



**More Efficient Oil & Gas Extraction
Through
New and Proven Technologies**

Presented By Mike Stone
WellJet Energy Services, Inc. - USA

A Subsidiary Of

KERUI

Kerui Houston Technology Center, Inc.

KERUI GROUP • 6834 Bourgeois • Houston • 77066 • Texas • USA • www.keruigroup.com

COMPANY PROFILE



Welljet Energy Services is located in Houston, Texas, USA

We are dedicated to providing LATERAL JETTING SERVICES and Related oilfield services to clients worldwide



EXPERIENCE

- ▶ Highly Experienced in Lateral Jetting Technologies and Techniques
- ▶ Over 40 years of accumulated Lateral Jetting experience
- ▶ 720+ wells completed worldwide using Lateral Jetting Techniques

LATERAL JETTING APPLICATIONS

- ▶ EOR – ENHANCED OIL RECOVERY
- ▶ Oriented acidizing/fracturing techniques.
- ▶ Well Completion – Replacement of damaging perforations in well completions – Reduction in damage caused by perforating.
- ▶ Coal Bed Methane Applications
- ▶ Well-bore casing and tubing cleaning.

CHALLENGES WE CAN SOLVE

- ▶ Production declines in oilfields.
- ▶ Low production due to formation damage near the well bore.
- ▶ Undeliverable remaining hydrocarbons from marginal or mature oil and gas fields.
- ▶ Cuttings from the lateral. Deposited to Rat Hole.

WELL & FIELD SELECTION

- ▶ Well Selection is very important and we want to make sure that we make every effort to have success. Not every well will qualify as a candidate for lateral jetting.
- ▶ Kerui's geologists and reservoir engineers will work closely together with client to evaluate and select wells through reservoir simulation, log interpretation, and modeling.
- ▶ Optimized field selection for multi-well projects.
- ▶ Core samples will be evaluated for optimum nozzle selection.

KERUI SUPPORT TEAM



Foam Fluid Laboratory



Acid Fracturing Laboratory



Oil and Gas Reservoir
Simulation Lab



Heavy Oil Sand Laboratory



Stimulation Measuring Laboratory

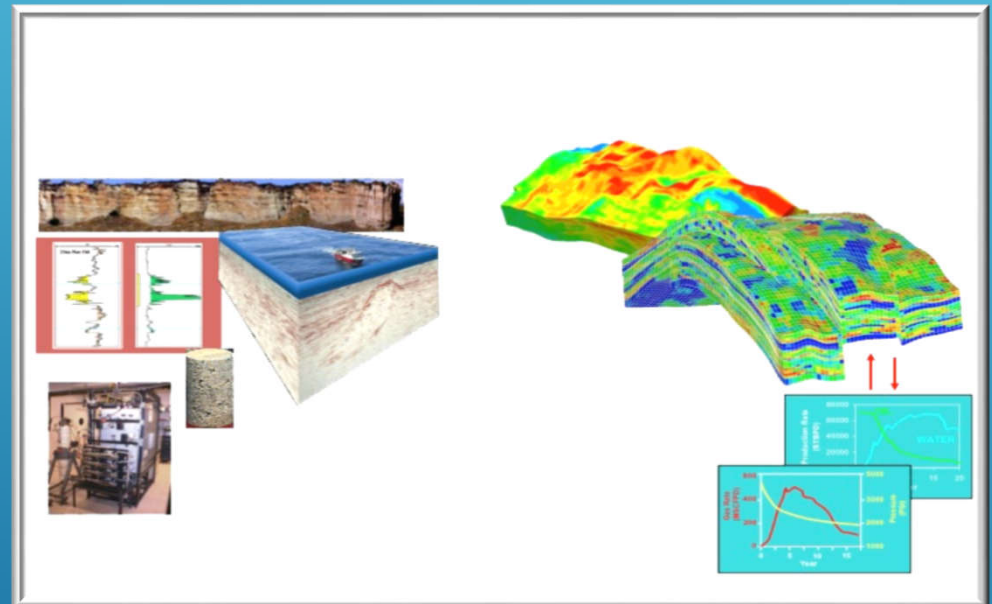


Mud Lab

Complete support from start to finish!!

RESERVOIR SIMULATION SERVICES

- Data analysis and Interpretation
- Reservoir Modeling
- Reservoir Simulation
- Geologic Modeling



Tools For Production Optimization!
Field selection to best optimize our new technology!

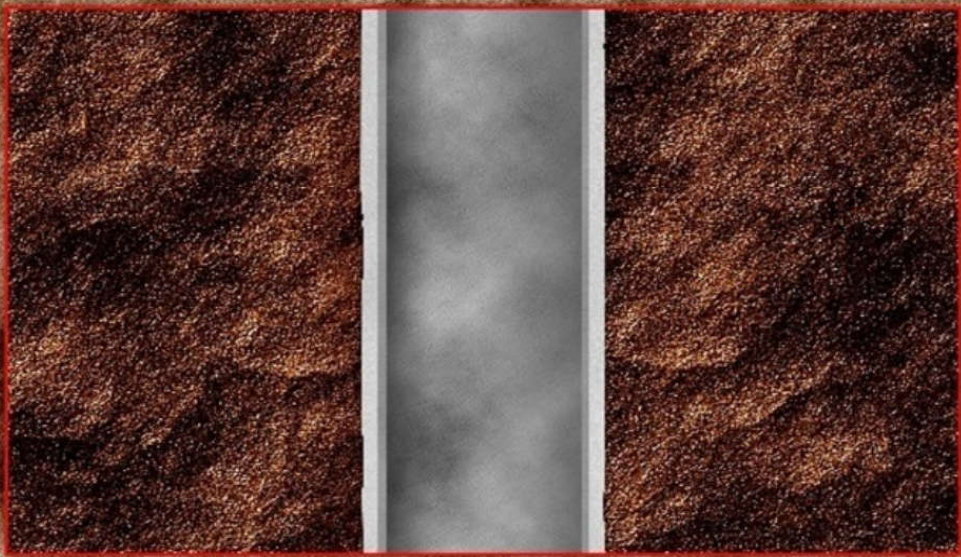
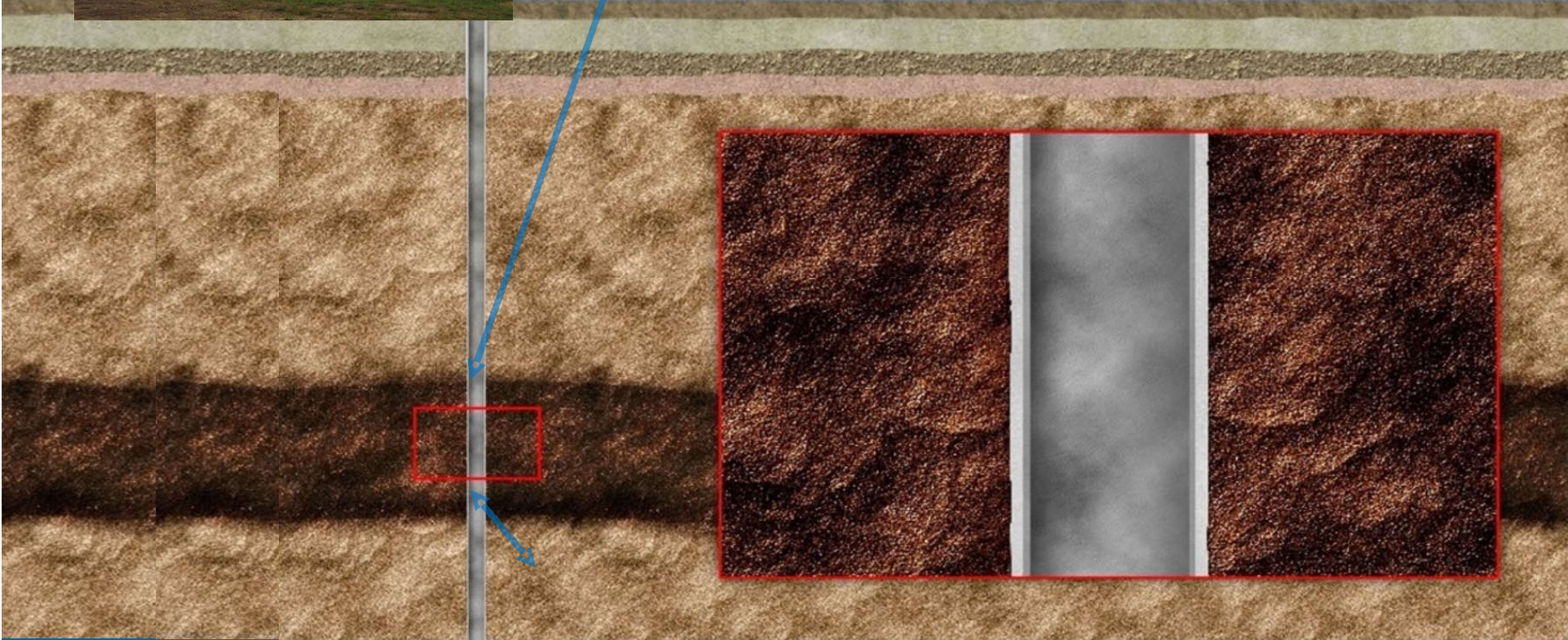
WELL SELECTION PARAMETERS

- ▶ Oil & Gas wells up to 8000 ft. depth with riser. Wells at depth of 8,000-16,000 ft. will require an injector head.
- ▶ 16,000 ft.+ Evaluation
- ▶ Casing size: ranging from 4.5"-9 5/8".
- ▶ Casing grade: J55, N80 and P110. Well deviation: no more than 35° deviation of well-bore.
- ▶ Well must have good casing cementation.

PROCESS - STAGE 1



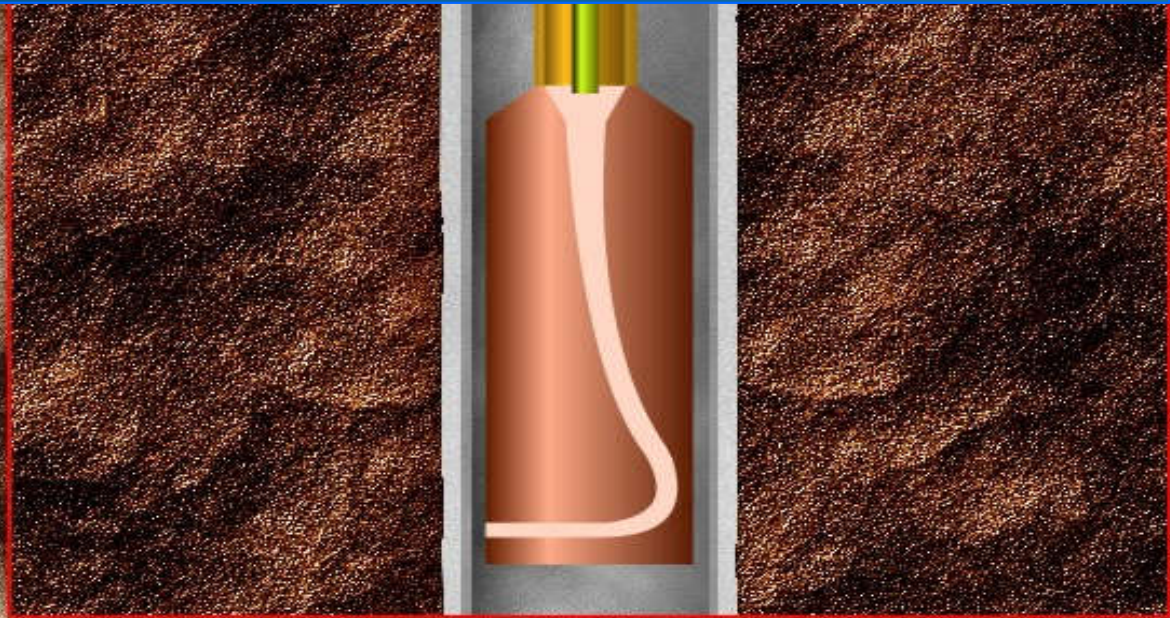
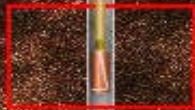
- Pull rod and tubing with work-over rig.
- Prepare cased-hole for lateral jetting process.



PROCESS - STAGE 2



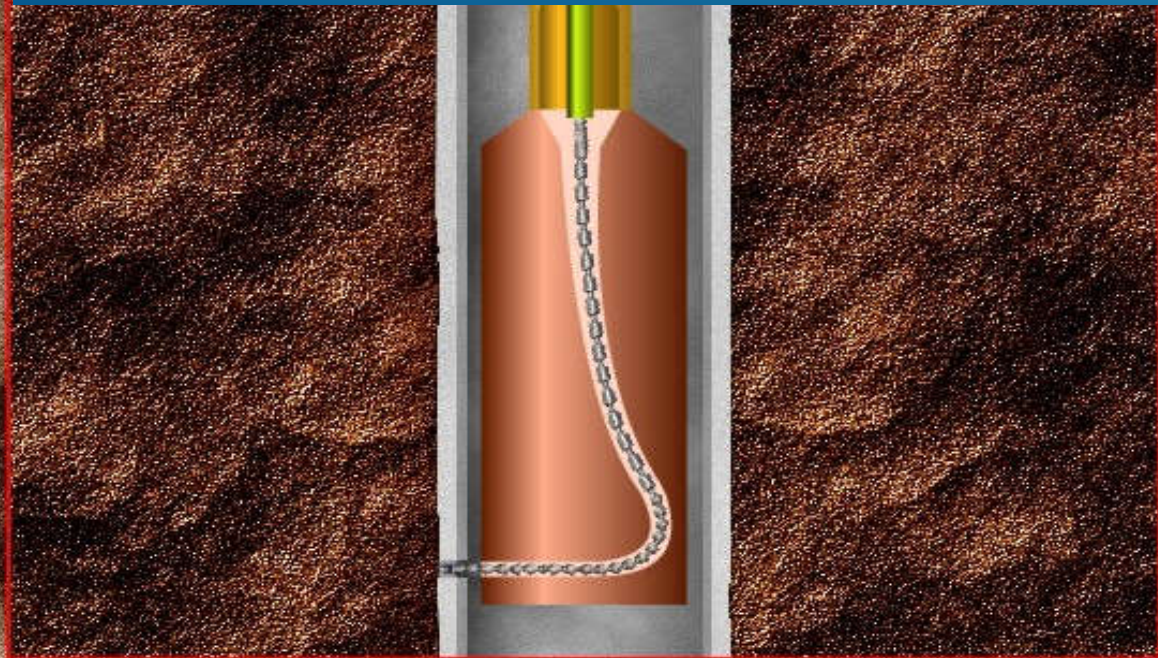
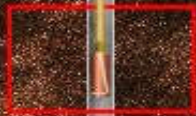
- Run BHA (Bottom Hole Assembly) and diverter shoe into hole on production tubing.
- Lower to depth and orient with gyroscope.



PROCESS - STAGE 3



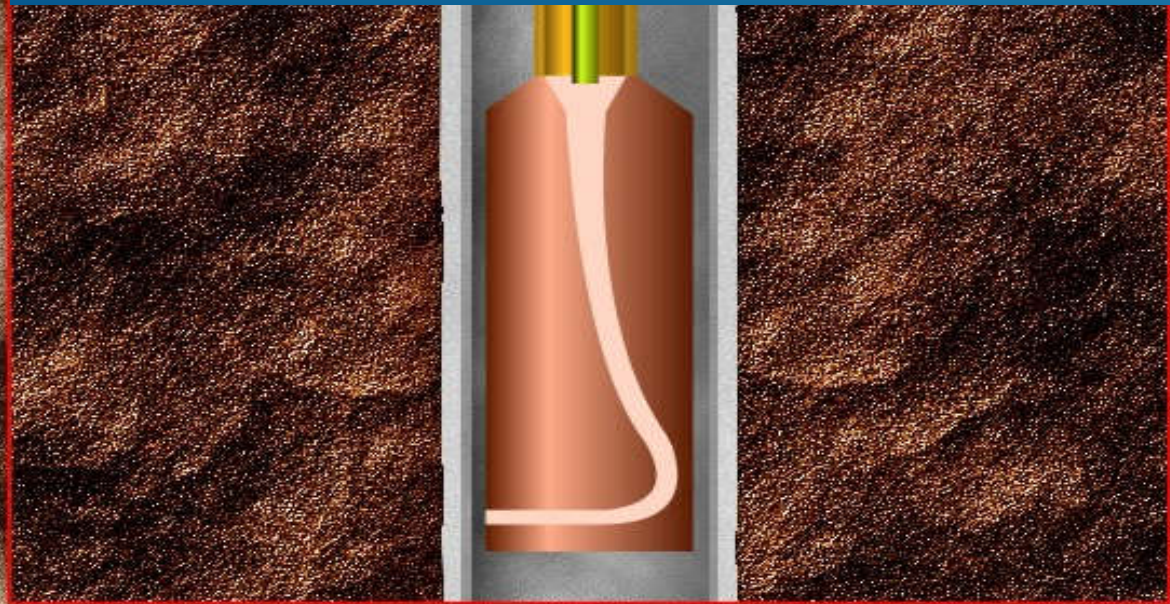
- Using 5/8" coil tubing, run mud motor with flex shaft and milling bit into hole.
- Mill hole through casing at target azimuth. Typical time for milling is 40 minutes with confirmation ring on bit.



PROCESS - STAGE 4



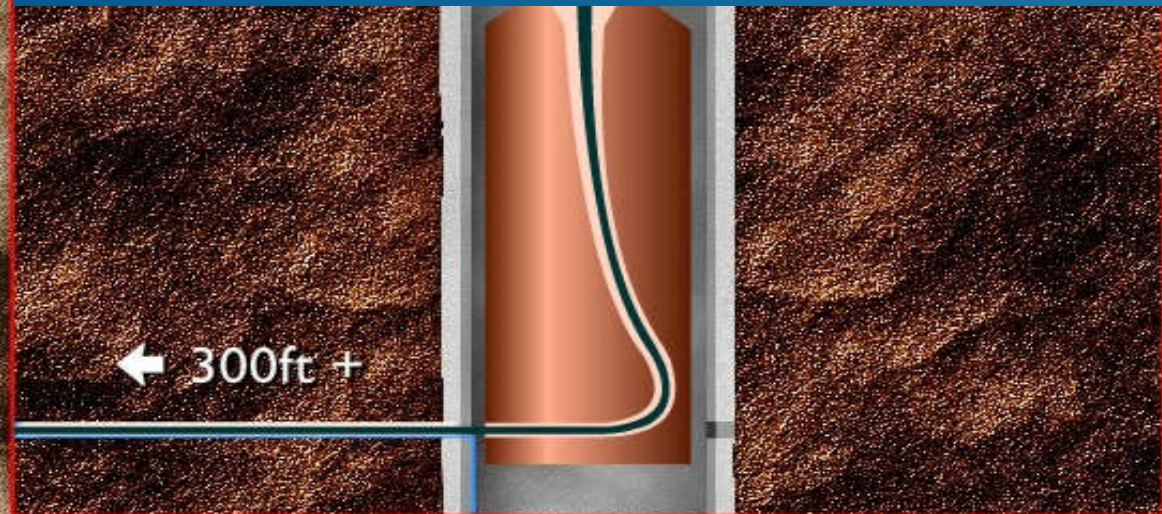
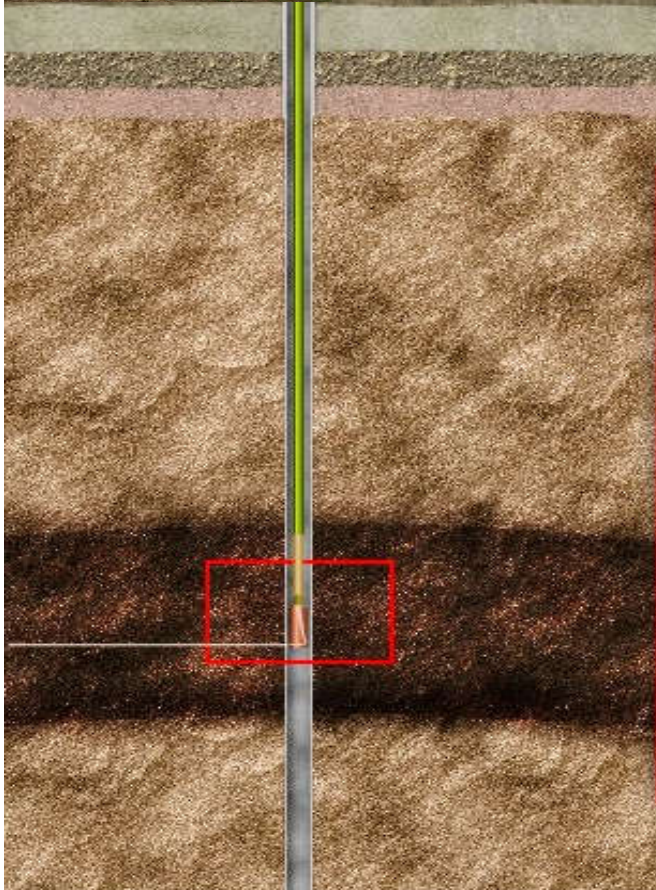
- Trip out Milling Assembly on 5/8" Coiled Tubing.
- Bottom Hole Assembly (Shoe Diverter) stays in place



PROCESS - STAGE 5



- Run in hole 100M (300 Ft.) flexible hose with jet nozzle attached to 5/8" coiled tubing.
- Jet formation through milled hole out into formation with ability to jet laterals up to 100M (300ft.)
- Once desired length of lateral has been reached, back jetting slowly at high pressure to make bigger channel.



THE LATERAL JETTING PROCESS



PLEASE VIEW

**“Welljet Lateral Jetting Process Video 2016”
by Mike Stone on Vimeo.**

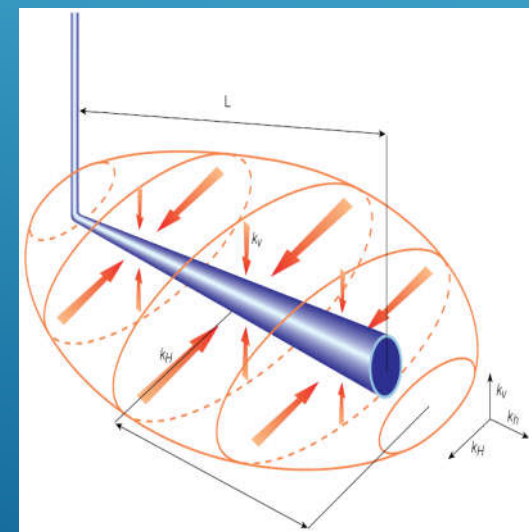
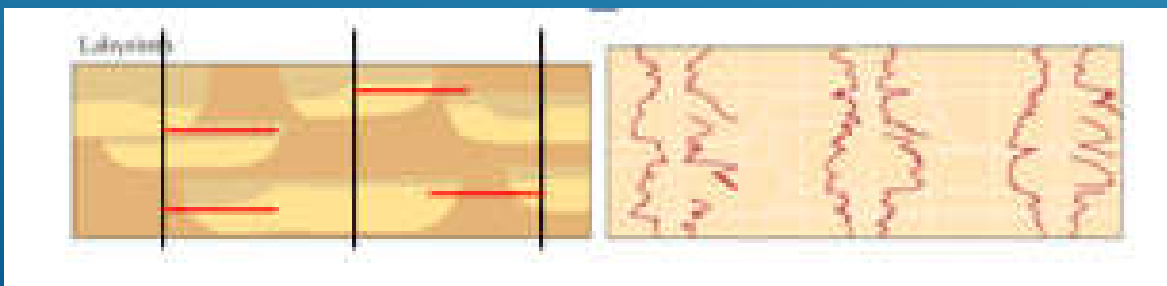
**The video is available for your viewing at
<https://vimeo.com/155155273>**

Please copy the link above into your browser and, if prompted, use the password: Welljet1

BENEFITS OF LATERAL JETTING

- ▶ The lateral hole created will improve the flow channel, and increase the migration efficiency deep into formation.
- ▶ Well-bore contact with reservoir is greatly increased!
- ▶ Lateral channel increases conductivity of the reservoir to the well-bore.
- ▶ Greatly increases production!

Dramatic Increase in Well-Bore/Reservoir Contact



NEW TECHNOLOGY RIGS



- New Technology – All New Lateral Drilling Unit
- Modular Design – Skid Design For Easy Transport
- Quality Equipment – Highest quality USA Standards
- Superb Technology
- Manufactured in Houston, Texas - USA

EQUIPMENT

High Quality Equipment Built In the U.S.A.



Riser

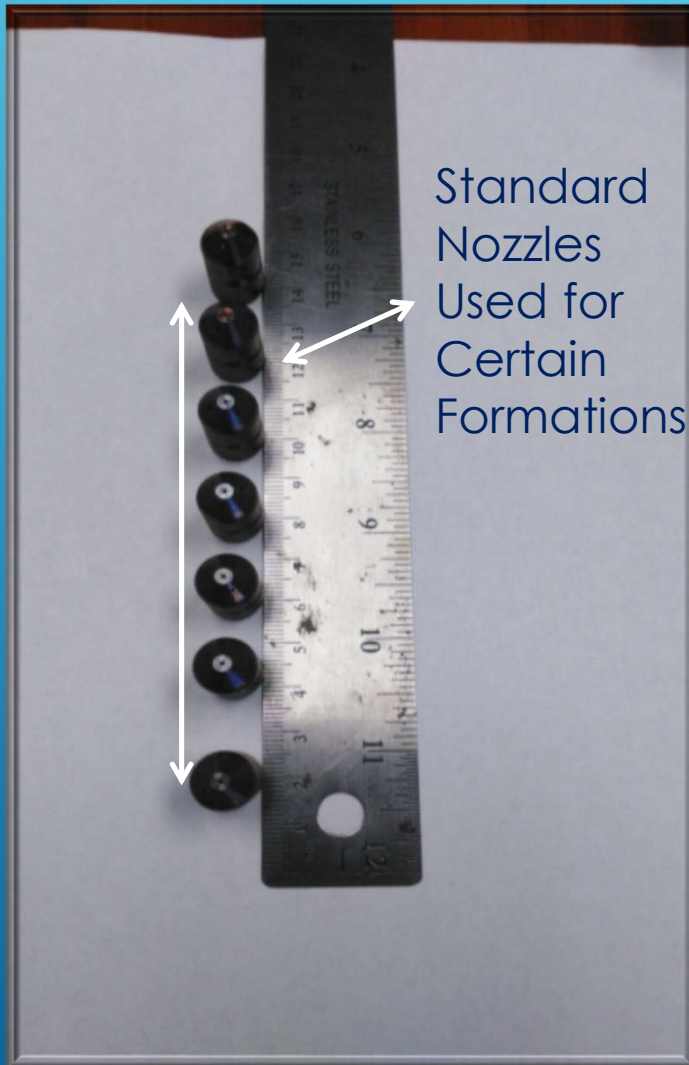


B.O.P. – Blow Out Preventer



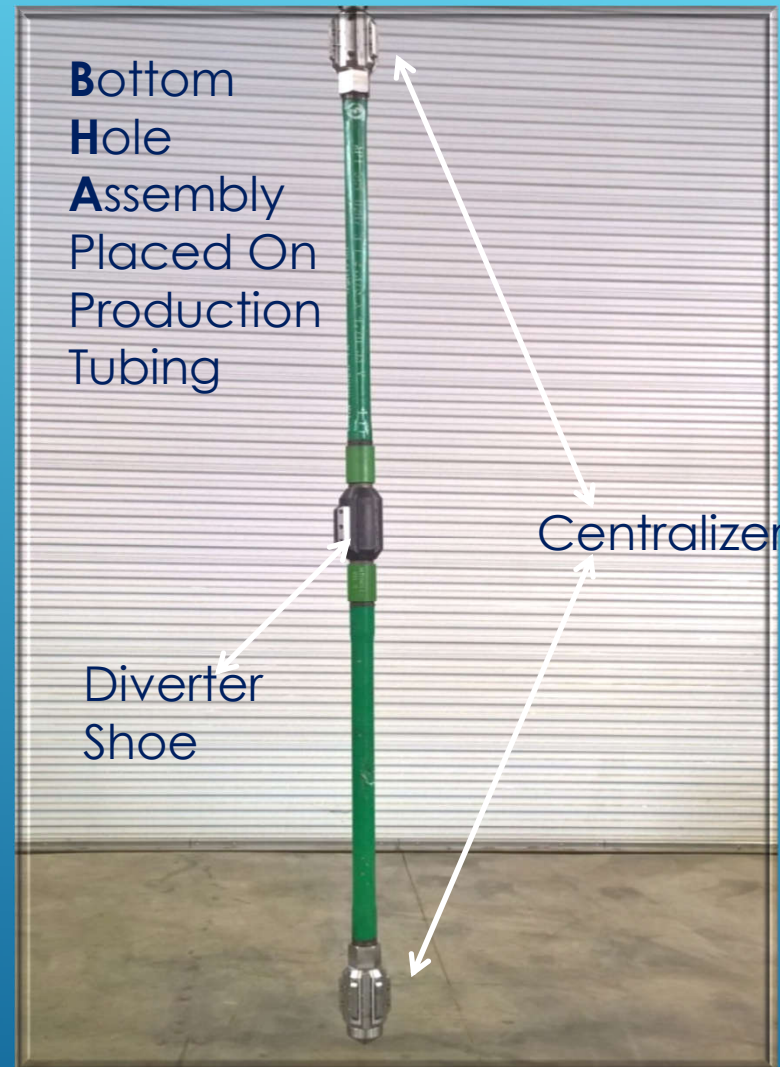
Coil Assist

DOWN-HOLE TOOLS



Standard
Nozzles
Used for
Certain
Formations

Nozzles



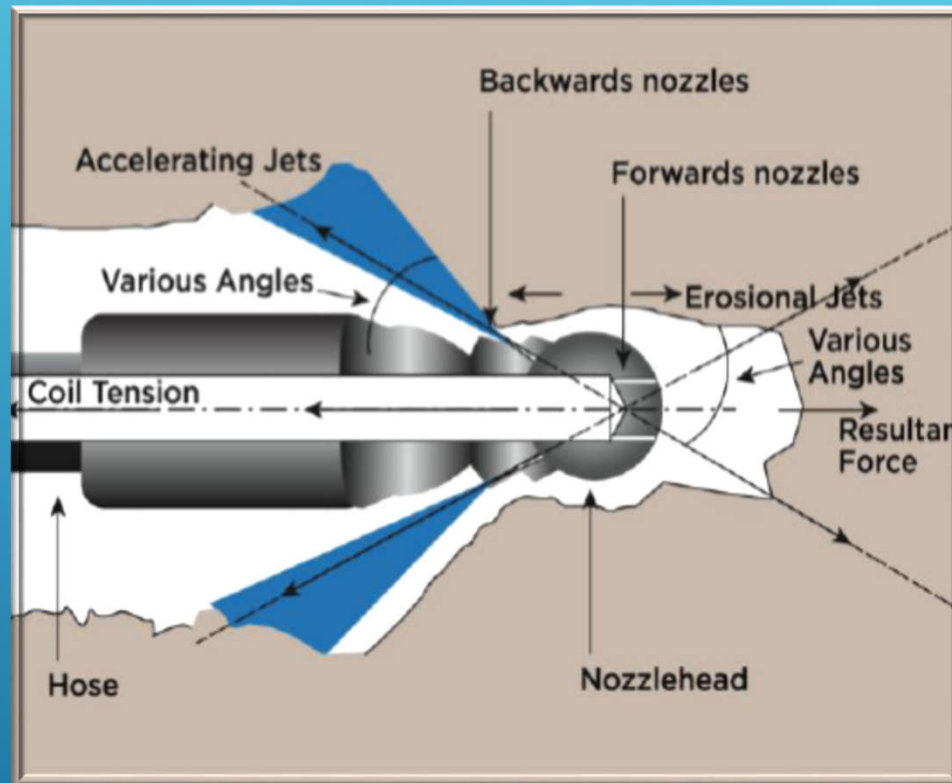
Bottom
Hole
Assembly
Placed On
Production
Tubing

Diverter
Shoe

Centralizers

Centralizers

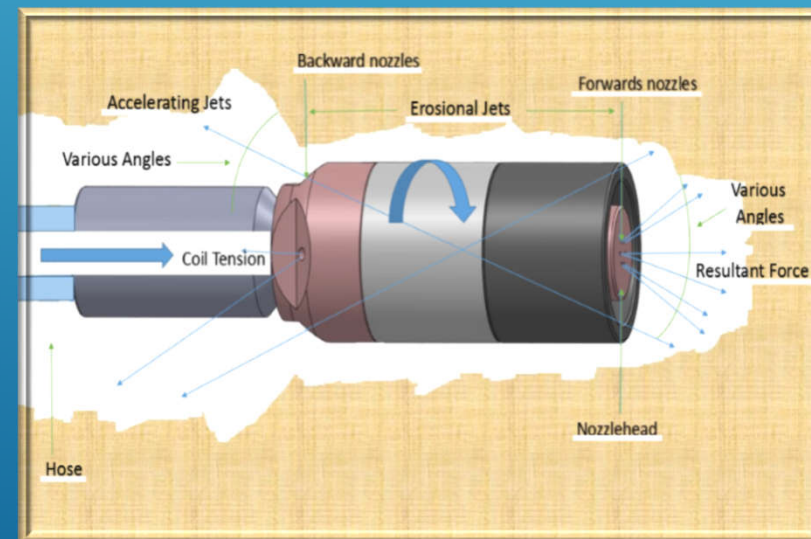
STANDARD NOZZLE



- Old style nozzles still used on certain formations including unconsolidated sands.

NEW TECHNOLOGY - ROTATING NOZZLE

- ▶ Nozzle rotates at 18,000 Revolutions Per Minute which is 300 Revolutions Per Second.
- ▶ Develops up to 15,000 psi at formation!!
- ▶ Harmonically Balanced Nozzle allow for straight laterals.
- ▶ New Technology – Only rotating nozzle in the world used in lateral jetting!



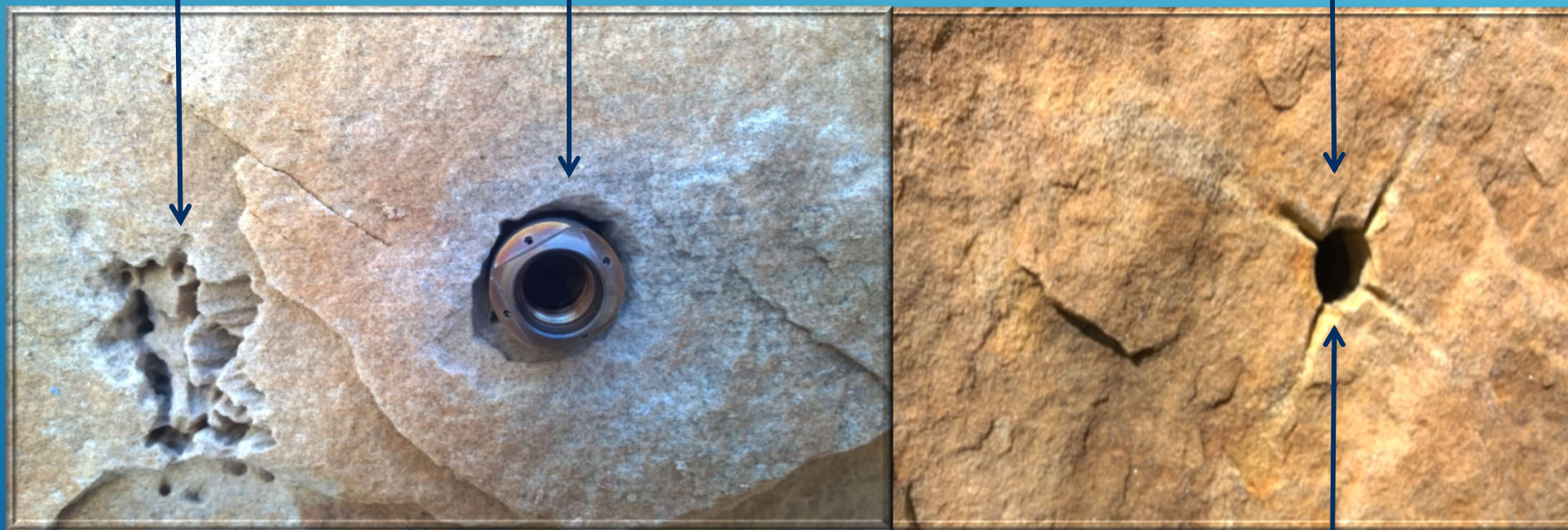
TESTING ROCK

TESTING ROCK IS 1 METER THICK

Old Style Nozzle

New Rotating Nozzle

Rotating Nozzle Exits in less than 1 minute.



EXIT HOLE

LEADING IN NEW TECHNOLOGY INCLUDING FIRST EVER ROTATING NOZZLE APPLICATION

PLEASE VIEW

“Welljet Lateral Jetting Demo Video 2016”
by Mike Stone on Vimeo.

The video is available for your viewing at
<https://vimeo.com/155156621>

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FORMATION TESTING

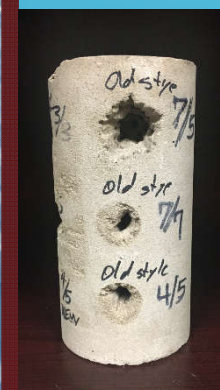
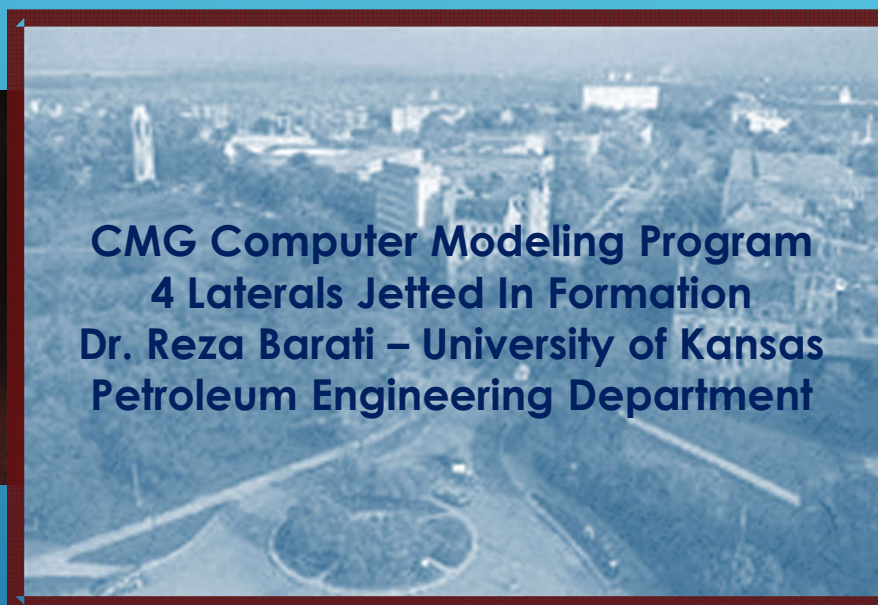
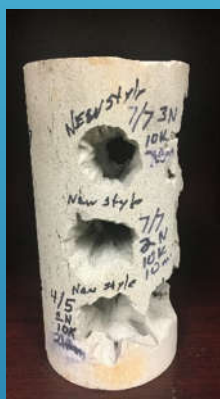
This test formation was sent to us by KU University Of Petroleum, Dr. Barati.

This formation had several attempts to penetrate by using old technology by several of our competitors and failed with Welljet's Energy Services USA new technology we were successful in penetrating formation.

So with use of new rotating nozzle and our new FF01 chemical we can increase flow channel to well bore with no damaging of formation like conventional perforating will do.

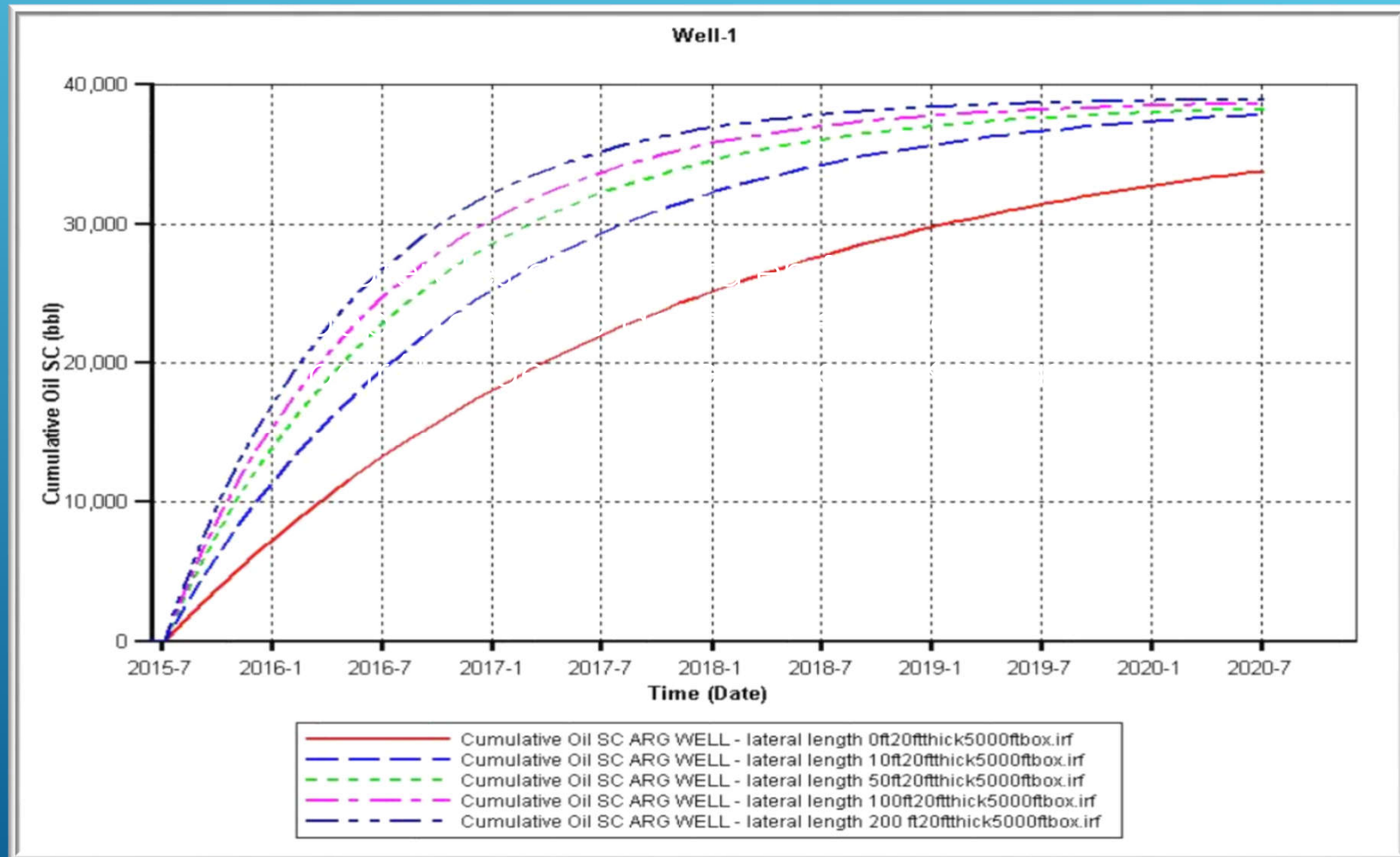


SIMULATION ARGENTINA WELL CONDUCTED BY UNIVERSITY OF KS



- 4 X 200 ft. laterals on one horizon.
- Increased first year production from 13,400 bbls to 29,000bbls
- In addition to more favorable decline rates, the estimated ultimate recovery of the reservoir is also increased due to application of laterals.

SIMULATION ARGENTINA WELL CONDUCTED BY UNIVERSITY OF KS



PUBLISHED RESULTS

RESULTADOS PUBLICADOS

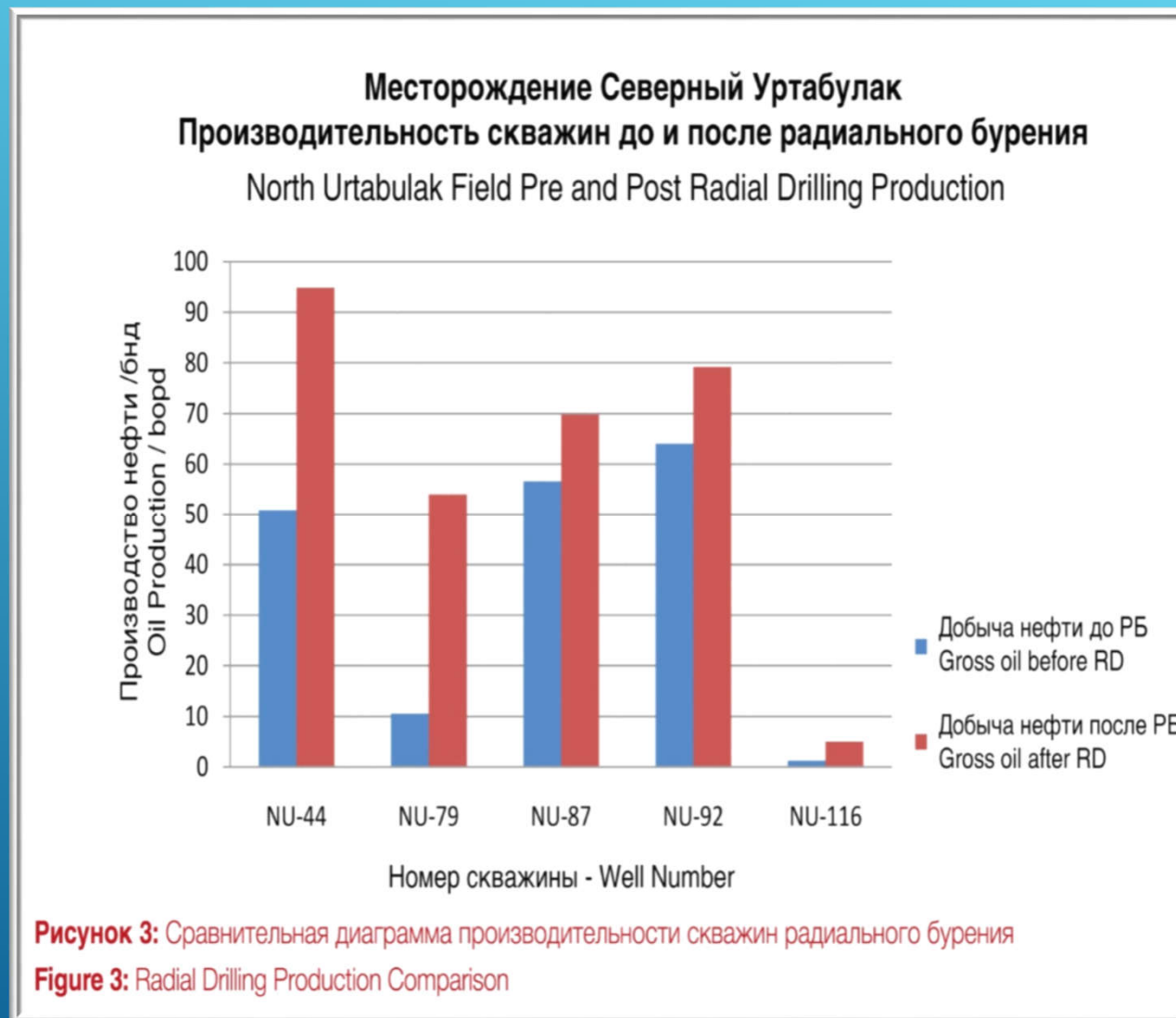
Formation Type	Geographic Area	# Of Wells	Before	After	Increase Oil/Gas
Unconsolidated Sands	Trinidad	1	15 BOPD	43	186%
Unconsolidated Sands	Trinidad	1	9 BOPD	29	222%
Unconsolidated Sands	Trinidad	1	10 BOPD	24	140%
Carbonates	Kansas – USA	1	10 MCFD	108	980%
Carbonates	Kansas – USA	1	1.2 BOPD	8	567%
Sandstone	Bolivia	1	34 BOPD	84	147%
Sandstone	Chile	1	96 MCFD	860	796%
Carbonates	Chile	1	5.7 BOPD	39	584%
Sandstone	Chile	1	8.2 BOPD	51	522%
Sandstone	Kazakhstan	20	410 BOPD	1161	183%
Carbonates	Russia	50	1,277 BOPD	3,321	160%
Carbonates	Russia	10	327 BOPD	715	119%

PUBLISHED RESULTS



Published results by Tethys Petroleum of a 5 well project in Uzbekistan.

Graph shows pre and post Radial Drilling production.



INNOVATION-NEW TECHNOLOGY

- ▶ We are committed to being the leader in Lateral Jetting Technology
- ▶ Broad technical support for well selection process with support from Kerui's extensive team of engineers and down-hole specialists
- ▶ Using the highest quality equipment
- ▶ Rotating Nozzle – Harmonically Balanced – Straight Laterals
- ▶ New Down-Hole Tools
- ▶ Detailed Gyroscopic measuring device for accurate lateral orientation

INNOVATION-NEW TECHNOLOGY

- ▶ Tracking of Laterals
- ▶ High Pressure Unit - More horsepower at the nozzle up to 15,000 PSI
- ▶ Innovative Chemicals, green, safe and environmentally friendly Earthborn-Kerui UltraSeries FF-01 to enhance production through new and improved chemical technologies.
- ▶ Down-Hole Chemistry Consultant to maximize hydrocarbon delivery.

ACHILLES CERTIFIED

Welljet is proud to
be
RePro-Certified



and able to work for
respected operators.



Logo: Achilles

Nº RePro: **344384**

KERUI HOUSTON TECHNOLOGY, INC

Logo: RePro empowered by Achilles

Ha obtenido el registro en RePro para los Productos/Servicios siguientes:

- 1.03.99 Otros productos químicos
- 3.09.01 Servicios de perforación

Certificado válido hasta el día: 12/04/2016

Este certificado indica que el Proveedor en cuestión está registrado en RePro en los productos y/o servicios señalados para las empresas participantes en el Registro de Proveedores. RePro podrá ser utilizado por las Empresas Participantes, bien como base para realizar la selección de proveedores que serán invitados a presentar ofertas, o bien como requisito previo para poder acceder a sus propios sistemas de clasificación.

Logos of participating companies: Shell, METROSOL, CAMESA, PETROBRAS, endesa.chile, cam, hidroAysén, enersis synapsis, Essbio, Nuevosur, biodiversa.

Rodry Zamorano
Gerente de Operaciones
Aquila Chile Limitada

Jaime Carrasco Naaveda
Presidente del comité
En representación de las Empresas Participantes

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Informe impreso el Monday, February 15, 2016

Maintaining & Building a Healthy
Ecosystem Together with Our Partners

WellJet
ENERGY SERVICES INC.



KERUI

