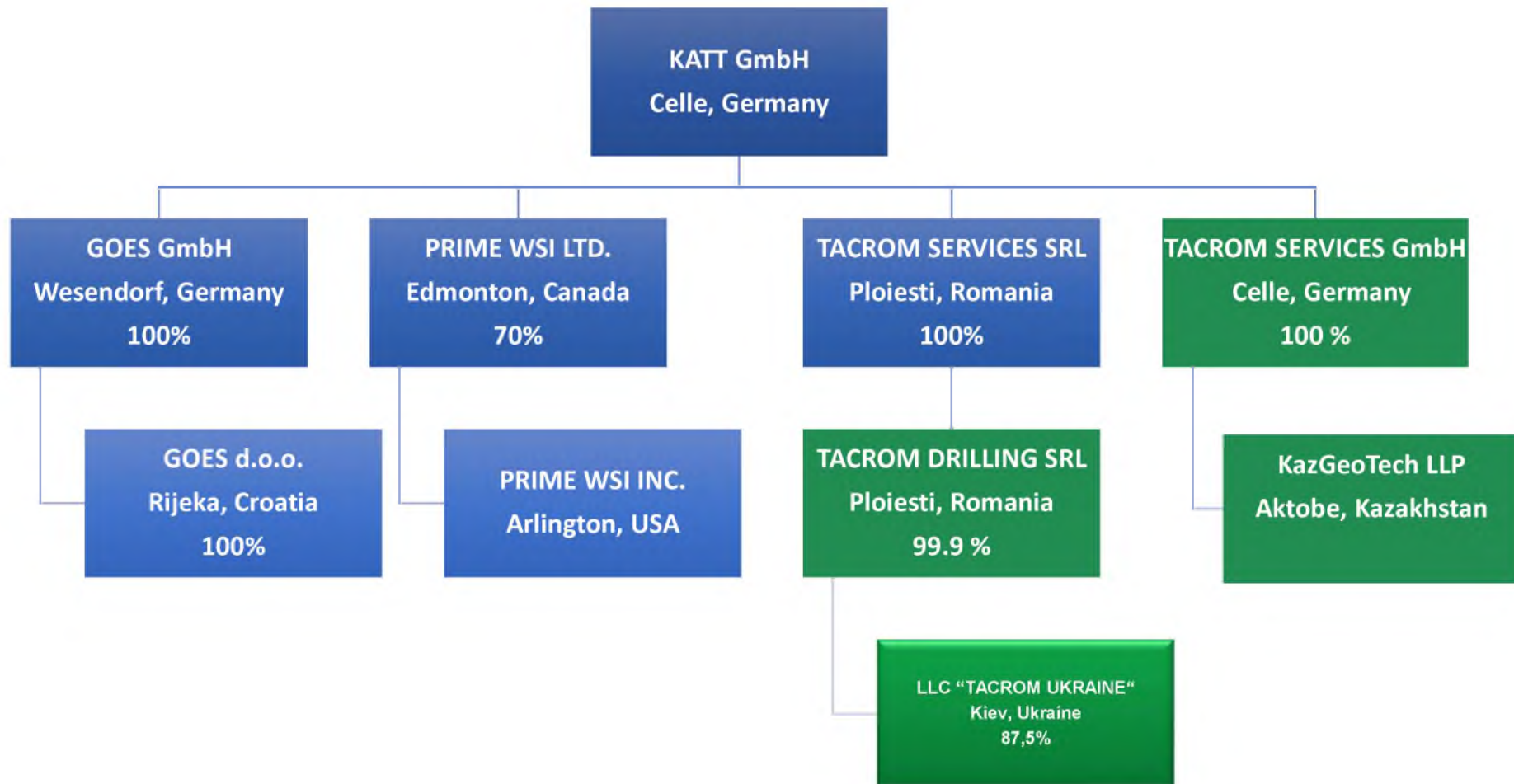




TACROM SERVICES PRESENTATION

August 2023

presented by: Markus Sommerbauer, Managing Director TACROM SERVICES GmbH



**Tacrom Services GmbH: 100 % subsidiary of KATT GmbH (est. 1998)
located in Celle, Germany; founded in 2019**

Company Development

- October 2006 – Tacrom Services SRL was established as a fracturing service company from the German KATT GmbH in Ploiesti, Romania
Currently in Ukraine, Romania, Hungary, Usbekistan and Kasachstan
since 2006 > 900 frac jobs
- March 2008 – expansion of service operation to coil tubing and nitrogen services
Currently in Ukraine, Romania, Hungary, Kasachstan and Germany
since 2008: > 1000 CT jobs (> 300 incl. N2) & > 450 add. N2 operations excl. CT
- Other oilfield services: Gravel Pack service, Acid Stimulation and Hot Oil Services
- November 2019 – Foundation of Tacrom Services GmbH (Germany & Central Europe)
- June 2020 – operational start of TSG → first N2 und CT Service jobs in Germany

In Romania

- OMV Petrom
- Stratum
- Algoritm
- Amromco
- Transatlantic
- Aurelian Oil
- Expert Petroleum
- Petrofac
- PetroSantander
- Fora
- Romgaz
- Winstar
- Norwest

In Ukraine

- UkrGasVydobuvania
- Burisma
- GeoAlliance
- DTEK

In Albania

- Bankers

In Turkey

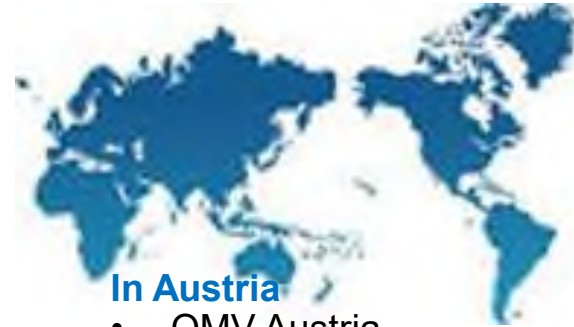
- Hema Energy

In Poland

- ConocoPhillips
- PGNiG
- BNK Petroleum

In Germany

- Neptune Energy
- Vermilion Energy
- 5P Energy
- RWE Gas Storage West
- STORAG Etzel GmbH
- Astora GmbH
- VNG Gasspeicher
- Rhein Petroleum
- Genexco GmbH
- Fangmann Energy Services
- Bayernwerk Natur GmbH
- PSI GmbH



In Austria

- OMV Austria

In Danmark / Sweden

- Gas Storage Denmark
- Ross DK

In Netherlands

- Superior / BPC

In UK

- Egdon Resources
- Geothermal Engineering
- Angus Energy

In Belgium

- BTSolutions

In France

- Storengy

QHSE Certifications

- ISO 9001/2015 Quality Management (valid to 27.09.2023)
- ISO 45001:2018 Occupational Safety (valid to 27.09.2023)
- ISO 14001:2015 Environment/Energy (valid to 27.09.2023)
- SCC** (valid to 15.09.2024)

TACROM SERVICES GmbH Equipment and Personnel

- 1 x Coiled Tubing Unit (1 ½" CT)
 - 1 x Two Trailer CTU (1 ¾" / 2" CT)
 - 1 x CT Support Tower
 - 2 x 10 ft CT Tool Container
 - 2 x 180K Nitrogen Unit
 - 2 x 11000 ltr Nitrogen Tank
 - 1 x 17000 ltr Nitrogen Tank
 - 2 x Twin Pump Unit
 - 1 x Single Pump Unit
 - 2 x 80 m3 Acid Tank Trailer
-
- 2 x Service Engineer
 - 1 x Service Coordinator
 - 3 x Service Supervisor
 - 9 x Service Operator
 - 1 x Service Assistant
 - Additional local personnel on call respectively in planning
 - Additional personnel support from our international operations



Trailer Mounted 4500 m CTU

- 4500 meters 1 ½" CT on the reel
- all components rated to 700 bar
- compact, efficient design
- Driven by tractor unit with an additional noise reduction at drive shaft
- GOES DATA Acquisition Hardware
- COILDATA CT Software
- Well Control Equipment
 - 10K Quad BOP (3.06") / optional 10K Dual BOP (4.06")
 - 10K Side Door Stripper
 - 4.06" 10 k Lubricator



Two Trailer Unit for bigger size CT (1 ¾“ and 2“)

- 2 Trailer Unit consisting of:
 - 1 x CT Equipment Trailer (Operator House, Power Pack, hose packages)
 - 1 x CT Reel Trailer with CT Reel (capacity 6000 m 1 ¾“ CT or 5300 m 2” CT) and 100K CT Injektor incl. tubing guide
- all components rated to 700 bar
- GOES DATA Acquisition Hardware
- COILDATA CT Software
- Well Control Equipment
 - 10K Quad BOP (4.06“) /
 - Optional: 10K Dual BOP (4.06“)
 - 10K Side Door Stripper
 - 4.06“ 10K Lubricator



CT Tower

- Type Approval 304 from LBEG Clausthal – Zellerfeld (mining authority Niedersachsen)
- Dimensions L/B/H 6200 mm / 2680 mm / 24489 m
 - Base Frame 6,20 m x 2,68 m x 5,22 m
 - inner dimensions: 5,5 m x 2,015 m x 4,6 m
 - Intermediate sections 2,663 m x 2,663 m x 2,5 m
 - Injector Frame 2,663 m x 2,663 m x 3,26 m



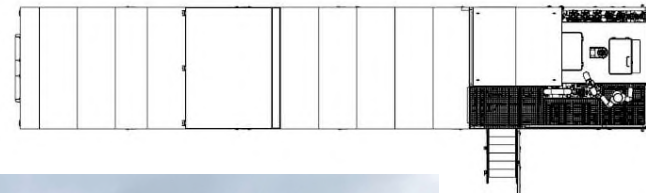
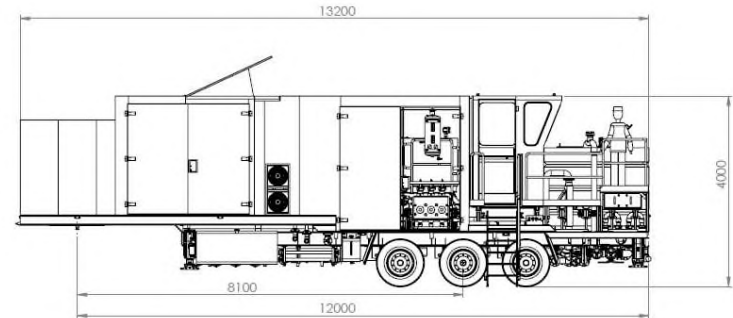
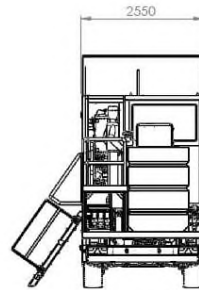
Single Pump Unit (Acid Pump Unit)

- Truck mounted, single operator control
- 320 HHP
- Serva Triplex Pump with 3" Fluid End
- Rate 30 – 750 l/min
- 2 x 3 m³ Mix Tank with centrifugal and Roper pumps
- 2 x 100 l chemical holding tanks with pumps to add chemicals on treatment fluid on the fly (0 – 12 l/min)
- GOES DATA Acquisition Hardware



Twin Pump Unit

- trailer mounted
- Twin Pump Unit
- 2 x Caterpillar industrial engines
- 500 HHP
- 2 x centrifugal pumps
- 1 x 4 m³ mix tank
- Displacement tank with mixing units
- GOES DATA Acquisition Hardware



180K Nitrogen Unit

- pump rate 6-85 Nm³/min
 - 700 bar working pressure
 - Sound encapsulated
 - GOES DATA Acquisition Hardware
 - 11,000 Liter nitrogen tank
-
- 1 additional 17,000 Liter nitrogen tank



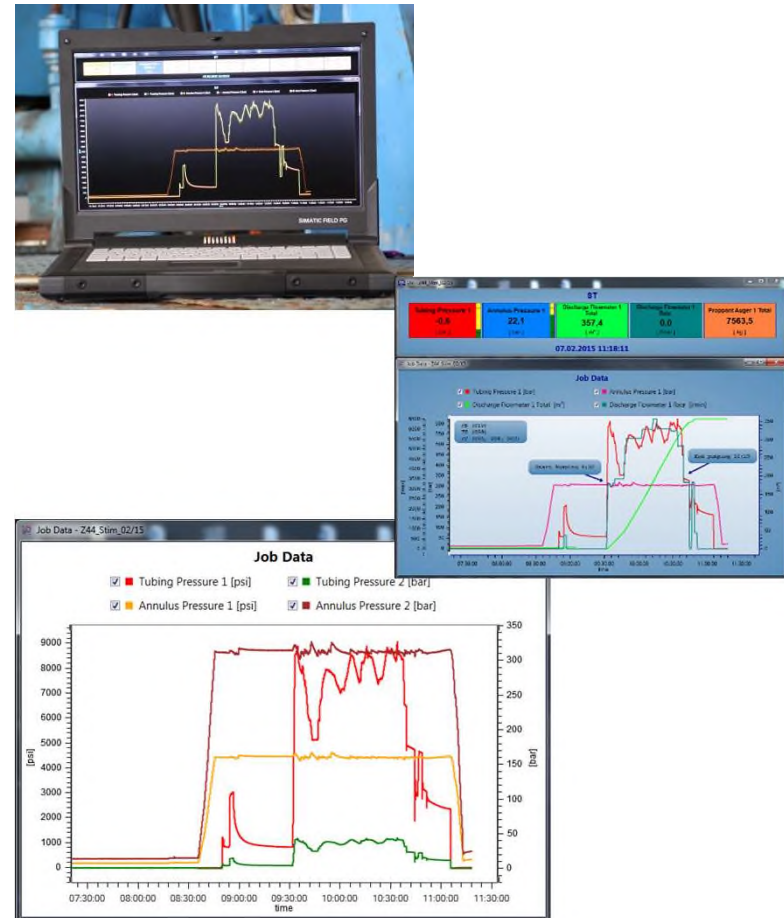
CT Tool Container incl. CT Downhole Tools

- CT Connectors (Internal & External) ODs 1.688" – 2.25" OD
- Hydraulic Dimple Tool
- Motor Head Assemblies 1.688" – 2.125" OD
- Dual Flapper Check Valves 1.688" – 2.125" OD
- Hydraulic Disconnect 1.688" – 2.125" OD
- Dual Circ Sub 1.688" – 2.125" OD
- 5 ft Straight Bars 1.688" – 2.125" OD
- Downhole Inline Filter 2.125" OD
- Spiro Jet 1.688" – 2.125" OD
- ProPulse Jetting Nozzles 1.688" – 2.125" OD
- Jetting/Washing Nozzles (5 port) 1.688" – 2.125" OD
- Spin Cat Tools 1.68" – 2.875" OD
- Flow Release Pulling Tools 1.688" – 1.75" OD
- Various X-overs
- Pull Test / Pressure Test Subs
- Pig Catcher Sub 1 ½" & 1 ¾" CT
- Roll On Spoolable Connectors 1 ½" & 1 ¾" CT

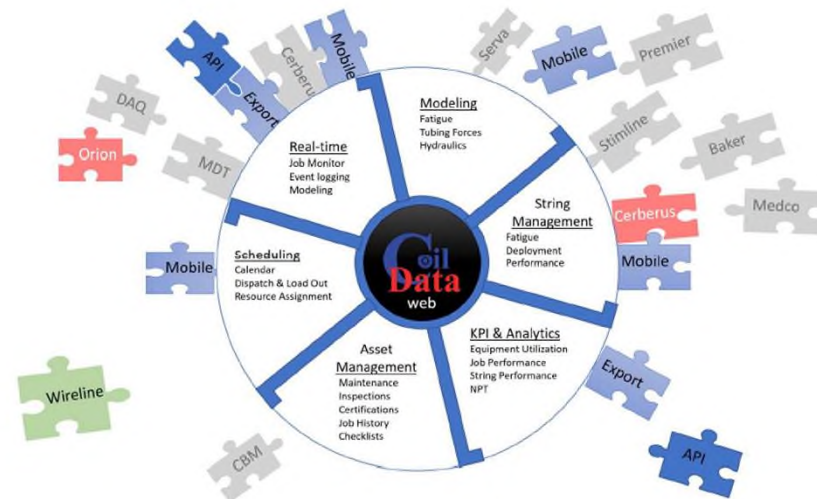


GOES Data Management System(DMS)

- Real-time Data Acquisition System
- Easy set up and online monitoring in the field with advanced evaluation function for analyzing and reporting of the well treatment on site, or post job in the office
- Multiple charts and digital displays
- Import and export of data (CSV/Excel)
- Visual and acoustic alarms
- Connects to any compatible hardware (TCP via Ethernet or Wifi, Serial)
- Generation of automatic post job reports
- Collection and combination of data from different sources in once (e.g.CT-fleets, frac-Fleets)



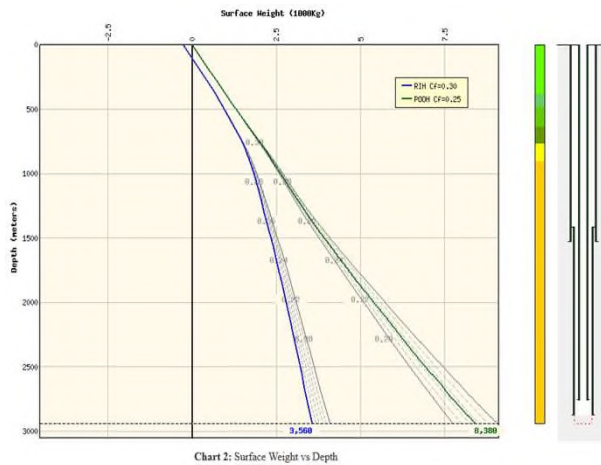
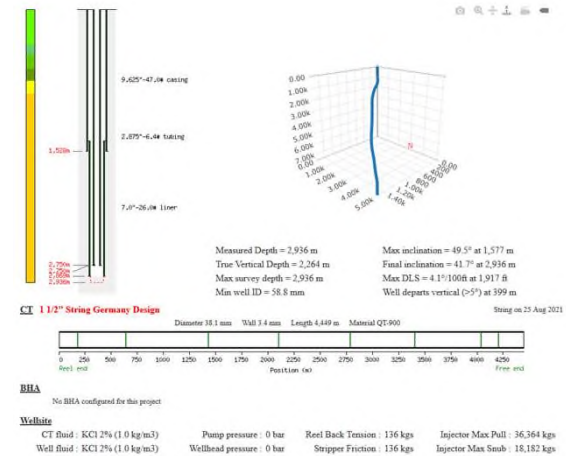
Operations Management: all in one place



- Used for modeling forces, hydraulics and fatigue
- Used for string management including CT fatigue
- Used for live wellsite monitoring
- Used for equipment maintenance
- In general we can manage our operations and review the current status of all our CT strings, past and present, from our computer, tablet or smart phone using CoilData

COILDATA Modeling

- Tubing Force Analysis
- Tubing Limits
- Hydraulics Modelling
- Fatigue Modelling
- All modeling calculations, including hydraulics, are available in real-time at the wellsite provided you have an internet connection.



Data presented in this report is confidential and intended solely for the use of employees of the subscribing company and their clients. CoilData does not guarantee the accuracy of results or analysis delivered under this service, and is not liable for any actions or consequences arising from the customer's interpretation or use of this data in subsequent operations. Use of this service is subject to the Terms and Conditions as specified on the CoilData website.

Summary

For a friction coefficient Cf of 0.30 (RIH) and 0.25 (POOH):

- Max reachable depth: **2,936 m** No lock-up detected
- Max set-down at 2,936 m: **-819 kgs** Surface weight will be -17,909 kgs
- Recommended minimum set-down is 1000 kgs

Note: These calculations assume steady-state conditions, and tend to be conservative.
 A caution (yellow) or warning (red) status does not necessarily mean the job cannot be performed.
 *It may be possible to pull harder or set down more weight by cycling the pipe.

Results

Summary Tables Velocity Pressure Density Viscosity

Coiled Tubing circulating 20 pptg Xanthan at 1,280 ft

- Pump Pressure: 218 bar
- Liquid Flow Rate: 0.19 m³/m
- Gas Flow Rate: 0 m³/m
- Gooseneck Pressure: 130 bar
- Downhole Pressure: 39 bar
- CT Min Velocity: 171.4 m/min
- Pump Down Time: 33.7 min

Hydrostatic Pressure Loss: 38 bar
 Friction Pressure Loss: 93 bar
 Acceleration Pressure Loss: 0 bar

CT Fluid Phase: Liquid
 CT Flow Regime: Turbulent

BHA with 3 x 3.0 mm nozzles

- Total Pressure Drop: 125 bar

Well Annulus

- Bottomhole Pressure: 219 bar
- Wellhead Pressure: 0 bar
- Annular Min Velocity: 2.5 m/min
- Bottoms Up Time: 156.7 min

Hydrostatic Pressure Loss: 219 bar
 Friction Pressure Loss: 0 bar
 Acceleration Pressure Loss: 0 bar

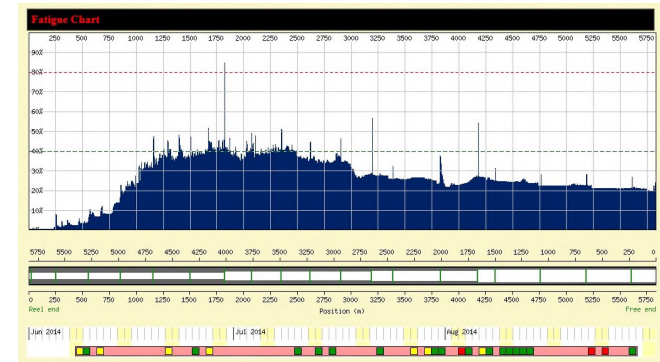
Annular Fluid Phase: Liquid
 Annular Flow Regime: Laminar
 Annular Reynolds Number: 13

Authorization time: 0.16 secs
 Calculation time: 0.26 secs

Last updated: 09:34:37 CST
 Powered by: © BTECHSoft

COILDATA Fatigue Modeling & Analysis

- CoilData offers two fatigue models, including an implementation of the industry-recognized Avakov model through a collaboration with BTechSoft.
- In addition, the module gives the user the option of finding the maximum number of cycles to fatigue failure
- Corrosion factors (due to acid, cement etc.) and stress concentration factors (due to welds) are taken into account.
- Data can be entered manually or uploaded or can be used in real-time reading data directly
- At any time, the user can view the current status of the coiled tubing or can review the string history



String 39208-1

Status as of Nov 26, 2021

Summary (Active)

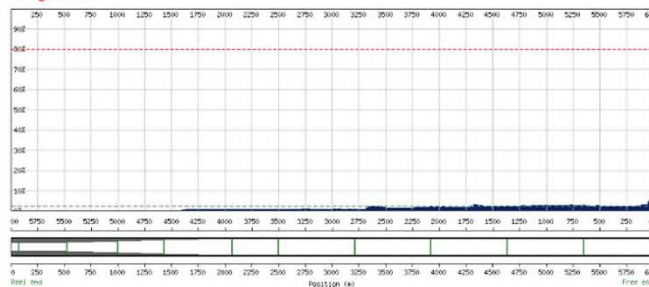
Location	Unit	Updated	Dia (mm)	Wall	Mat	Len (m)	Jobs	Meters	Eff	Max
Celle	CTR-08	11/19/2021	44.5	0.204-0.134	HS-90	6,000	4	26,194	3%	8%

Maximum fatigue is 8.3% at 5,968m from reel core end.
String fatigue is within normal working limits.

User Remarks

Active

Fatigue Chart



Job History

Job	Wall	Date	Client	Supervisor	Job Type	Cut	Data	Meters	Eff	Max
1	Reedairz Rdn 2a	7/14/2021	ENXCO		Perforating		DAS	17,413	6.0%	6.0%
2	Ettal KJ20	9/12/2021	Storag Etal GmbH		Other		DAS	1,188	0.5%	6.2%
3	Pong Th2	9/26/2021	Bayernwerk Natur GmbH		Set Plug		DAS	4,770	1.7%	7.0%
4	DOE #1	10/4/2021	Kraftingen		Other		DAS	2,825	1.3%	8.3%

Real-Time Streaming and Monitoring

CoilData Job Monitor
Job status as of Apr 21, 2020

Supervisor: not specified

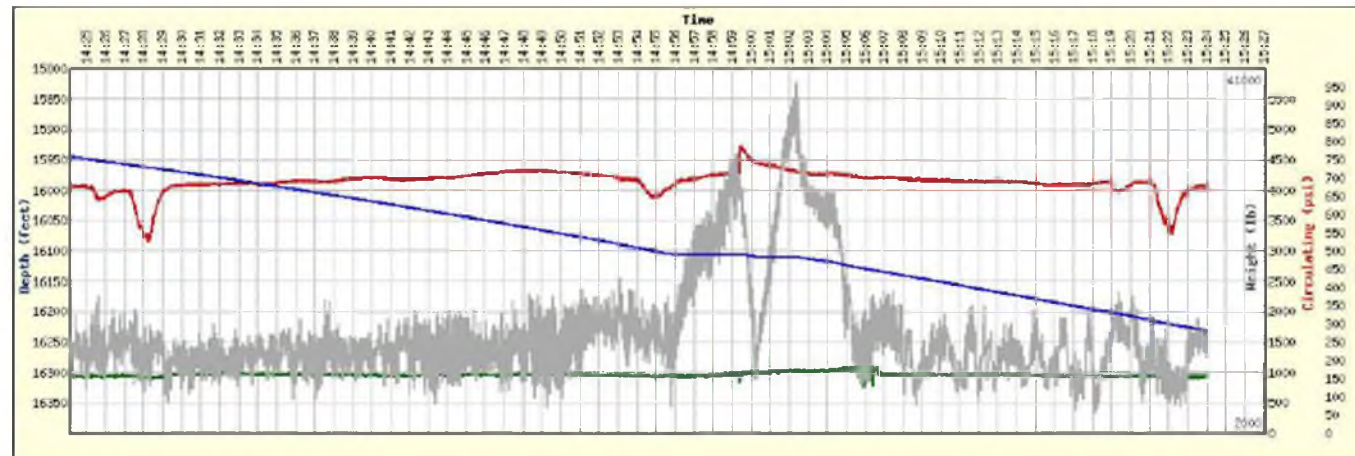
Live Data Analysis Well

Report Dispatch

Hydraulics Fatigue Limits TFA

Unit is online

Speed (ft/min)	Depth (ft)	Circulating (psi)	Wellhead (psi)	Weight (lb)
5.4	16,232.0	4,086	163	10,649



last record 04/21/2020 15:24:07 1-2 sec

Display: 10 mins 60 mins

— Depth (ft) — Circulating pressure (psi) — Wellhead pressure (psi) — Weight (lb)

Pump Rate (BPM)	N2 Rate (SCFM)	Flowback (BPM)	Pump Total (BBL)	N2 Total (MMSCF)
5.0	0.0	5.0	5,568.6	0.0

Injector 1001N0

Summary | Schedule | Checklists | Records | Parts List | Job History

Location : On a Job
 Serial : J02480
 Type : HR-6100
 Chain : [add]
 Weight :
 Unit : 33C06
 Job# : 20
 Meters : 11,527 [edit]
 Last Job : 3/15/20
 Saguro D P56-E094 H 65 - 03/14/2020 23:56
 23C06
 Last Checklist: No checklist

Commissioned :
 Scheduled : 200000 m [edit]
 Most Recent : Feb 18, 2020
 Maintenance
 250K Meter Injector Inspection - February 18, 2020 - Avantis WOr 75728
 Performed by Patil Mraz at FSJ
 Ticket: Closed


Most Recent : No inspections
 Certifications
 Most Recent : No certifications

Recent Comment : No comments [add]

Recent Maintenance Records

Created Date	Created By	Type	Status	Comments
18 Feb 2020	10:24 20 Feb 2020	Maintenance	Complete	250K Meter Injector Inspection - February 18, 2020 - Avantis WOr 75728

Legend: ■ Ticket closed ■ Ticket open ■ Ticket open (priority)



CTU 33C03 01120

Box type:

Decrease Date / File:

Where performed:

Performed by:

Clean Power Pack & Control Cabin

Check condition of frame, ladders & steps
 Yes No
 Passed Failed

Quick connects & hoses for leaks/cracks, cuts, etc.
 Yes No
 Passed Failed

Clean electrical sockets & cables with environmentally safe cleaner
 Yes No
 Passed Failed

Check zero of all gauges (* - 25 psi)
 Yes No
 Passed Failed

Check fan, hub & fan belt condition, tension (check radiator (corrosion cracks)
 Yes No
 Passed Failed

Check battery/cables/connectors for corrosion
 Yes No
 Passed Failed

Check alternator & starter and lube starter drive
 Yes No
 Passed Failed

Check electrical system for proper voltage output (11.5V min - 14.5 V max)
 Yes No
 Passed Failed

Check crankcase vent systems for excessive blowby (Ensure drain canister in place on required engines)
 Yes No
 Passed Failed

Check bydraulic oil tank for contamination - drain water, take a sample of the oil if required replace oil and filter
 Yes No
 Passed Failed

Ensure hydraulic oil tank level / fill (to 90% labeled)
 Yes No
 Passed Failed

Ensure fuel tank - fill up to 90% (labeled 1.1 2" to 2" letters)
 Yes No
 Passed Failed

Ensure that air tank is free from water - drain water, perform test to system relief valve
 Yes No
 Passed Failed

Trans gear box oil - check level, note vol required to top off, take a sample of the oil if required replace oil and filter
 Yes No
 Passed Failed

Radiator fluid - check level, note vol required to top off (2" below top - 50/50 anti freeze)
 Yes No
 Passed Failed

Start PP and load pumps. Check system pressures and record them
 Yes No
 Passed Failed

330psi tanking

CoilData provides a complete maintenance package to manage all your equipment and assets, including custom check lists.

Completion Tools & Services

- Production Packers
 - Permanent & Retrievable Seal Bore Packers
 - Tension Set Retrievable Packers
 - Retrievable Dual Packers
 - Inflatable Packers
- Accessories
- Liner Hanger Systems
 - Liner Hangers
 - Liner Packers
 - Liner Accessories
- Flow Control
- Service and Rental Tools
 - Squeeze Packers
 - Inflatables
 - Cement Retainer
 - Retrievable Bridge Plugs
 - Drillable Bridge Plugs
 - Setting Tools
- Horizontal Multi-Stage Completions



Chemicals

- Acid Systems
 - HCL
 - Formic Acid
 - Acidic Acid
 - Citric Acid
 - ABF
- Acid Inhibitors
- Iron Control Agents
- H2S Inhibitors / Scavenger
- Antisludger
- Clay Control Agents
- Foamer
- Defoamer
- Polymers
- pH – Buffer
- Temperature Stabilizer
- Breaker
- Friction Reducer
- Surfactants
- Fluid Loss Control Additives
- Diverting Agents
- Paraffin Removal
- Scale Removal
- HCl – Replacement Products (Cleanstream)
- Solvent Replacement Products (Cleanstream)

Other Products

- Cutting Sand
- Quartz Sand

Laboratory

All stimulation and cleaning fluids can be tested at our laboratory at Ploiesti / Romania in terms of fluid and formation compatibilities, acid solubility, corrosion inhibition, breaking and separation time, sieve analysis etc.



Contact

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