td>Revision</td><td>: 0</td><td></td></tr> </tbody> </table>						Tool Data			QA/QC Check			Configuration	Dual	Carrier	Made by	: Jo. Eng		Max O.D.	2.50	Inch	Verified By	: Project Engineer		Weight	73.06	Kg.	Drawing No.	: ABC 123		Total Length	6.29	Meter	Date	: 15/01/2023					Revision	: 0	
Tool Data			QA/QC Check																																						
Configuration	Dual	Carrier	Made by	: Jo. Eng																																					
Max O.D.	2.50	Inch	Verified By	: Project Engineer																																					
Weight	73.06	Kg.	Drawing No.	: ABC 123																																					
Total Length	6.29	Meter	Date	: 15/01/2023																																					
			Revision	: 0																																					
COPYRIGHT 2022 STIMSTIXX INC. THE NEXT GENERATION OF MATRIX ACIDIZING.																																									



# Improving Efficiency



- Acid generated across the perforations in a heated vapor state
- Low viscosity vapor – increases penetration to formation
- Low density vapor – reduces tendency for channeling
- More reactive with scale and near wellbore damage due to heat  $\sim 150-240^{\circ}\text{C}$ 
  - No CT, Diverting Agents, etc
- Eliminates contamination and dilution during placement
- Selective Placement - Pinpoint accuracy

# SPE Publications and Case Studies

## Novel Acid Stimulation Technique for Production Improvement – Austrian Eocene Case Study – SPE 214416

### Background

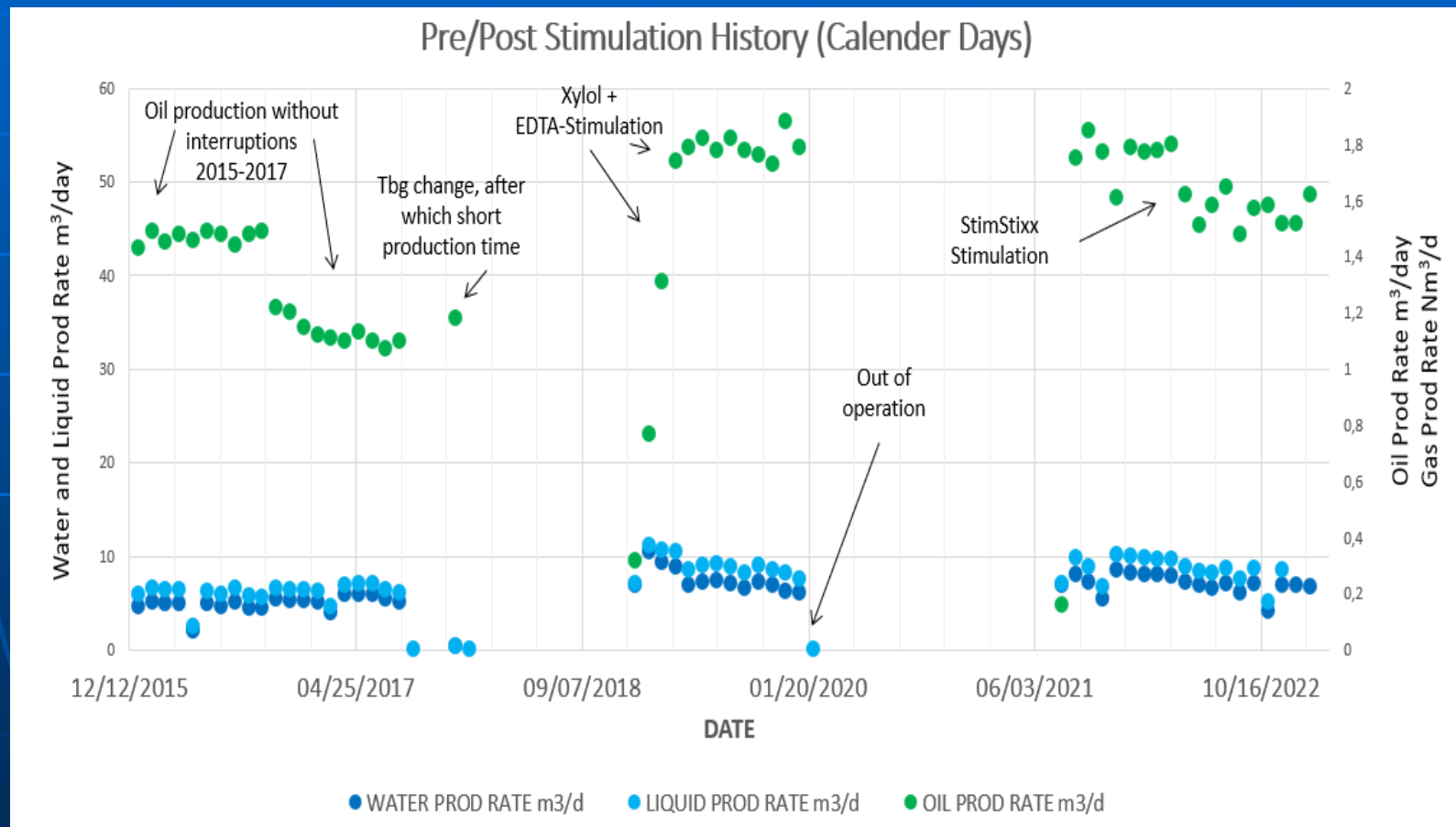
Sandstone Reservoir  
Oil Producer  
5.5 ft of interval  
BHP = 20 bar  
E-line conveyed

### Objective

Near-wellbore  
stimulation  
Long-term  
stimulation effect

### Treatment

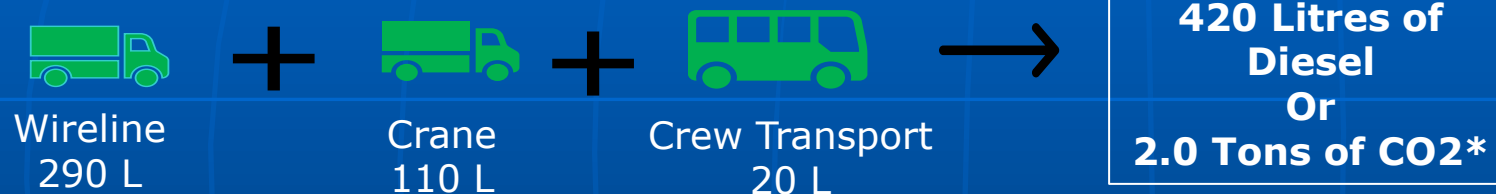
2x 2" HCl Stick  
2x 2" HCl/HF Stick



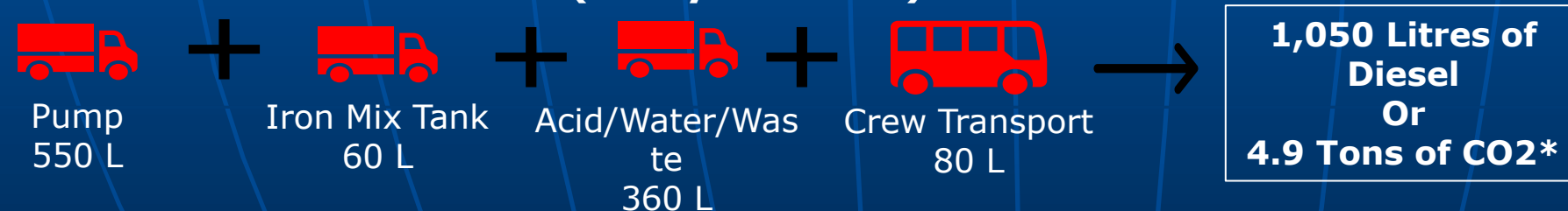
# Carbon Footprint Reduction – Austrian Eocene Case Study

Elimination of high-pressure pumps, cranes, acid mix tanks, acid/water waste, coiled tubing, flaring, and large crew transportation

## StimStixx Acid Stimulation (1 Day Duration)



## Bullhead Acid Stimulation (2 Day Duration)



59%



[www.carbonfootprint.com](http://www.carbonfootprint.com)

## Background

## Limestone Reservoir

## Oil Producer

*12 m of interval*

$BHP = 20 \text{ bar}$

$$BHT = 40^{\circ}\text{C}$$

*E-line conveyed*

## Objective

*Increase production*

## Long-term

*stimulation effect*

## Treatment

1x 3" HCl Stick

2x 2,5" HCl Stick

1x 3" HCl/HF Stick

2x 2,5" HCl/HF Stick

0.4 t/d → 1.6 t/d  
↓  
300%





# SPE Publications and Case Studies

## Novel Acid Stimulation Technique for Production Improvement – Gravel Pack Case Study - Limestone

### Background

Well 2  
Limestone Reservoir  
Oil Producer  
7 m of interval  
BHP = 20 bar  
BHT = 40°C  
E-line conveyed

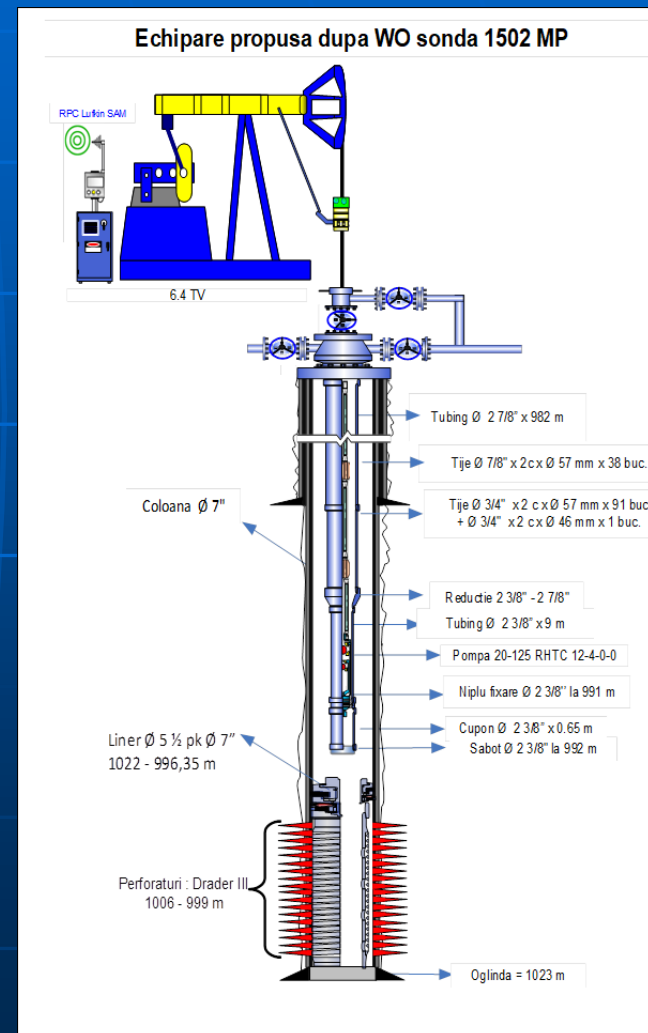
### Objective

Increase production  
Long-term  
stimulation effect

### Treatment

2x 2" HCl Stick  
1x 2" HCl/HF Stick  
1x 2,5" HCl/HF Stick  
1x 3" HCl/HF Stick

0.4  
t/d → 1.7  
t/d  
↓  
325%



# SPE Publications and Case Studies

## Novel Acid Stimulation Technique for Production Improvement - North Sea Case Study

### Background

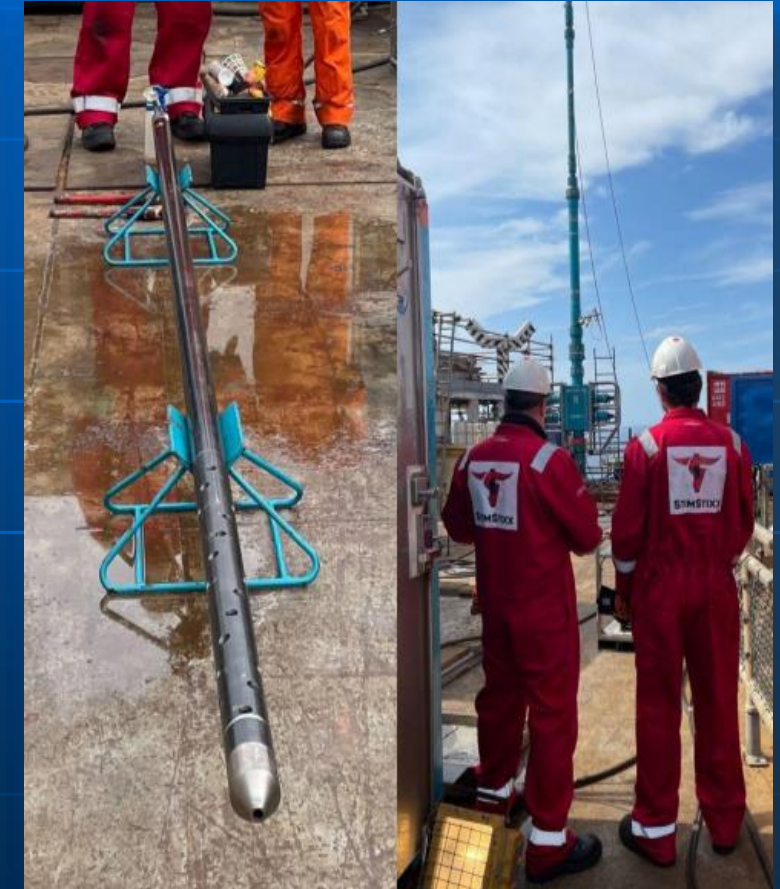
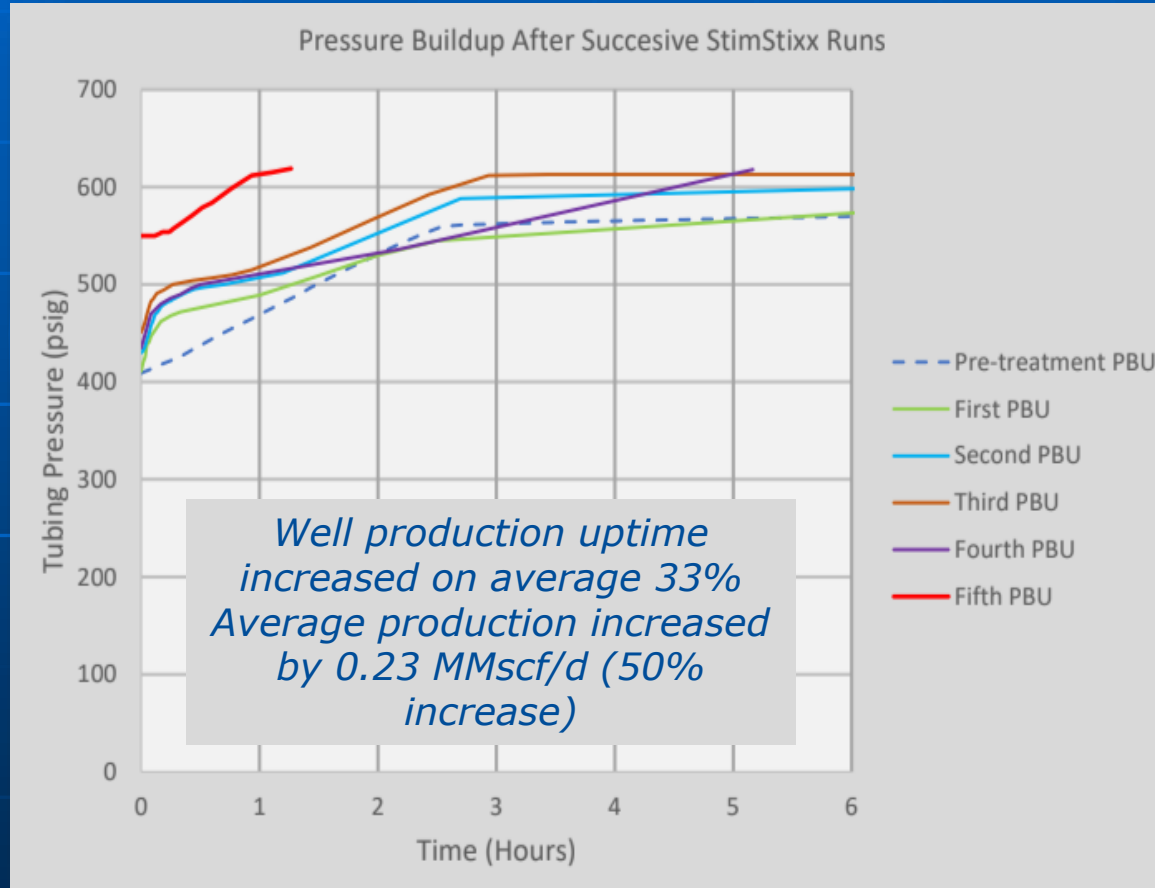
*Sandstone Reservoir  
Dry Gas Well  
Multiple intervals  
BHP=850 psi  
Deviated well  
Slick E-line*

### Objective

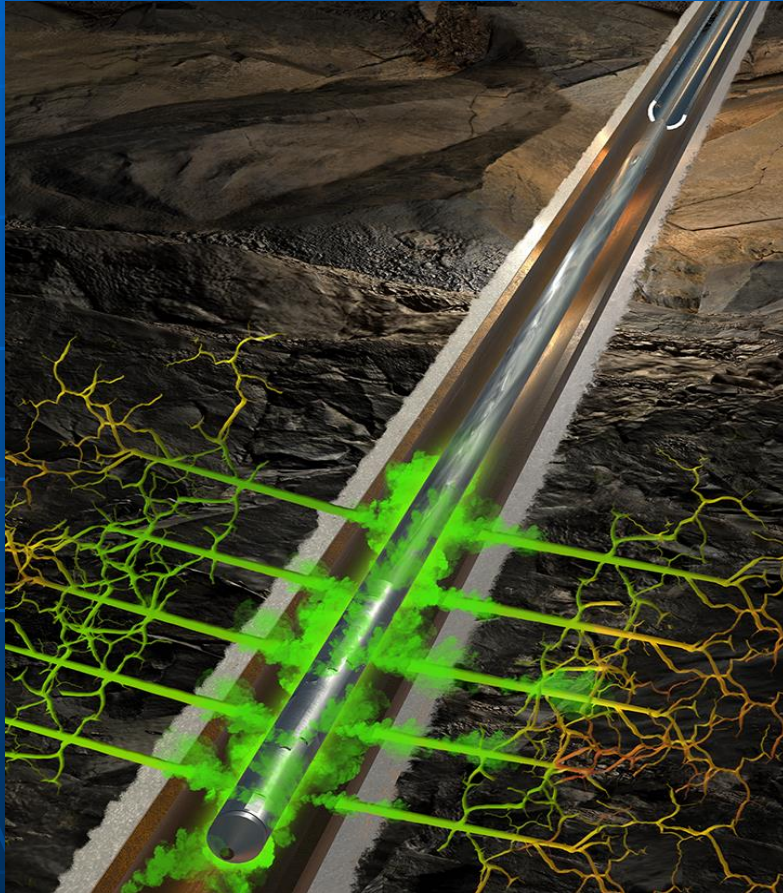
*Near-wellbore  
stimulation  
Scale elimination*

### Treatment

*1x 3" HCl/HF Stick  
2x 2,5" HCl/HF Stick  
2x 2,5" HCl Stick*



# Applications



- Producing oil & gas well remediation
- Water injection and disposal well remediation
- Geothermal injection well remediation
- Perforate & acidize in one run
- Pre-cement squeeze treatment
- Pre-frac treatment
- Tubing restrictions, SSSV cleanup
- Downhole screen cleanup



# Novel production enhancement technique - achieving more with less



Ina Hadziavdic  
Business Development Engineer  
StimStixx Technologies Inc.

