



COMPANY PROFILE

ABOUT US

North Side company was established in 2011.

The company pioneered the cost effective FlowJet technology for production logging in artificially lifted wells.

Our Spinnerless Array Well-Reservoir Performance Evaluation Suite and an in-house interpretation software allow to determine quantitatively production / injection profiles in horizontal wells, precisely locate the water source zones.

The company's Well Integrity Evaluation Suite that comprises the Corrosion Logging Service by 3 barrier MBTT and split channel Spectral Noise Logging tools helped a significant number of E&P companies to evaluate overall well integrity status.

North Side has its operations in Middle East, Africa, India and Asia and rapidly expands into other regions.

The model of our business is Call-out or rental based where we use in-house mobile memory mode tools & software and highly qualified engineers to implement Company Services across the Globe.

360°
**Well-Reservoir
Evaluation
Package**

OUR MANAGEMENT PRINCIPLES

Mission

- Enhance Well-Reservoir Management through the modest and innovative technologies packaged in North Side's Well-Reservoir Performance Evaluation Suite.

Vision

- To become an internationally recognizable company with the best well-reservoir performance evaluation services.

Values

- Technology, Commitments and Dedication are core values of our company.
- Health, Safety, Environment and Quality are the priority.
- Supremacy, Innovations and Service Quality are our main focus.

Goals

- Our main goal is to become a trustworthy stable partner with the companies we work with.
- We work to secure a leading position in the area of well-reservoir performance evaluation services.

MEET OUR TEAM



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ADIPEC 2018/2019

North Side successfully participated in ADIPEC 2018 and ADIPEC 2019 where presented its latest achievements and case studies.



NAPEC 2019

North Side presented the paper about MPLT in Artificially produced wells and well-reservoir management through Company's Performance Evaluation Package.



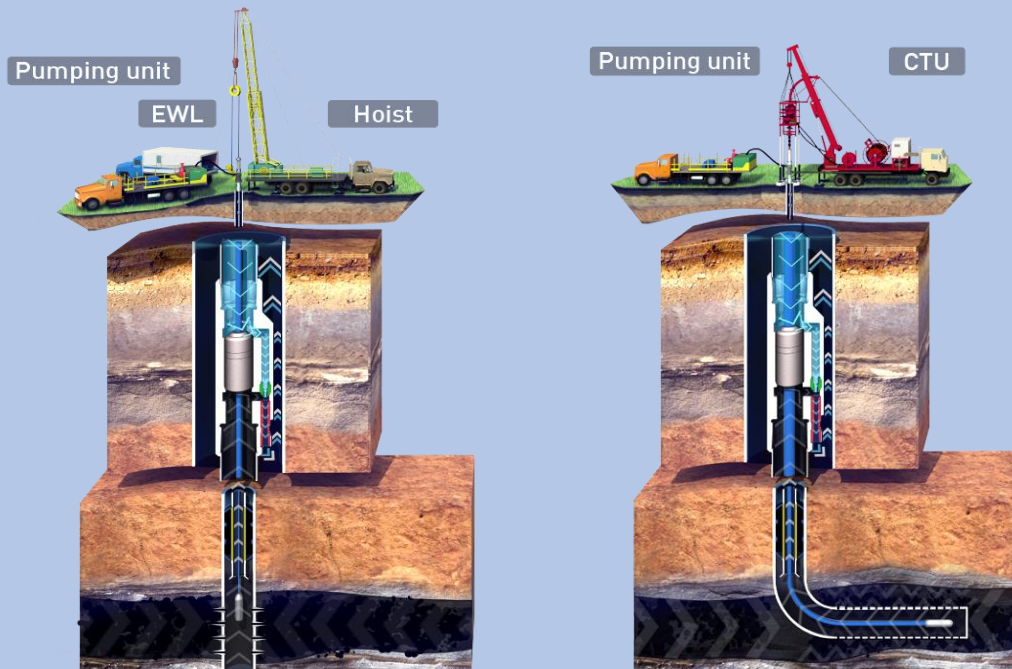
New Geophysical Technology 2019

North Side participated in Geophysical Forum 2019 and visited our partners manufacturing facility in different regions.

OUR MAIN SERVICES

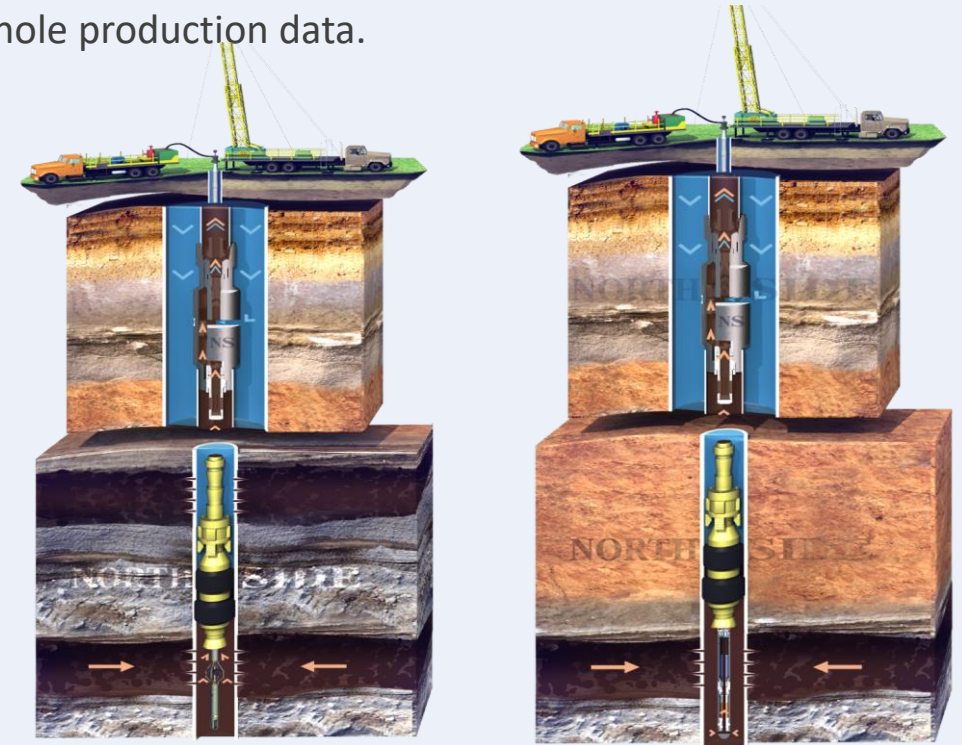
FlowJet technology for MPLT in artificially lifted wells

FlowJet technology is designed to lift the well during Production Logging Survey. It was developed for oil producers which have no Y-tool or Dual string as a part of AL completion.



Drill Stem Test with FlowJet (with PVT sample)

FlowJet technology was designed to perform DST in non-self-flowing appraisal, exploration or any other types of wells at variable drawdown to evaluate performance of the formation at different flow regimes, record Pressure Build Up and acquire downhole production data.

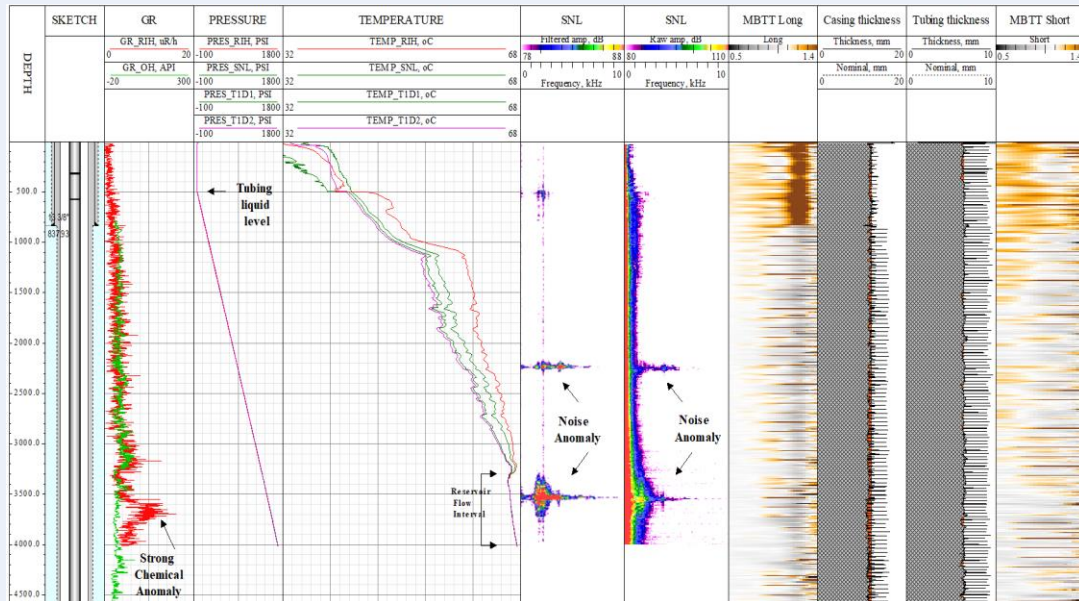


OUR MAIN SERVICES

Well Integrity Evaluation Suite

The combination of SNL & MBTT tools is designed for the active leak hunting/localization in a well as well as metal loss of the well barriers (tubulars) evaluation due to corrosion.

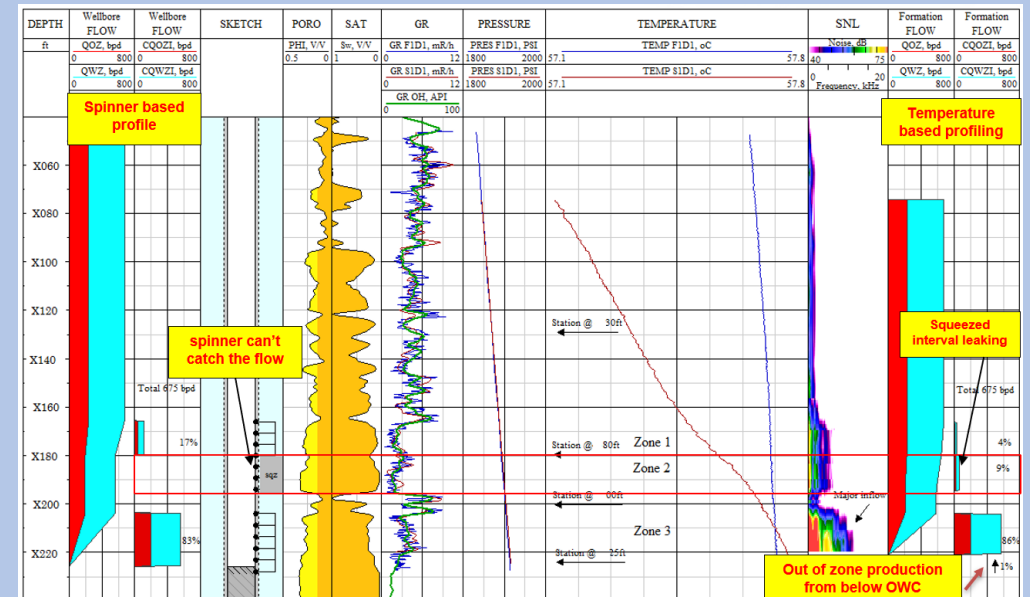
This case illustrates the location of two leaks through 9.5/8 casing collars and channeling to the surface between 9.5/8 and 13.3/8" casings.



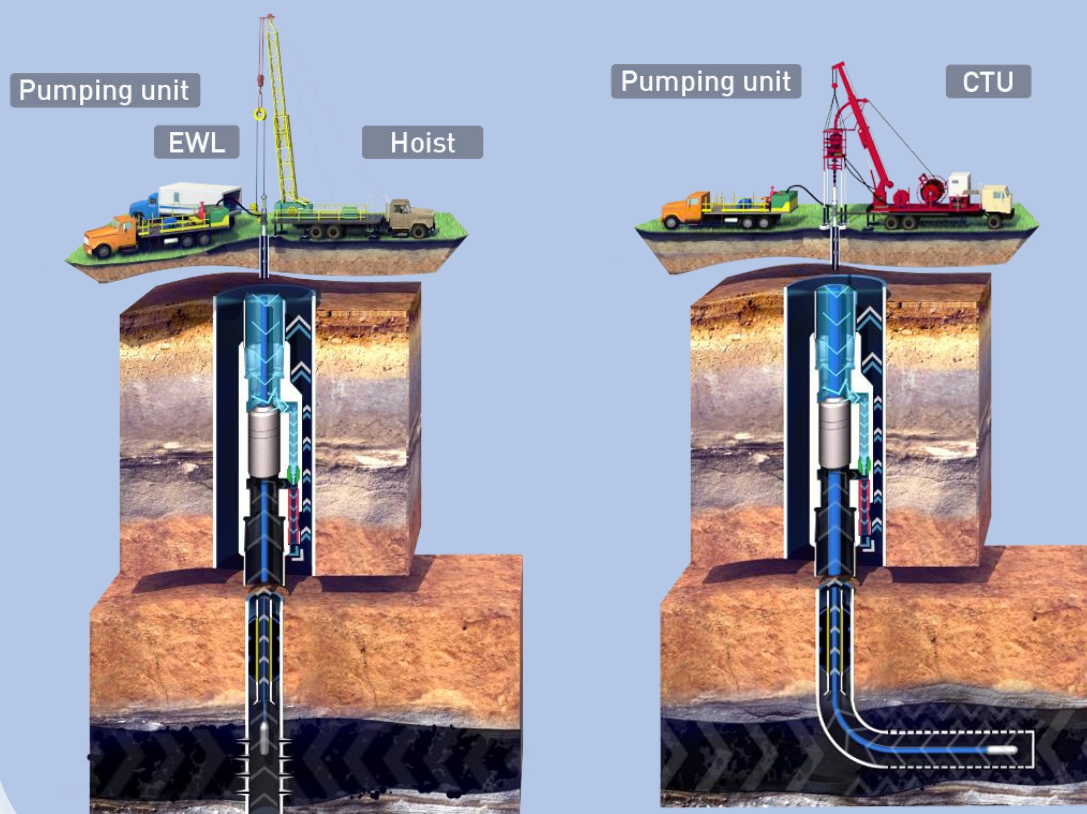
Spectral Noise Logging & Temperature Modelling

Spectral Noise Logging is designed for the well-reservoir performance evaluation behind casing to determine reservoir-related production profile.

Spinnerless Reservoir Performance Evaluation technology helps to construct production-injection profiles without spinner by using only high precision temperature as an input to temperature simulation software.



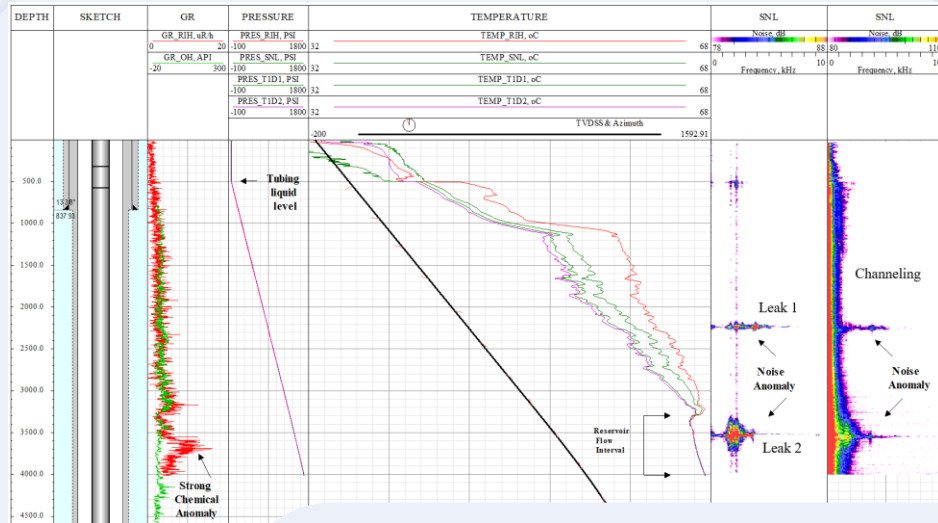
FLOWJET & MPLT IN AL WELLS



- ✓ FlowJet pump is a technology to lift artificially produced wells when there is no other option to perform MPLT in a well flowing mode for reservoir performance evaluation due to the artificial lift presence in a wellbore.
- ✓ Technology can be applied at any opportunity such as failed ESP/BP/PCP replacement.
- ✓ Works well in Vertical and Horizontal oil producers.
- ✓ A to Z solution for optimization of high water cut, underperforming wells.
- ✓ Success rate – 100%

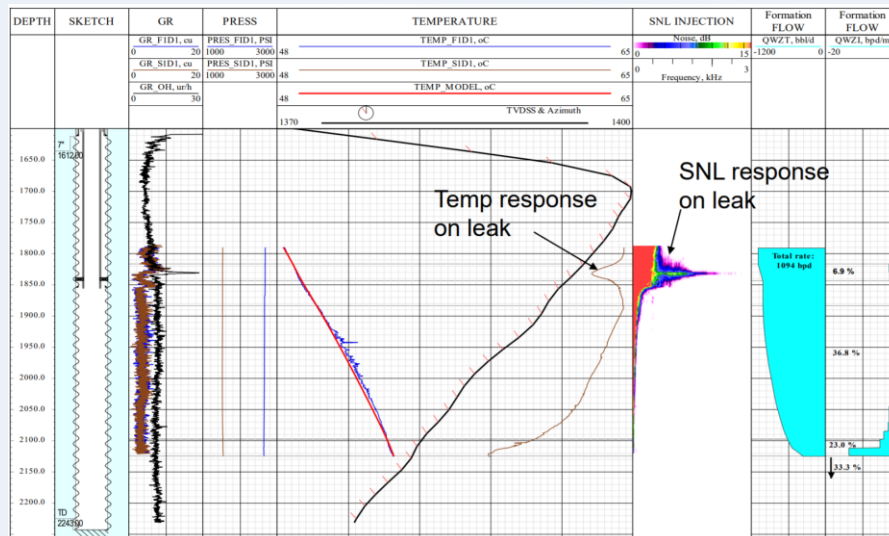
SPECTRAL NOISE LOGGING & TEMP MODELLING

Leak Detection and Reservoir Performance Evaluation



Spectral Noise Logging Technology:

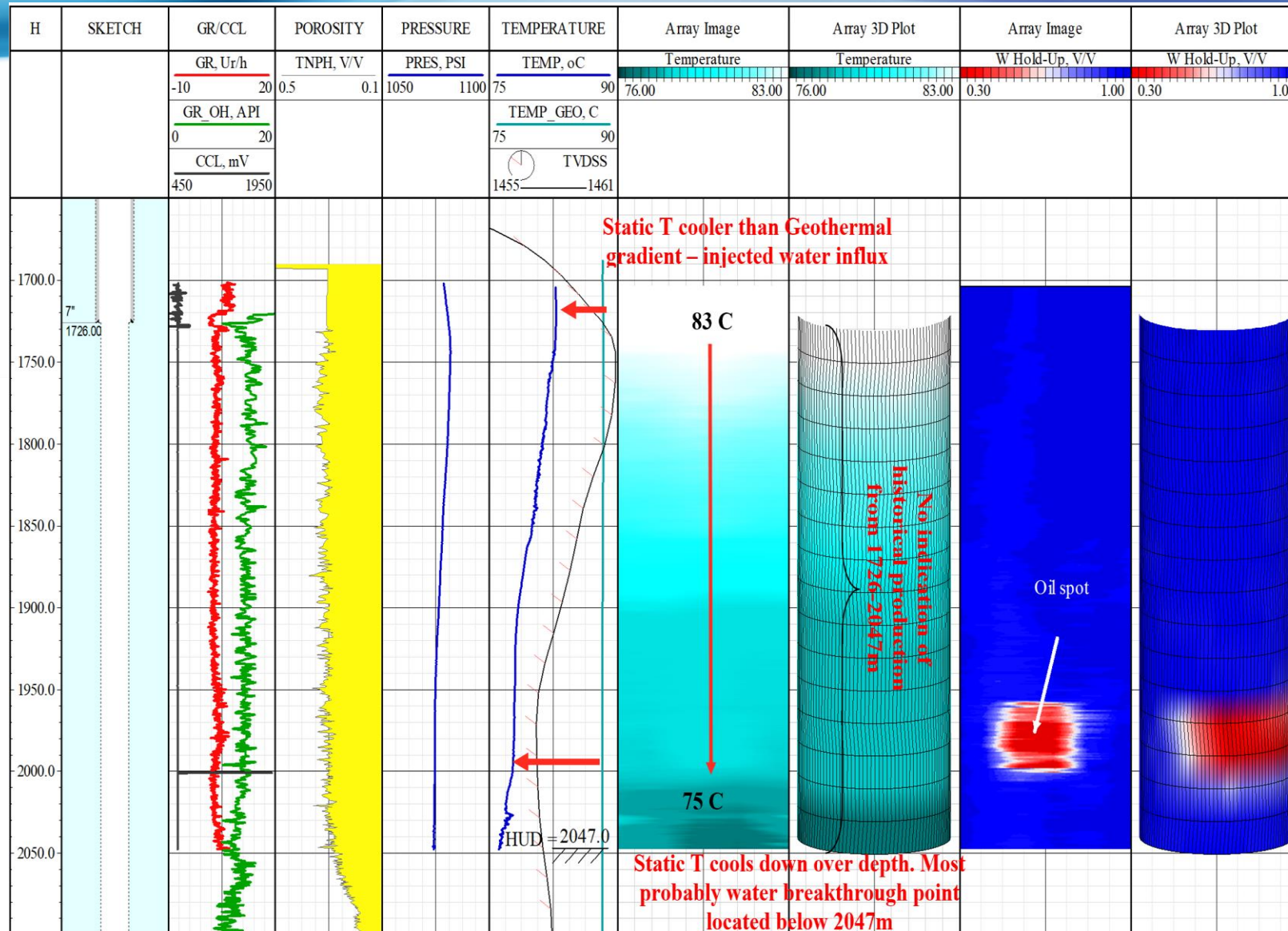
- Response from active leak interval at various frequencies and amplitude against well completion;
- Processes behind casing / liner;
- Reservoir Performance Evaluation;



High Resolution Temperature & Temp modelling Technology:

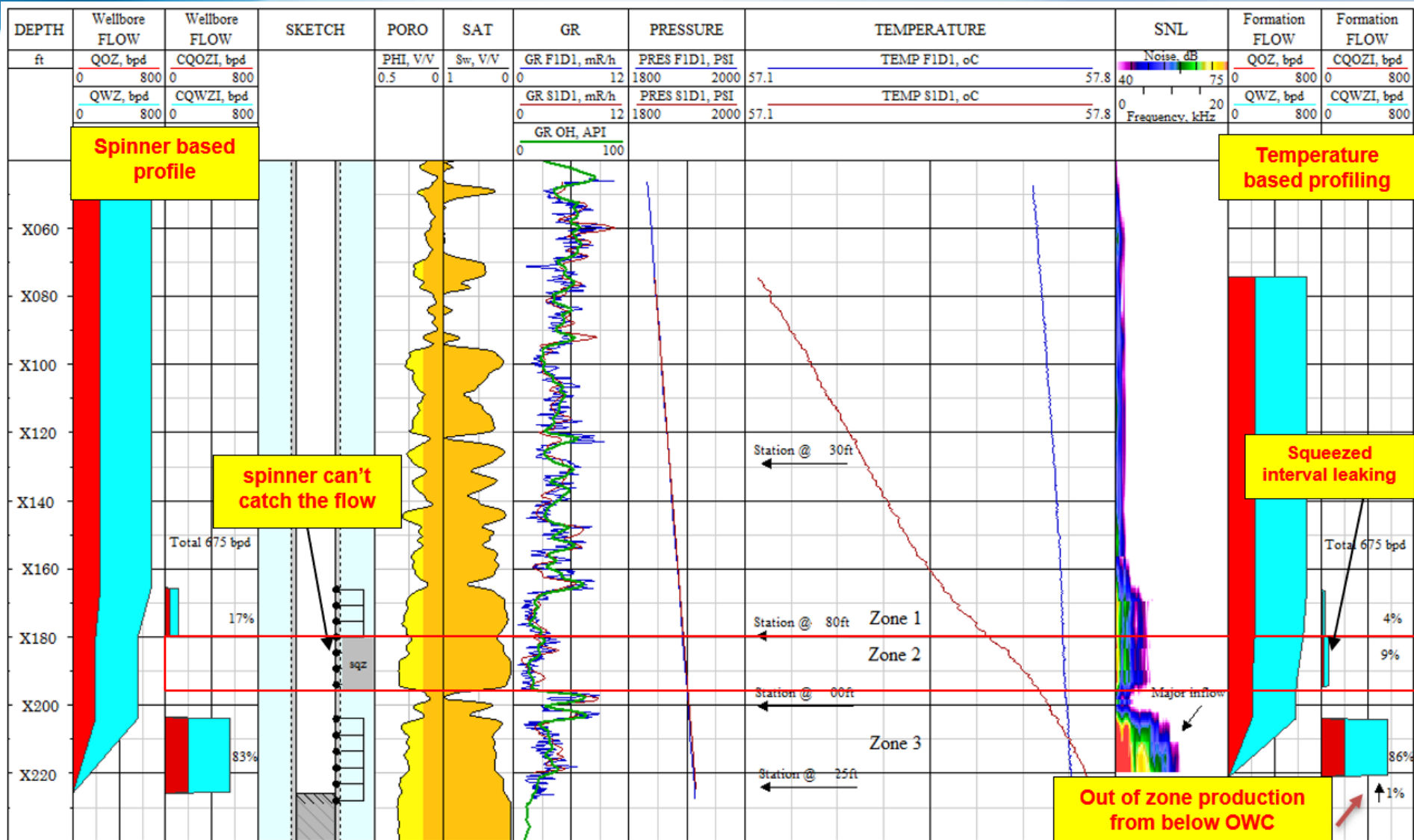
- Temperature anomalies against leaking interval;
- Quantification of processes behind casing or liner;
- Reservoir Performance Evaluation;

RESERVOIR PERFORMANCE EVALUATION (RPE)



**HORIZONTAL WELL BY
ARRAY TAT & CAT
TOOL – SPINNERLESS
PRODUCTION
PROFILING**

RESERVOIR PERFORMANCE EVALUATION (RPE)

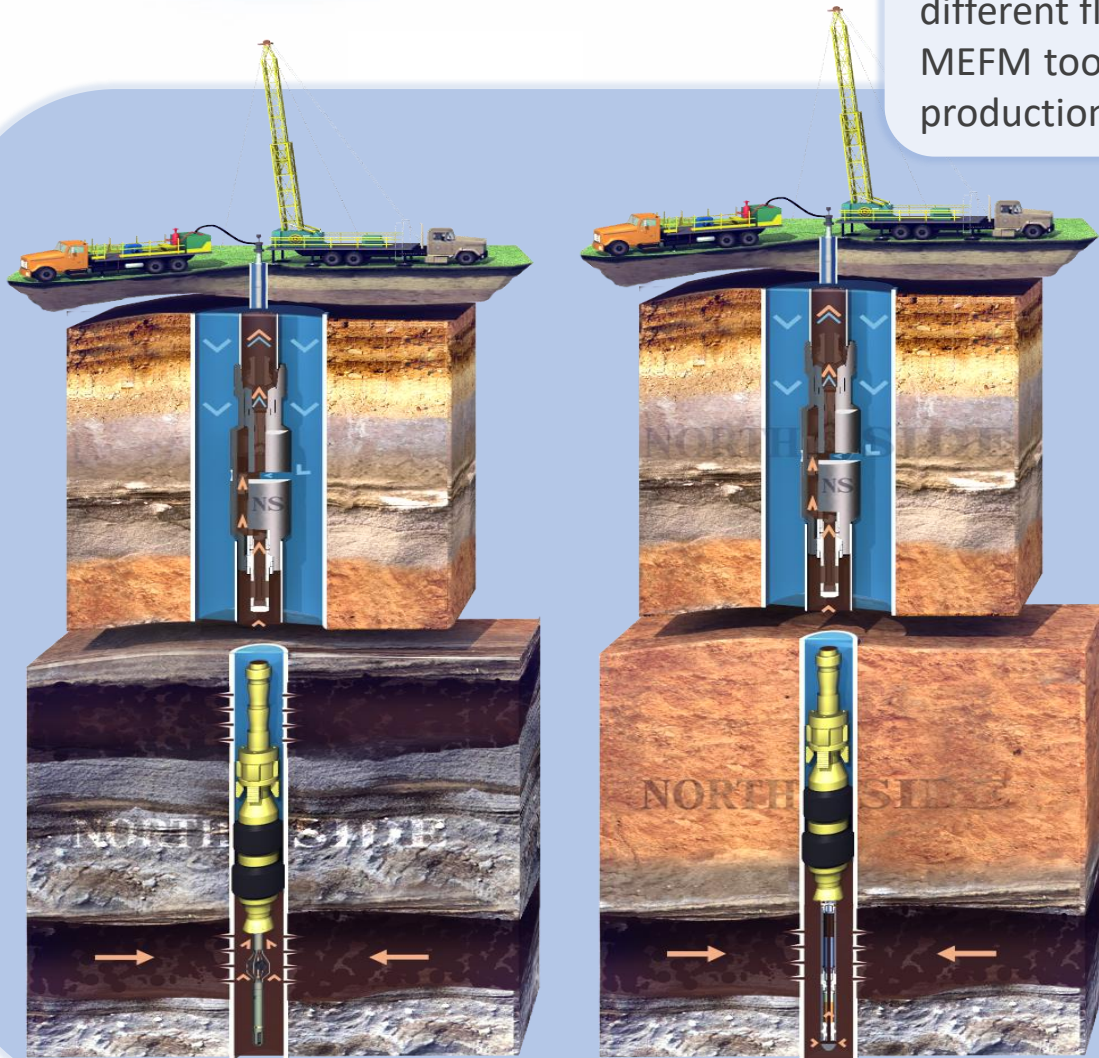


SPINNER BASED vs TEMP MODELLING & SNL PRODUCTION PROFLING

DST WITH FLOWJET

Drill Stem Test with FlowJet is the best way to test multilayered formations zone by zone creating variable drawdown to the reservoir to evaluate its performance at different flow regimes.

MEFM tool helps to measure gross rate, water cut, pressure and temperature during production test downhole with unlimited test duration, perform PBUS.



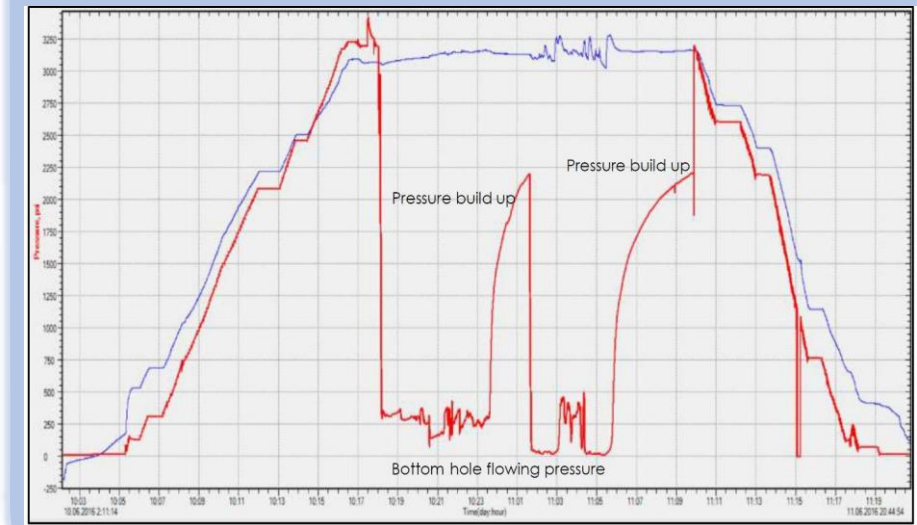
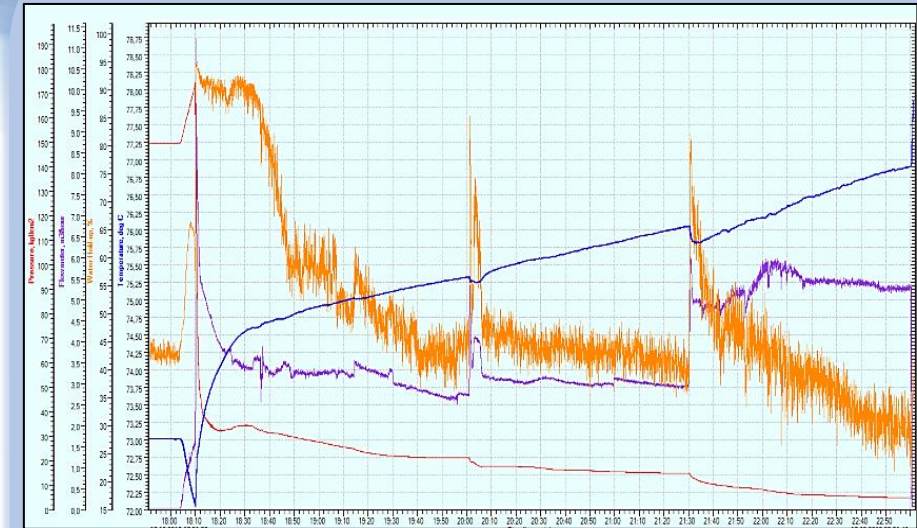
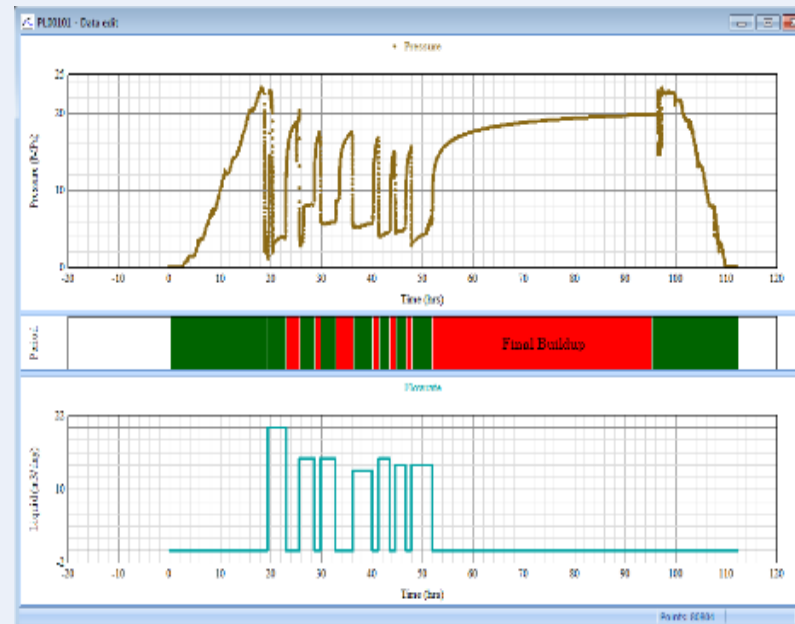
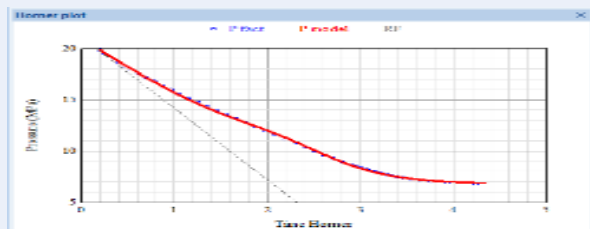
- ✓ During production and testing MEFM tool records all stated above parameters to its internal memory at sampling rate of 0.25 - 60 seconds.
- ✓ Well test inset with MEFM tool could be retrieved from hole by slickline with use of supplied fishing tool.
- ✓ Unlimited duration of production.
- ✓ PVT sampling can be done as well at the stationary well flow.
- ✓ The collection of PVT sample allows to have a clean and pure sample of reservoir fluid from remote zones of the formation free from mud residuals. PVT chamber used for PVT sampling has 2 by 500cc containers equipped with timer and pressure triggers.

FLOWJET AND DST INTERPRETATION

RESULTS AND ADVANTAGES:

- The series of Zonal DST have been successfully performed in low permeability ($\sim 1\text{mD}$) reservoir.
- FlowJet pump & DST assembly allowed maximum drawdown (BHP almost zero) to flow well which is not naturally flowing.
- Wellbore isolation with pump insets helps to eliminate wellbore storage effect and obtain valuable reservoir information.

Parameter	Unit	Value
Initial Reservoir Pressure	MPa	21.0
Reservoir Temperature	$^{\circ}\text{C}$	113.0
Bottom Hole Pressure	Map	4.6
Flow rate	m ³ /d	14.0
Permeability-Thickness	mD*m	4.6
Infinitesimal Skin		0.6-1.0
Radius of Investigation	meter	86

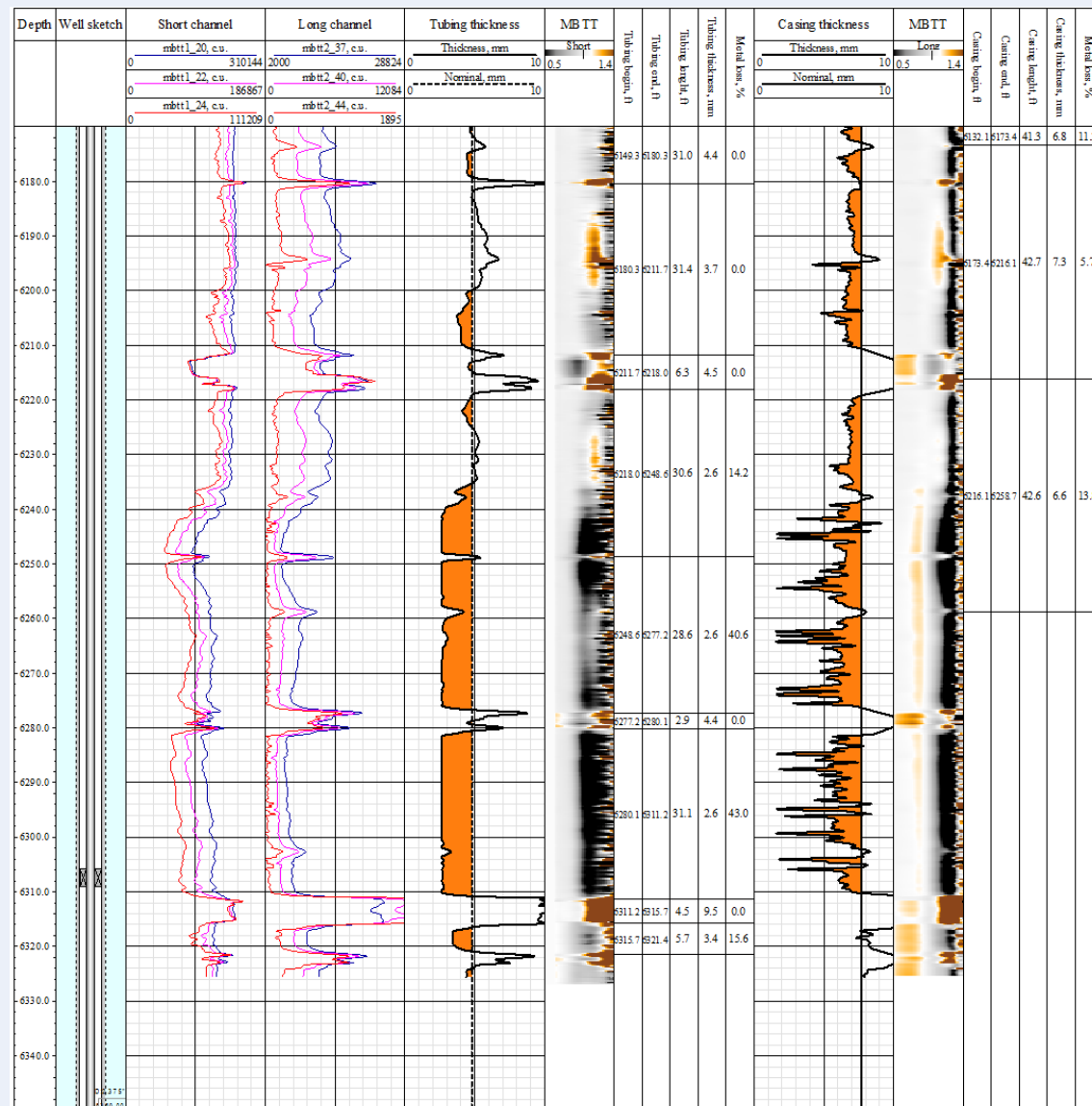


CORROSION LOGGING



Corrosion logging is designed to evaluate remaining metal thickness of the well completion such as a tubing and/or casing, up to 3 barriers, based on emission and receipt of electromagnetic field with following computation of data in company's software. Fully autonomous MBTT Corrosion Logging Tool requires no preparation of well completion such as scraper run. It is a stand-alone survey aimed to save time and cost for the mature wells integrity evaluation.

- ✓ Slickline conveyed
- ✓ 3-barrier memory mode tool
- ✓ Accurate depth control (GR)
- ✓ T and P additional sensors in the tool



TOOL TESTING & CALIBRATION LAB

Ongoing researches on modelling of hydrodynamic processes in multiphase fluid systems in horizontal wells. New Array tools and modules testing and fine tune Software adaptation to new well reservoir environment.

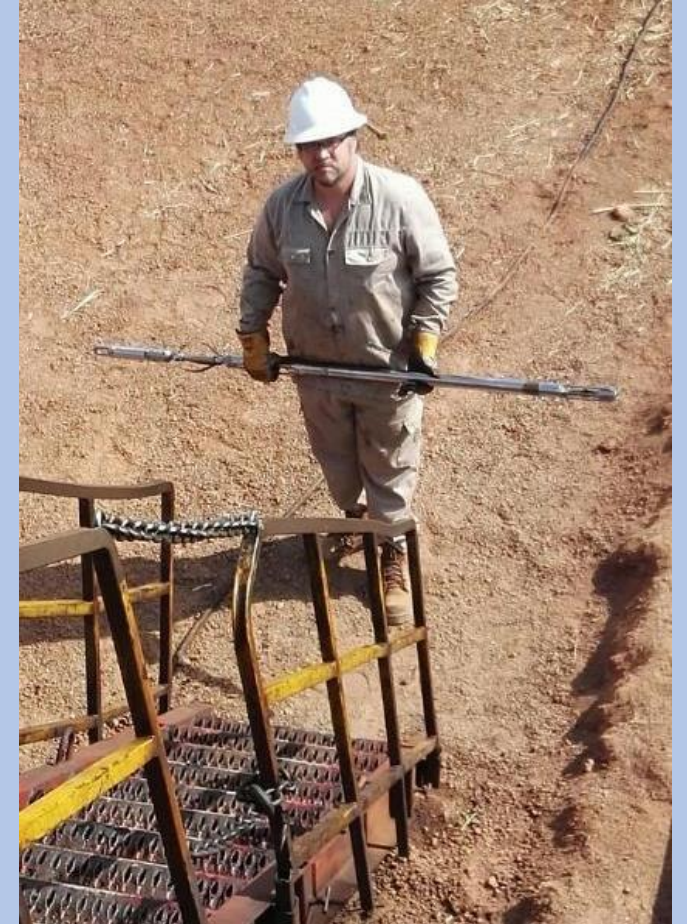
- Horizontal well model – 15m.
- Pipeline OD – 150mm, wall thickness 8mm.
- Changeable inclination of each section of well for multiphase flow separation understanding and impact on production.
- Gross rate – up to 3,780 bpd.



OUR TEAM ON SITE

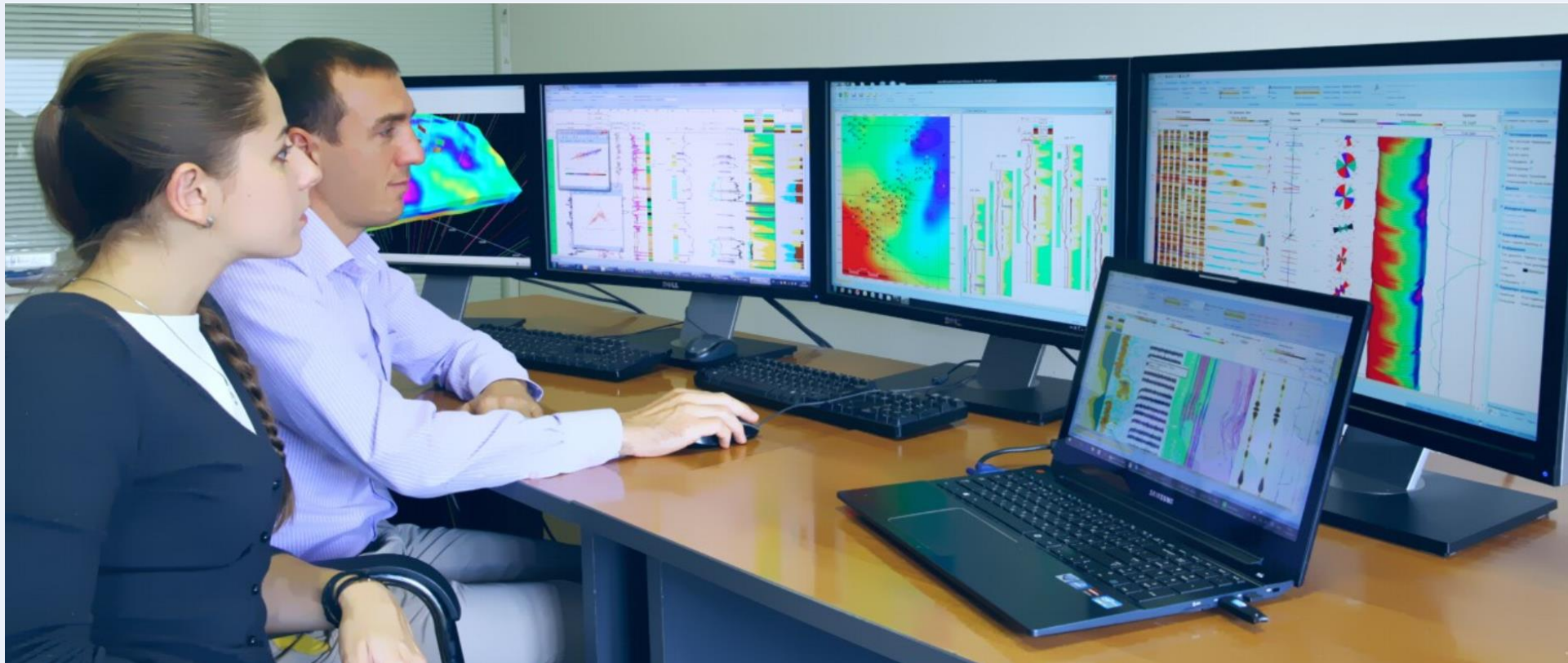


Our team of field engineers works on different locations around the world.



OUR INTERPRETATION TEAM

Due to the specific of our business NS interpretators are available 24/7 delivering results in 14 hours when it is required by program so Clients are able to make a decision and do optimization workover at the spot upon interpretation results.



NORTH SIDE ACROSS THE WORLD



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