

Confidentiality Requested:

Yes  No

KANSAS CORPORATION COMMISSION  
OIL & GAS CONSERVATION DIVISION

Form ACO-1

January 2018

Form must be Typed

Form must be Signed

All blanks must be Filled

**WELL COMPLETION FORM**  
**WELL HISTORY - DESCRIPTION OF WELL & LEASE**

OPERATOR: License # \_\_\_\_\_

Name: \_\_\_\_\_

Address 1: \_\_\_\_\_

Address 2: \_\_\_\_\_

City: \_\_\_\_\_ State: \_\_\_\_\_ Zip: \_\_\_\_\_ + \_\_\_\_\_

Contact Person: \_\_\_\_\_

Phone: ( \_\_\_\_\_ ) \_\_\_\_\_

CONTRACTOR: License # \_\_\_\_\_

Name: \_\_\_\_\_

Wellsite Geologist: \_\_\_\_\_

Purchaser: \_\_\_\_\_

Designate Type of Completion:

New Well  Re-Entry  Workover

Oil  WSW  SWD

Gas  DH  EOR

OG  GSW

CM (Coal Bed Methane)

Cathodic  Other (Core, Expl., etc.): \_\_\_\_\_

If Workover/Re-entry: Old Well Info as follows:

Operator: \_\_\_\_\_

Well Name: \_\_\_\_\_

Original Comp. Date: \_\_\_\_\_ Original Total Depth: \_\_\_\_\_

Deepening  Re-perf.  Conv. to EOR  Conv. to SWD

Plug Back  Liner  Conv. to GSW  Conv. to Producer

Commingled Permit #: \_\_\_\_\_

Dual Completion Permit #: \_\_\_\_\_

SWD Permit #: \_\_\_\_\_

EOR Permit #: \_\_\_\_\_

GSW Permit #: \_\_\_\_\_

Spud Date or Date Reached TD Completion Date or Recompletion Date

API No.: \_\_\_\_\_

Spot Description: \_\_\_\_\_

\_\_\_\_\_ - \_\_\_\_\_ - \_\_\_\_\_ Sec. \_\_\_\_\_ Twp. \_\_\_\_\_ S. R. \_\_\_\_\_  East  West

\_\_\_\_\_ Feet from  North /  South Line of Section

\_\_\_\_\_ Feet from  East /  West Line of Section

Footages Calculated from Nearest Outside Section Corner:

NE  NW  SE  SW

GPS Location: Lat: \_\_\_\_\_, Long: \_\_\_\_\_  
(e.g. xx.xxxxx) (e.g. -xxx.xxxxx)

Datum:  NAD27  NAD83  WGS84

County: \_\_\_\_\_

Lease Name: \_\_\_\_\_ Well #: \_\_\_\_\_

Field Name: \_\_\_\_\_

Producing Formation: \_\_\_\_\_

Elevation: Ground: \_\_\_\_\_ Kelly Bushing: \_\_\_\_\_

Total Vertical Depth: \_\_\_\_\_ Plug Back Total Depth: \_\_\_\_\_

Amount of Surface Pipe Set and Cemented at: \_\_\_\_\_ Feet

Multiple Stage Cementing Collar Used?  Yes  No

If yes, show depth set: \_\_\_\_\_ Feet

If Alternate II completion, cement circulated from: \_\_\_\_\_

feet depth to: \_\_\_\_\_ w/ \_\_\_\_\_ sx cmt.

**Drilling Fluid Management Plan**

*(Data must be collected from the Reserve Pit)*

Chloride content: \_\_\_\_\_ ppm Fluid volume: \_\_\_\_\_ bbls

Dewatering method used: \_\_\_\_\_

Location of fluid disposal if hauled offsite:

Operator Name: \_\_\_\_\_

Lease Name: \_\_\_\_\_ License #: \_\_\_\_\_

Quarter \_\_\_\_\_ Sec. \_\_\_\_\_ Twp. \_\_\_\_\_ S. R. \_\_\_\_\_  East  West

County: \_\_\_\_\_ Permit #: \_\_\_\_\_

**AFFIDAVIT**

I am the affiant and I hereby certify that all requirements of the statutes, rules and regulations promulgated to regulate the oil and gas industry have been fully complied with and the statements herein are complete and correct to the best of my knowledge.

Submitted Electronically

**KCC Office Use ONLY**

Confidentiality Requested

Date: \_\_\_\_\_

Confidential Release Date: \_\_\_\_\_

Wireline Log Received  Drill Stem Tests Received

Geologist Report / Mud Logs Received

UIC Distribution

ALT  I  II  III Approved by: \_\_\_\_\_ Date: \_\_\_\_\_

Operator Name: \_\_\_\_\_ Lease Name: \_\_\_\_\_ Well #: \_\_\_\_\_

Sec. \_\_\_\_\_ Twp. \_\_\_\_\_ S. R. \_\_\_\_\_  East  West County: \_\_\_\_\_

**INSTRUCTIONS:** Show important tops of formations penetrated. Detail all cores. Report all final copies of drill stems tests giving interval tested, time tool open and closed, flowing and shut-in pressures, whether shut-in pressure reached static level, hydrostatic pressures, bottom hole temperature, fluid recovery, and flow rates if gas to surface test, along with final chart(s). Attach extra sheet if more space is needed.

Final Radioactivity Log, Final Logs run to obtain Geophysical Data and Final Electric Logs must be emailed to kcc-well-logs@kcc.ks.gov. Digital electronic log files must be submitted in LAS version 2.0 or newer AND an image file (TIFF or PDF).

Drill Stem Tests Taken <input type="checkbox"/> Yes <input type="checkbox"/> No <i>(Attach Additional Sheets)</i>  Samples Sent to Geological Survey <input type="checkbox"/> Yes <input type="checkbox"/> No  Cores Taken <input type="checkbox"/> Yes <input type="checkbox"/> No Electric Log Run <input type="checkbox"/> Yes <input type="checkbox"/> No Geologist Report / Mud Logs <input type="checkbox"/> Yes <input type="checkbox"/> No  List All E. Logs Run:	<input type="checkbox"/> Log Formation (Top), Depth and Datum <input type="checkbox"/> Sample  Name Top Datum
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CASING RECORD <input type="checkbox"/> New <input type="checkbox"/> Used							
Report all strings set-conductor, surface, intermediate, production, etc.							
Purpose of String	Size Hole Drilled	Size Casing Set (In O.D.)	Weight Lbs. / Ft.	Setting Depth	Type of Cement	# Sacks Used	Type and Percent Additives

ADDITIONAL CEMENTING / SQUEEZE RECORD				
Purpose:	Depth Top Bottom	Type of Cement	# Sacks Used	Type and Percent Additives
<input type="checkbox"/> Perforate <input type="checkbox"/> Protect Casing <input type="checkbox"/> Plug Back TD <input type="checkbox"/> Plug Off Zone				

1. Did you perform a hydraulic fracturing treatment on this well?  Yes  No *(If No, skip questions 2 and 3)*
2. Does the volume of the total base fluid of the hydraulic fracturing treatment exceed 350,000 gallons?  Yes  No *(If No, skip question 3)*
3. Was the hydraulic fracturing treatment information submitted to the chemical disclosure registry?  Yes  No *(If No, fill out Page Three of the ACO-1)*

Date of first Production/Injection or Resumed Production/Injection:	Producing Method: <input type="checkbox"/> Flowing <input type="checkbox"/> Pumping <input type="checkbox"/> Gas Lift <input type="checkbox"/> Other <i>(Explain)</i> _____			
Estimated Production Per 24 Hours	Oil Bbls.	Gas Mcf	Water Bbls.	Gas-Oil Ratio Gravity

DISPOSITION OF GAS: <input type="checkbox"/> Vented <input type="checkbox"/> Sold <input type="checkbox"/> Used on Lease <i>(If vented, Submit ACO-18.)</i>	METHOD OF COMPLETION: <input type="checkbox"/> Open Hole <input type="checkbox"/> Perf. <input type="checkbox"/> Dually Comp. <input type="checkbox"/> Commingled <i>(Submit ACO-5)</i> <i>(Submit ACO-4)</i>	PRODUCTION INTERVAL: Top Bottom
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Shots Per Foot	Perforation Top	Perforation Bottom	Bridge Plug Type	Bridge Plug Set At	Acid, Fracture, Shot, Cementing Squeeze Record <i>(Amount and Kind of Material Used)</i>

TUBING RECORD:	Size:	Set At:	Packer At:	
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**HURRICANE SERVICES INC**

Customer	Cobalt Energy LLC	Lease & Well #	UMC A 1-21	Date	1/28/2019
Service District	Oakley, KS	County & State	Graham ks	Legals S/T/R	21-8-22
Job Type	Production	<input type="checkbox"/> PROD <input type="checkbox"/> INJ <input type="checkbox"/> SWD	New Well?	<input type="checkbox"/> YES <input type="checkbox"/> No	Job #
Equipment #	Driver	Ticket #			

**Job Safety Analysis - A Discussion of Hazards & Safety Procedures**

<input type="checkbox"/> Hard hat	<input type="checkbox"/> Gloves	<input type="checkbox"/> Lockout/Tagout	<input type="checkbox"/> Warning Signs & Flagging
<input type="checkbox"/> H2S Monitor	<input type="checkbox"/> Eye Protection	<input type="checkbox"/> Required Permits	<input type="checkbox"/> Fall Protection
<input type="checkbox"/> Safety Footwear	<input type="checkbox"/> Respiratory Protection	<input type="checkbox"/> Slip/Trip/Fall Hazards	<input type="checkbox"/> Specific Job Sequence/Expectations
<input type="checkbox"/> FRC/Protective Clothing	<input type="checkbox"/> Additional Chemical/Acid PPE	<input type="checkbox"/> Overhead Hazards	<input type="checkbox"/> Muster Point/Medical Locations
<input type="checkbox"/> Hearing Protection	<input type="checkbox"/> Fire Extinguisher	<input type="checkbox"/> Additional concerns or issues noted below	

**Comments**

All chemicals delivered from the Oakley, KS service center

Product/ Service Code	Description	Unit of Measure	Quantity	Net Amount
M010	Heavy Equipment Mileage	mi	132.00	\$448.80
M015	Light Equipment Mileage	mi	66.00	\$112.20
M020	Ton Mileage	tm	1,441.38	\$1,837.76
CD10	Cement Pump	ea	1.00	\$637.50
	Hbond XL	each	410.00	\$8,747.35
CP035	H-Bond	sack	125.00	\$2,550.00
C050	Cement Plug Container	job	1.00	\$318.75
FE045	4 1/2" Cement Baskets	ea	4.00	\$935.00
FE095	4 1/2" Latch Down Plug & Baffle	ea	1.00	\$233.75
FE070	4 1/2" Float Shoe - AFU Flapper Type	ea	1.00	\$297.50
FE055	4 1/2" Turbolizers	ea	10.00	\$595.00
CP170	Mud Flush	gal	500.00	\$786.25
AF055	Liquid KCL Substitute	gal	2.00	\$61.00
C035	Cement Data Acquisition	job	1.00	\$212.50

Customer Section: On the following scale how would you rate Hurricane Services Inc?

Based on this job, how likely is it you would recommend HSI to a colleague?

1  2  3  4  5  6  7  8  9  10

Unlikely 1 2 3 4 5 6 7 8 9 10 Extremely Likely

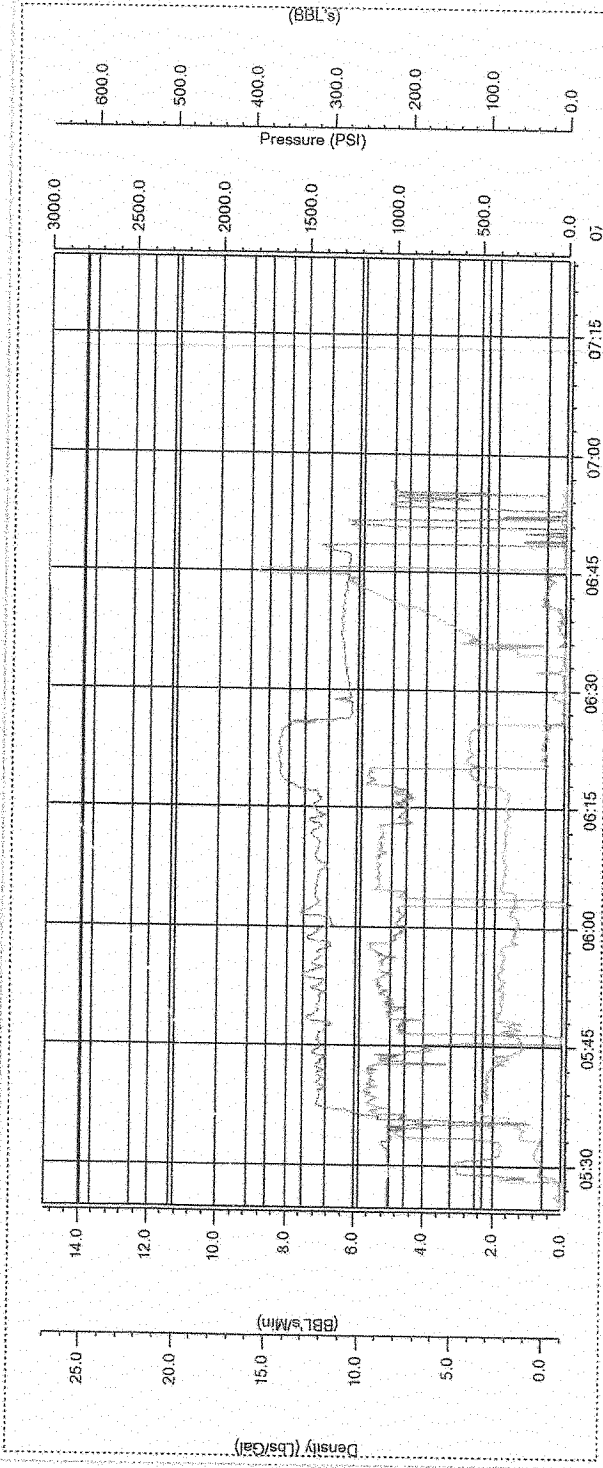
Total Taxable	\$ -	Tax Rate:		Net:	\$17,763.36
State tax laws deem certain products and services used on new wells to be sales tax exempt. Hurricane Services relies on the customer provided well information above to make a determination if services and/or products are tax exempt.				Sale Tax:	\$ -
				Total:	\$ 17,763.36

HSI Representative: *Dana K... [Signature]*

**TERMS:** Cash in advance unless Hurricane Services Inc. (HSI) has approved credit prior to sale. Credit terms of sale for approved accounts are total invoice due on or before the 30th day from the date of invoice. Past due accounts shall pay interest on the balance past due at the rate of 1 1/2% per month or the maximum allowable by applicable state or federal laws. In the event it is necessary to employ an agency and/or attorney to affect the collection, Customer hereby agrees to pay all fees directly or indirectly incurred for such collection. In the event that Customer's account with HSI becomes delinquent, HSI has the right to revoke any discounts previously applied in arriving at net invoice price. Upon revocation, the full invoice price without discount is immediately due and subject to collection. Prices quoted are estimates only and are good for 30 days from the date of issue. Pricing does not include federal, state, or local taxes, or royalties and stated price adjustments. Actual charges may vary depending upon time, equipment, and material ultimately required to perform these services. Any discount is based on 30 days net payment terms or cash. **DISCLAIMER NOTICE:** Technical data is presented in good faith, but no warranty is stated or implied. HSI assumes no liability for advice or recommendations made concerning the results from the use of any product or service. The information presented is a best estimate of the actual results that may be achieved and should be used for comparison purposes and HSI makes no guarantee of future production performance. Customer represents and warrants that well and all associated equipment in acceptable condition to receive services by HSI. Likewise, the customer guarantees proper operational care of all customer owned equipment and property while HSI is on location performing services. The authorization below acknowledges the receipt and acceptance of all terms/conditions stated above, and Hurricane has been provided accurate well information in determining taxable services.

X *[Signature]* **CUSTOMER AUTHORIZATION SIGNATURE**





# GLOBAL OIL FIELD SERVICES, LLC

0013352

REMIT TO 24 S. Lincoln  
Russell, KS 67665

SERVICE POINT: Russell KS

DATE <u>7/21/19</u>	SEC. <u>21</u>	TWP. <u>888</u>	RANGE <u>22W</u>	CALLED OUT	ON LOCATION	JOB START	JOB FINISH <u>7:30</u>
LEASE <u>UMLA</u>	WELL# <u>1-21</u>	LOCATION <u>South of Hill City 40 Terra Rd</u>			COUNTY <u>Graham</u>	STATE <u>KS</u>	
OLD OR NEW (CIRCLE ONE) <u>NEW</u>			1E 1/2 S 22 W 888 E 1/2 Sec 21				

CONTRACTOR Mudra Drilling Rig # 16

TYPE OF JOB Surface

HOLE SIZE 12 1/4 T.D.

CASING SIZE 5 1/2 DEPTH 208'

TUBING SIZE DEPTH

DRILL PIPE DEPTH

TOOL DEPTH

PRES. MAX MINIMUM

MEAS. LINE SHOE JOINT

CEMENT LEFT IN CSG. 25'

PERFS

DISPLACEMENT

OWNER Cohalt Energy LLC

CEMENT AMOUNT ORDERED 1605 x 60 / 16 3800

2 1/2 gal

EQUIPMENT

PUMP TRUCK # 409 CEMENTER Cody HELPER Tray

BULK TRUCK # 379 DRIVER Tom

BULK TRUCK # DRIVER

COMMON @

POZMIX @

GEL @

CHLORIDE @

ASC @

HANDLING @

MILEAGE @

TOTAL

REMARKS:

Ran 5,450 of 5 1/2 casing + Lit  
hooked to Rig + broke circulation. Mucked  
the truck & pumped 160 cases of cement  
& displaced 11 1/2 hrs of H<sub>2</sub>O + shut in

Cement Dip circulation to surface

CHARGE TO: Cohalt Energy LLC

STREET

CITY STATE ZIP

Global Oil Field Services, LLC

You are hereby requested to rent cementing equipment and furnish cementer and helper(s) to assist owner or contractor to do work as is listed. The above work was done to satisfaction and supervision of owner agent or contractor. I have read and understand the "GENERAL TERMS AND CONDITIONS" listed on the reverse side.

PRINTED NAME AFD

SIGNATURE [Signature]

SERVICE

DEPTH OF JOB

PUMP TRUCK CHARGE

EXTRA FOOTAGE @

MILEAGE @

MANIFOLD @

TOTAL

PLUG & FLOAT EQUIPMENT

@

@

@

@

TOTAL

SALES TAX (If Any)

TOTAL CHARGES

DISCOUNT IF PAID IN 30 DAYS



# GEOLOGICAL REPORT

## Larry A. Nicholson

NAD 83  
99.34548664  
-99.78800953

COMPANY & WELL: **Cobalt Energy LLC, UMC "A" #1-21**  
LOCATION: **1753' FNL 650' FWL SE NW SW NW**  
SEC: **21** TWP: **8S** RGE: **22W**  
COUNTY: **Graham** STATE: **Ks**

COMPANY: **Cobalt Energy LLC**  
API #: **15-065-24164** FIELD: **NA**  
LEASE: **UMC "A"** WELL #: **#1-21**  
LOCATION: **SE NW SW NW**  
SURVEY: **1753' FNL 650' FWL**  
SECTION: **21** TWP: **8S** RGE: **22W**  
COUNTY: **Graham** STATE: **Kansas**

CONTRACTOR: **Murfin Drilling, Inc.** Rig # **#16**  
SPUD: **1-21-2019 2:00 PM** COMP: \_\_\_\_\_  
RTD: **3680 8:21am 01-27-19** LTD: **3980**  
MUD UP AT: **2975-3003**  
MUD TYPE: **Chemical Mud Co Gary Schmidtberger**

**ELEVATIONS**  
K.B. **2159**  
D.F. \_\_\_\_\_  
G.L. **2154**  
All measurements from K.B. **2159**

**CASING RECORD**  
Conductor \_\_\_\_\_ of \_\_\_\_\_ ft \_\_\_\_\_ in \_\_\_\_\_ ss  
Surface **210** of **8.5/8** in **160** ss  
Production \_\_\_\_\_ of \_\_\_\_\_ ft \_\_\_\_\_ in \_\_\_\_\_ ss

### ELECTRICAL SURVEYS Pioneer: Neu, Den, Micron

FORMATION	SAMPLE TOPS	SUBSEA DATUM	ELEC LOG TOPS	SUBSEA DATUM	REFERENCE WELL		
					A	B	
Anhydrite	1750	+409	1750	+409	1775	-414	-5
Bi/Anhydrite	1785	+374	1785	+374	1810	-479	-5
Heebner Sh	3374	-1215	3374	-1215	3406	-1217	+2
Lansing	3414	-1255	3414	-1255	3441	-1252	-3
Muncie Ck	3528	-1369	3528	-1369	3559	-1370	+1
Stark Sh	3585	-1426	3585	-1426	3617	-1428	+2
BKC	3621	-1462	3621	-1462	3654	-1465	+3
RTD	3680	-1521	3680	-1521	3710	-1521	+
LTD	3680	-1521	3680	-1521	3707	-1518	-3

A: **Cobalt Energy Wasinger Trust A #1-21 Sec 21-8S-22W 910' FSL 1716 FWL KB 2189**  
B: \_\_\_\_\_

### DRILLSTEM TEST SUMMARY :

Dst #1 3432-3454 (LKC C) 30 45 30 45 IF:754-995 FF:88-347 SI:995-949  
Rec Total Fluid 760' Rec 190' GSOCMW (5G 50 20M 79W) 570' MCW (3M 97W)  
IF built to 1 1/2", Tool FAIL Open, FF BOB 3 min, 89", blow back built 3/4"

Dst #2 3453-3490 (LKC D-G) 30 45 30 90 IF:40-197 FF:202-323 SI:948-941  
Rec 20' GO (7G 93O) 120' GMWCO (6M 15G 20W 80O) 315' GSOCMW (8G 80 11M 73W)  
225' OMCW (50 5M 90W) IF BOB 3 min, 49 1/2", blow back built to 2 1/2",  
FF BOB 8 min, 37", Blow back built to 3 1/4"

Dst #3 3523-3588 (LKC H-J) 30 45 30 45 IF:16-25 FF:24-28 SI:1107-1034  
Rec Total Fluid 10' 2' CO, 8' OCM (200 80M)

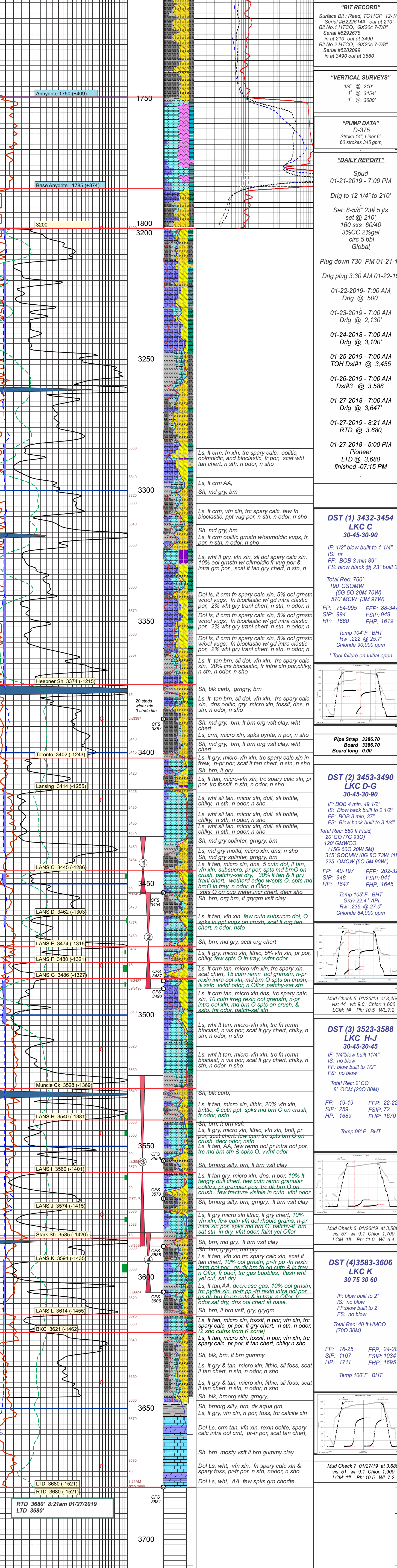
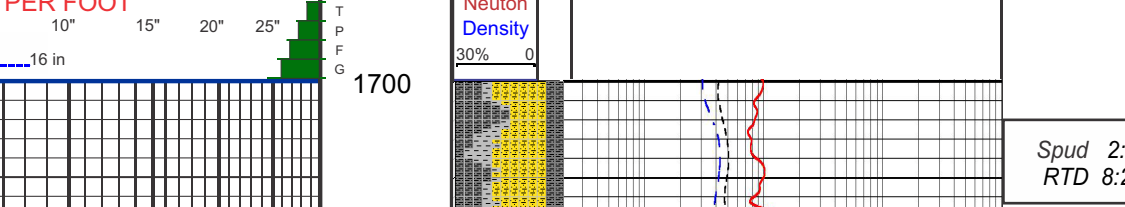
Dst #4 3583-3606 (LKC K) 30 75 30 60 IF:16-25 FF:24-28 SI:1107-1034  
Rec Total Fluid 40' HMCO (30M 70C)

### REMARKS & RECOMMENDATIONS:

Base on Dst results and sample shows.  
4 1/2 csg was run.

\* Note RTD and LTD were the same. The ROP lines up with the log curvers & tops.

### LEGEND



RTD 3680' 8:21am 01/27/2019  
LTD 3680'

COMPANY: **Cobalt Energy LLC**  
LEASE: **UMC "A" #1-21 SE NW SW NW**  
LOCATION: **1753' FNL 650' FWL** SEC: **21** TWP: **8S** RGE: **22W**  
COUNTY: **Graham** STATE: **Ks**

**ELEVATIONS**  
K.B. **2159**  
D.F. \_\_\_\_\_  
G.L. **2154**  
All measurements from K.B. **2159**





## DRILL STEM TEST REPORT

Prepared For: **Cobalt Energy LLC**

PO Box 8037  
Wchita, KS 67208

ATTN: Larry Nicholson

**UMC " A " #1-21**

**21-8S-22W Graham,KS**

Start Date: 2019.01.24 @ 22:22:00

End Date: 2019.01.25 @ 05:42:46

Job Ticket #: 65331                      DST #: 1

Trilobite Testing, Inc  
1515 Commerce Parkway Hays, KS 67601  
ph: 785-625-4778 fax: 785-625-5620

Printed: 2019.01.29 @ 00:19:17

Cobalt Energy LLC  
21-8S-22W Graham,KS  
UMC " A " #1-21  
DST # 1  
LKC " C "  
2019.01.24



**TRILOBITE TESTING, INC.**

# DRILL STEM TEST REPORT

Cobalt Energy LLC

**21-8S-22W Graham,KS**

PO Box 8037  
Wchita, KS 67208

**UMC " A " #1-21**

ATTN: Larry Nicholson

Job Ticket: 65331

**DST#: 1**

Test Start: 2019.01.24 @ 22:22:00

## GENERAL INFORMATION:

Formation: **LKC " C "**

Deviated: No Whipstock: ft (KB)

Time Tool Opened: 00:12:46

Time Test Ended: 05:42:46

Test Type: Conventional Bottom Hole (Initial)

Tester: Martine Salinas

Unit No: 76

**Interval: 3432.00 ft (KB) To 3454.00 ft (KB) (TVD)**

Reference Elevations: 2161.00 ft (KB)

Total Depth: 3454.00 ft (KB) (TVD)

2156.00 ft (CF)

Hole Diameter: 7.88 inches Hole Condition: Good

KB to GR/CF: 5.00 ft

**Serial #: 6731**

**Inside**

Press@RunDepth: 346.77 psig @ 3433.00 ft (KB)

Capacity: 8000.00 psig

Start Date: 2019.01.24

End Date:

2019.01.25

Last Calib.:

2019.01.25

Start Time: 22:22:01

End Time:

05:42:46

Time On Btm:

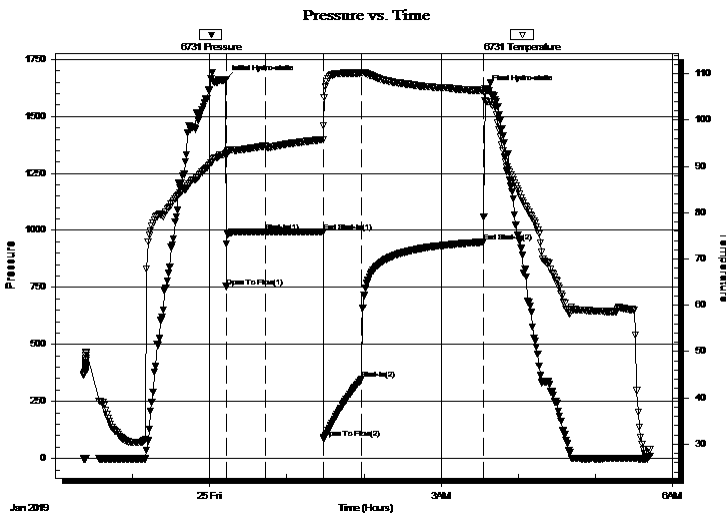
2019.01.25 @ 00:12:31

Time Off Btm:

2019.01.25 @ 03:34:01

**TEST COMMENT:** 30-IF-1/2" blow built to 1 1/2" Tool out of stage - shut-in during IFP  
45-ISI-No blow  
30-FF-BOB (11 inches) @ 3 mins ( blow increased to 89")  
90-FSI-Surface.blow back @ 23 mins built to 3/4"

## PRESSURE SUMMARY



Time (Min.)	Pressure (psig)	Temp (deg F)	Annotation
0	1660.04	92.63	Initial Hydro-static
1	753.52	92.39	Open To Flow (1)
31	994.94	94.41	Shut-In(1)
76	993.82	95.79	End Shut-In(1)
76	87.77	98.79	Open To Flow (2)
106	346.77	110.19	Shut-In(2)
201	948.96	106.37	End Shut-In(2)
202	1618.84	104.16	Final Hydro-static

## Recovery

Length (ft)	Description	Volume (bbl)
570.00	MCW 3%M, 97%W	7.73
190.00	GSOCMW 5%G, 5%O, 20%M, 70%W	2.67

## Gas Rates

	Choke (inches)	Pressure (psig)	Gas Rate (Mcf/d)



**TRILOBITE TESTING, INC.**

**DRILL STEM TEST REPORT**

Cobalt Energy LLC

**21-8S-22W Graham,KS**

PO Box 8037  
Wchita, KS 67208

**UMC " A " #1-21**

Job Ticket: 65331

**DST#: 1**

ATTN: Larry Nicholson

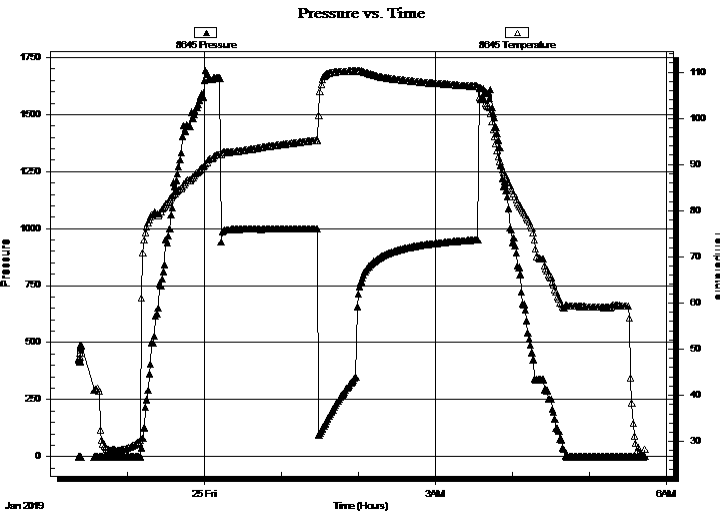
Test Start: 2019.01.24 @ 22:22:00

**GENERAL INFORMATION:**

Formation: **LKC " C "**  
 Deviated: No Whipstock: ft (KB)  
 Time Tool Opened: 00:12:46  
 Time Test Ended: 05:42:46  
 Interval: **3432.00 ft (KB) To 3454.00 ft (KB) (TVD)**  
 Total Depth: 3454.00 ft (KB) (TVD)  
 Hole Diameter: 7.88 inches Hole Condition: Good  
 Test Type: Conventional Bottom Hole (Initial)  
 Tester: Martine Salinas  
 Unit No: 76  
 Reference Elevations: 2161.00 ft (KB)  
 2156.00 ft (CF)  
 KB to GR/CF: 5.00 ft

**Serial #: 8645 Outside**  
 Press@RunDepth: psig @ 3433.00 ft (KB) Capacity: 8000.00 psig  
 Start Date: 2019.01.24 End Date: 2019.01.25 Last Calib.: 2019.01.25  
 Start Time: 22:22:01 End Time: 05:43:31 Time On Btm:  
 Time Off Btm:

**TEST COMMENT:** 30-IF-1/2" blow built to 1 1/2" Tool out of stage - shut-in during IFP  
 45-ISI-No blow  
 30-FF-BOB (11 inches) @ 3 mins ( blow increased to 89")  
 90-FSI-Surface.blow back @ 23 mins built to 3/4"



**PRESSURE SUMMARY**

Time (Min.)	Pressure (psig)	Temp (deg F)	Annotation

**Recovery**

Length (ft)	Description	Volume (bbl)
570.00	MCW 3%M, 97%W	7.73
190.00	GSOCMW 5%G, 5%O, 20%M, 70%W	2.67

**Gas Rates**

Choke (inches)	Pressure (psig)	Gas Rate (Mcf/d)



**TRILOBITE  
TESTING, INC.**

# DRILL STEM TEST REPORT

**TOOL DIAGRAM**

Cobalt Energy LLC

**21-8S-22W Graham,KS**

PO Box 8037  
Wchita, KS 67208

**UMC " A " #1-21**

Job Ticket: 65331

**DST#: 1**

ATTN: Larry Nicholson

Test Start: 2019.01.24 @ 22:22:00

## Tool Information

Drill Pipe:	Length: 3388.00 ft	Diameter: 3.80 inches	Volume: 47.52 bbl	Tool Weight: 2500.00 lb
Heavy Wt. Pipe:	Length: 0.00 ft	Diameter: 2.75 inches	Volume: 0.00 bbl	Weight set on Packer: 25000.00 lb
Drill Collar:	Length: 29.00 ft	Diameter: 2.25 inches	Volume: 0.14 bbl	Weight to Pull Loose: 70000.00 lb
			<u>Total Volume: 47.66 bbl</u>	Tool Chased 0.00 ft
Drill Pipe Above KB:	17.00 ft			String Weight: Initial 46000.00 lb
Depth to Top Packer:	3432.00 ft			Final 50000.00 lb
Depth to Bottom Packer:	ft			
Interval between Packers:	22.00 ft			
Tool Length:	54.00 ft			
Number of Packers:	2	Diameter: 6.75 inches		

Tool Comments:

## Tool Description

**Length (ft) Serial No. Position Depth (ft) Accum. Lengths**

Tool Description	Length (ft)	Serial No.	Position	Depth (ft)	Accum. Lengths
Change Over Sub	1.00			3401.00	
Shut In Tool	5.00			3406.00	
Hydraulic tool	5.00		Inside	3411.00	
Jars	5.00			3416.00	
EM Tool	4.00			3420.00	
Safety Joint	3.00			3423.00	
Packer	5.00			3428.00	32.00 Bottom Of Top Packer
Packer	4.00			3432.00	
Stubb	1.00			3433.00	
Recorder	0.00	8645	Outside	3433.00	
Recorder	0.00	6731	Inside	3433.00	
Perforations	18.00			3451.00	
Bullnose	3.00			3454.00	22.00 Bottom Packers & Anchor

**Total Tool Length: 54.00**





**TRILOBITE  
TESTING, INC.**

# DRILL STEM TEST REPORT

## FLUID SUMMARY

Cobalt Energy LLC

**21-8S-22W Graham,KS**

PO Box 8037  
Wchita, KS 67208

**UMC " A " #1-21**

Job Ticket: 65331

**DST#: 1**

ATTN: Larry Nicholson

Test Start: 2019.01.24 @ 22:22:00

### Mud and Cushion Information

Mud Type: Gel Chem

Cushion Type:

Oil API:

deg API

Mud Weight: 9.00 lb/gal

Cushion Length:

ft

Water Salinity:

90000 ppm

Viscosity: 52.00 sec/qt

Cushion Volume:

bbbl

Water Loss: 6.18 in<sup>3</sup>

Gas Cushion Type:

Resistivity: ohm.m

Gas Cushion Pressure:

psig

Salinity: 800.00 ppm

Filter Cake: 1.00 inches

### Recovery Information

Recovery Table

Length ft	Description	Volume bbbl
570.00	MCW 3%M, 97%W	7.731
190.00	GSOCMW 5%G, 5%O, 20%M, 70%W	2.665

Total Length: 760.00 ft      Total Volume: 10.396 bbl

Num Fluid Samples: 0

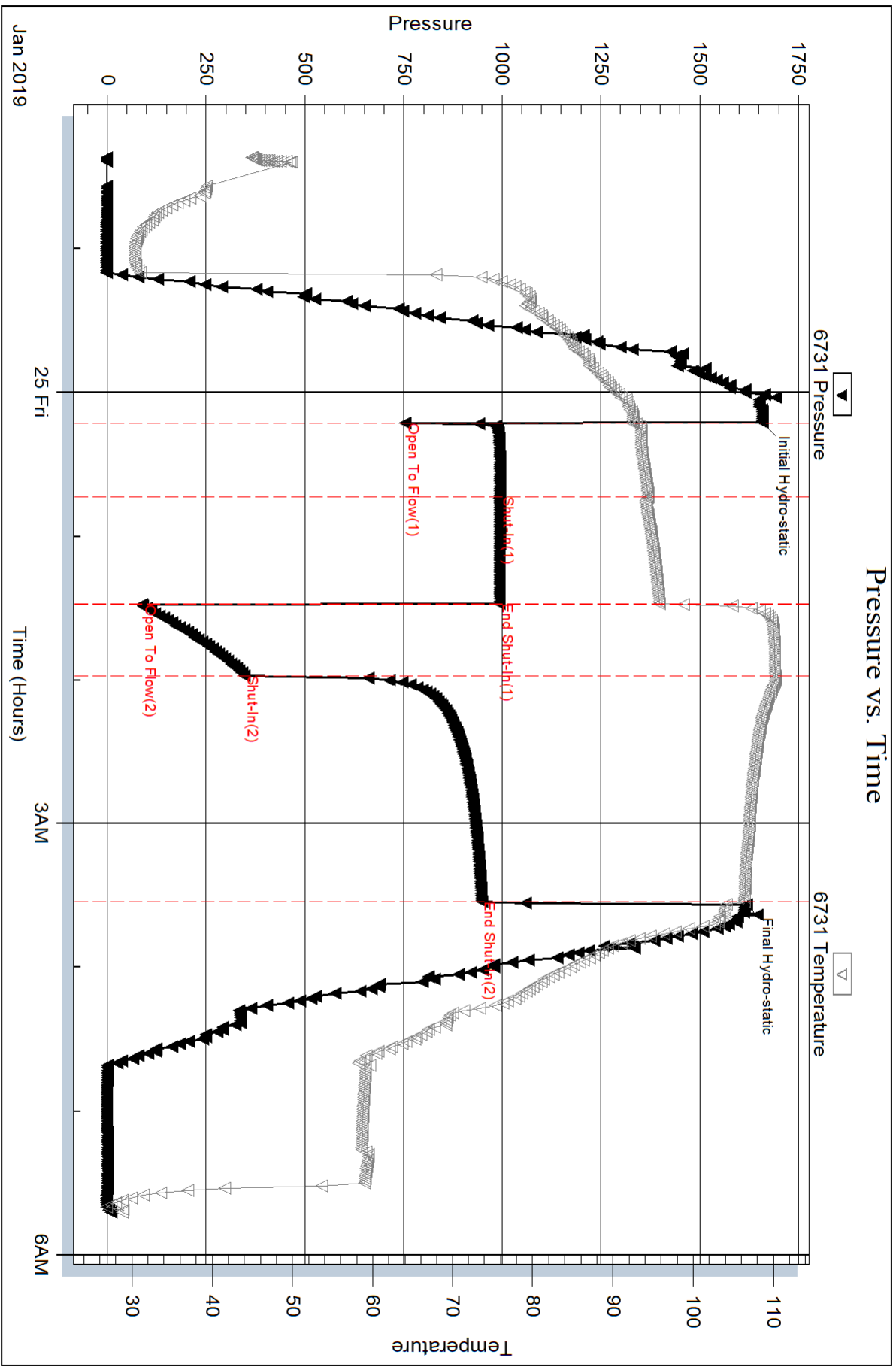
Num Gas Bombs: 0

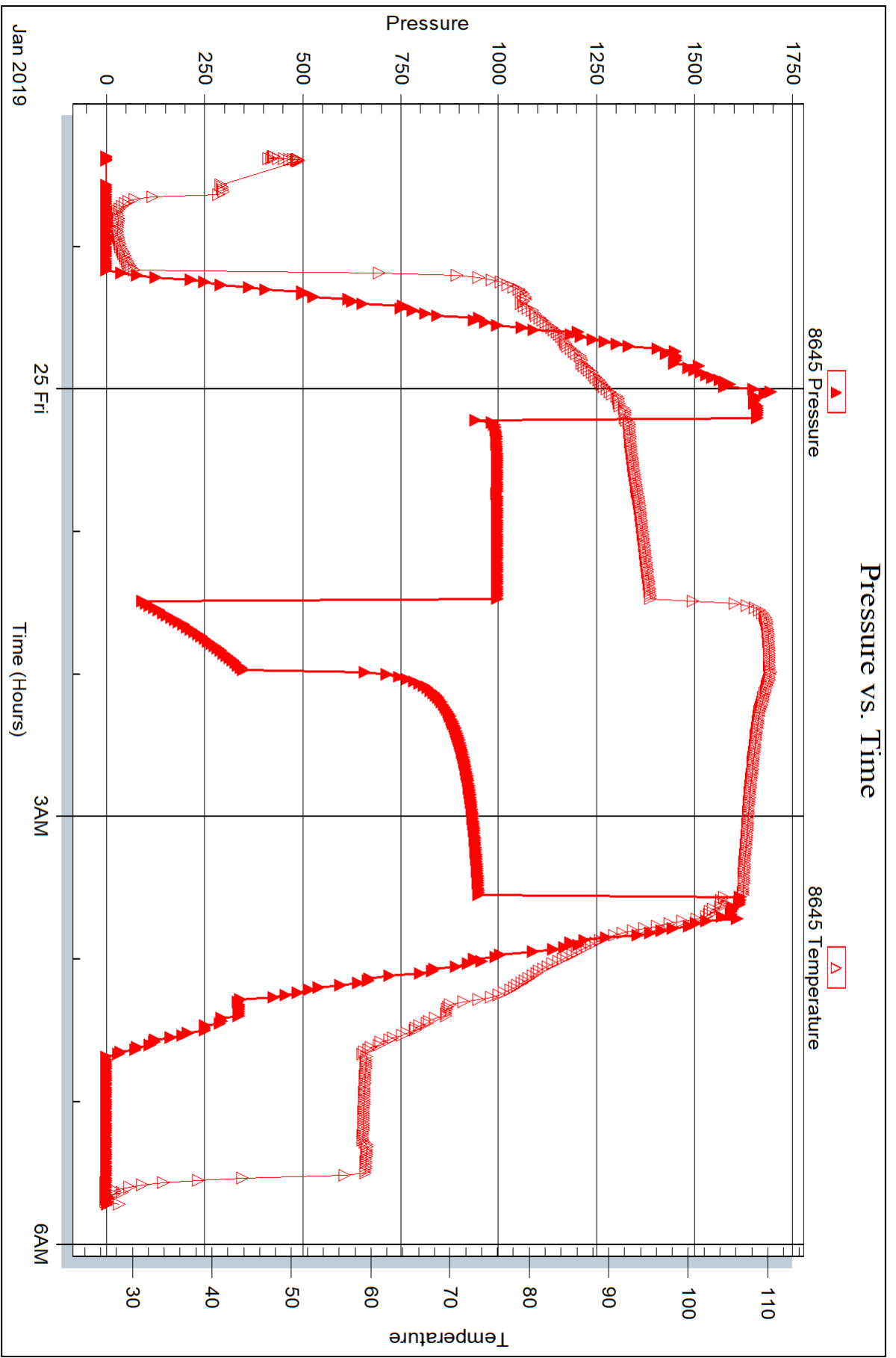
Serial #:

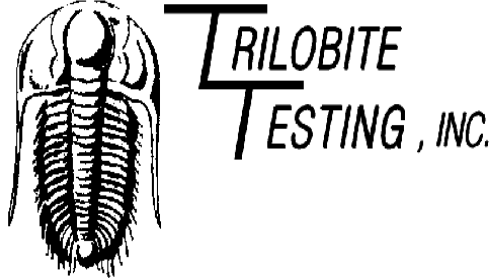
Laboratory Name:

Laboratory Location:

Recovery Comments: RW= .222 @ 25.7 degs = 90,000PPM







## DRILL STEM TEST REPORT

Prepared For: **Cobalt Energy LLC**

PO Box 8037  
Wchita, KS 67208

ATTN: Larry Nicholson

**UMC " A " #1-21**

**21-8S-22W Graham,KS**

Start Date: 2019.01.25 @ 13:50:00

End Date: 2019.01.25 @ 21:47:31

Job Ticket #: 65332                      DST #: 2

Trilobite Testing, Inc  
1515 Commerce Parkway Hays, KS 67601  
ph: 785-625-4778 fax: 785-625-5620

Printed: 2019.01.28 @ 09:57:34

Cobalt Energy LLC  
21-8S-22W Graham,KS  
UMC " A " #1-21  
DST # 2  
LKC " E - G "  
2019.01.25





**TRILOBITE  
TESTING, INC.**

# DRILL STEM TEST REPORT

Cobalt Energy LLC

**21-8S-22W Graham,KS**

PO Box 8037  
Wchita, KS 67208

**UMC " A " #1-21**

ATTN: Larry Nicholson

Job Ticket: 65332

**DST#: 2**

Test Start: 2019.01.25 @ 13:50:00

## GENERAL INFORMATION:

Formation: **LKC " E - G "**

Deviated: No Whipstock: ft (KB)

Time Tool Opened: 15:49:31

Time Test Ended: 21:47:31

Test Type: Conventional Bottom Hole (Reset)

Tester: Martine Salinas

Unit No: 76

**Interval: 3453.00 ft (KB) To 3490.00 ft (KB) (TVD)**

Reference Elevations: 2161.00 ft (KB)

Total Depth: 3490.00 ft (KB) (TVD)

2156.00 ft (CF)

Hole Diameter: 7.88 inches Hole Condition: Good

KB to GR/CF: 5.00 ft

**Serial #: 6731**

**Inside**

Press@RunDepth: 323.13 psig @ 3454.00 ft (KB)

Capacity: 8000.00 psig

Start Date: 2019.01.25 End Date: 2019.01.25

Last Calib.: 2019.01.25

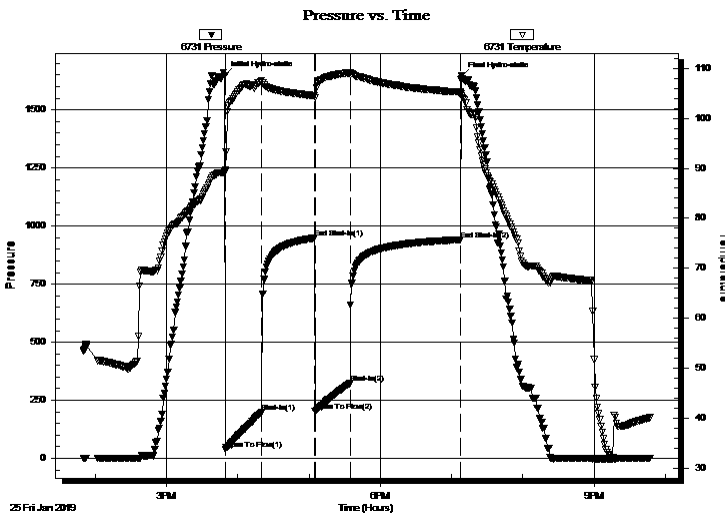
Start Time: 13:50:01 End Time: 21:47:31

Time On Btm: 2019.01.25 @ 15:49:01

Time Off Btm: 2019.01.25 @ 19:08:31

**TEST COMMENT:** 30-IF- BOB (11 inches) @ 4 mins ( blow increased to 49 1/2")  
45-ISI- Surface blow back @ 4 mins built to 2 1/2"  
30-FF-BOB (11 inches) @ 8 mins ( blow increased to 37")  
90-FSI-Surface blow back @ 1 mins built to 3 1/4"

## PRESSURE SUMMARY



Time (Min.)	Pressure (psig)	Temp (deg F)	Annotation
0	1646.69	89.22	Initial Hydro-static
1	39.60	89.76	Open To Flow (1)
31	196.79	107.56	Shut-In(1)
76	948.13	104.49	End Shut-In(1)
76	201.98	104.21	Open To Flow (2)
106	323.13	109.10	Shut-In(2)
199	941.17	105.27	End Shut-In(2)
200	1645.16	104.48	Final Hydro-static

## Recovery

Length (ft)	Description	Volume (bbl)
225.00	SL OMCW 5%O,5%M,90%W	2.89
315.00	GOCMW 8%G,8%O,11%M,73%W	4.42
120.00	GMWCO 5%M,15%G,20%W,60%O	1.68
20.00	GO 7%G, 93%O	0.28

\* Recovery from multiple tests

## Gas Rates

	Choke (inches)	Pressure (psig)	Gas Rate (Mcf/d)





**TRILOBITE  
TESTING, INC.**

# DRILL STEM TEST REPORT

**TOOL DIAGRAM**

Cobalt Energy LLC

**21-8S-22W Graham,KS**

PO Box 8037  
Wchita, KS 67208

**UMC " A " #1-21**

Job Ticket: 65332

**DST#: 2**

ATTN: Larry Nicholson

Test Start: 2019.01.25 @ 13:50:00

## Tool Information

Drill Pipe:	Length: 3421.00 ft	Diameter: 3.80 inches	Volume: 47.99 bbl	Tool Weight: 2500.00 lb
Heavy Wt. Pipe:	Length: 0.00 ft	Diameter: 2.75 inches	Volume: 0.00 bbl	Weight set on Packer: 25000.00 lb
Drill Collar:	Length: 29.00 ft	Diameter: 2.25 inches	Volume: 0.14 bbl	Weight to Pull Loose: 54000.00 lb
			<u>Total Volume: 48.13 bbl</u>	Tool Chased 0.00 ft
Drill Pipe Above KB:	29.00 ft			String Weight: Initial 46000.00 lb
Depth to Top Packer:	3453.00 ft			Final 48000.00 lb
Depth to Bottom Packer:	ft			
Interval between Packers:	37.00 ft			
Tool Length:	69.00 ft			
Number of Packers:	2	Diameter: 6.75 inches		

Tool Comments:

## Tool Description

Tool Description	Length (ft)	Serial No.	Position	Depth (ft)	Accum. Lengths
Change Over Sub	1.00			3422.00	
Shut In Tool	5.00			3427.00	
Hydraulic tool	5.00		Inside	3432.00	
Jars	5.00			3437.00	
EM Tool	4.00			3441.00	
Safety Joint	3.00			3444.00	
Packer	5.00			3449.00	32.00 Bottom Of Top Packer
Packer	4.00			3453.00	
Stubb	1.00			3454.00	
Recorder	0.00	8645	Outside	3454.00	
Recorder	0.00	6731	Inside	3454.00	
Perforations	33.00			3487.00	
Bullnose	3.00			3490.00	37.00 Bottom Packers & Anchor

**Total Tool Length: 69.00**



**TRILOBITE  
TESTING, INC.**

# DRILL STEM TEST REPORT

**FLUID SUMMARY**

Cobalt Energy LLC

**21-8S-22W Graham,KS**

PO Box 8037  
Wchita, KS 67208

**UMC " A " #1-21**

Job Ticket: 65332

**DST#: 2**

ATTN: Larry Nicholson

Test Start: 2019.01.25 @ 13:50:00

## Mud and Cushion Information

Mud Type: Gel Chem  
Mud Weight: 9.00 lb/gal  
Viscosity: 56.00 sec/qt  
Water Loss: 7.19 in<sup>3</sup>  
Resistivity: ohm.m  
Salinity: 1600.00 ppm  
Filter Cake: 1.00 inches

Cushion Type:  
Cushion Length: ft  
Cushion Volume: bbl  
Gas Cushion Type:  
Gas Cushion Pressure: psig

Oil API: 22.4 deg API  
Water Salinity: 84000 ppm

## Recovery Information

Recovery Table

Length ft	Description	Volume bbl
225.00	SL OMCW 5%O,5%M,90%W	2.892
315.00	GOCMW 8%G,8%O,11%M,73%W	4.419
120.00	GMWCO 5%M,15%G,20%W,60%O	1.683
20.00	GO 7%G, 93%O	0.281

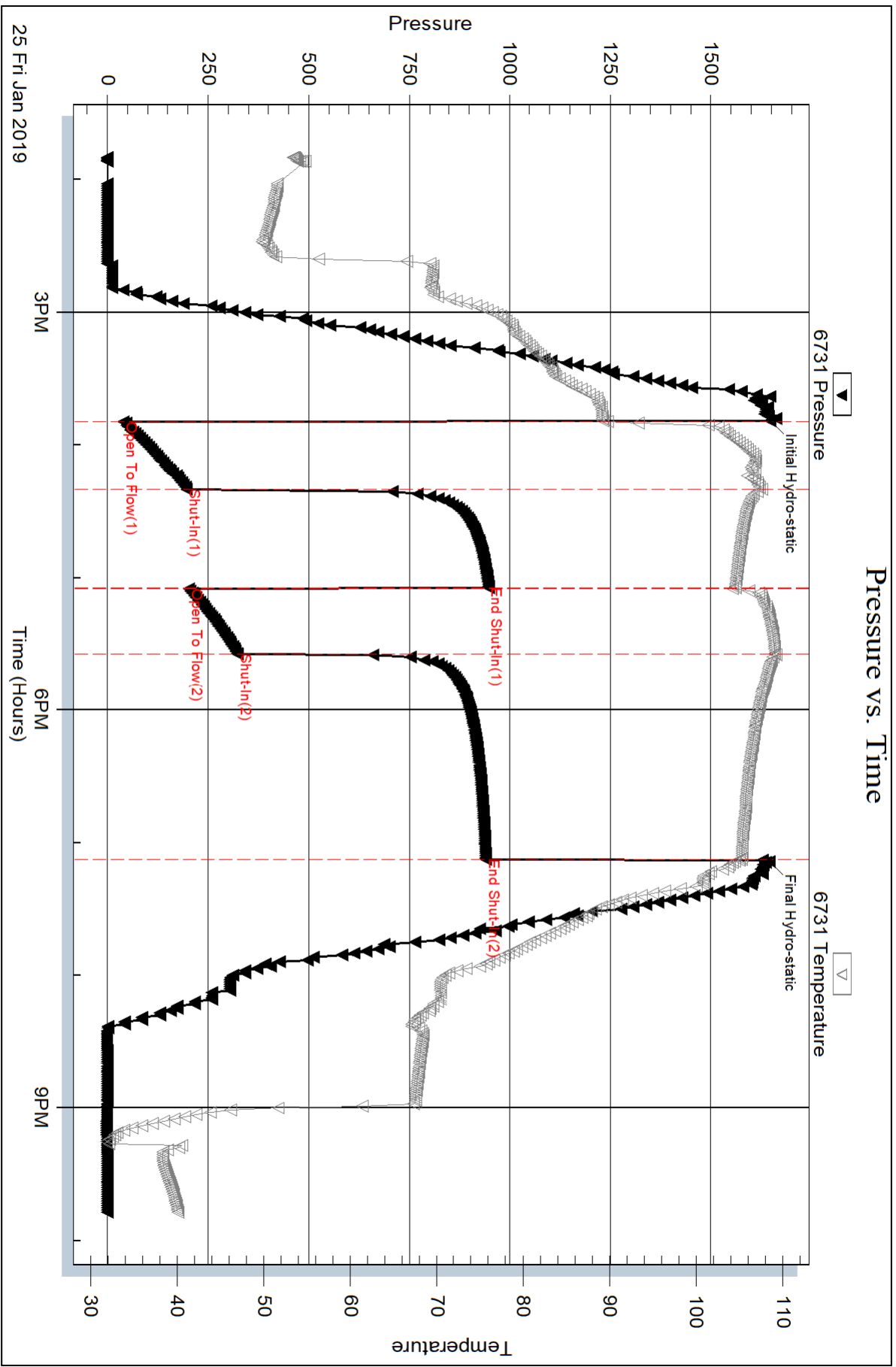
Total Length: 680.00 ft      Total Volume: 9.275 bbl

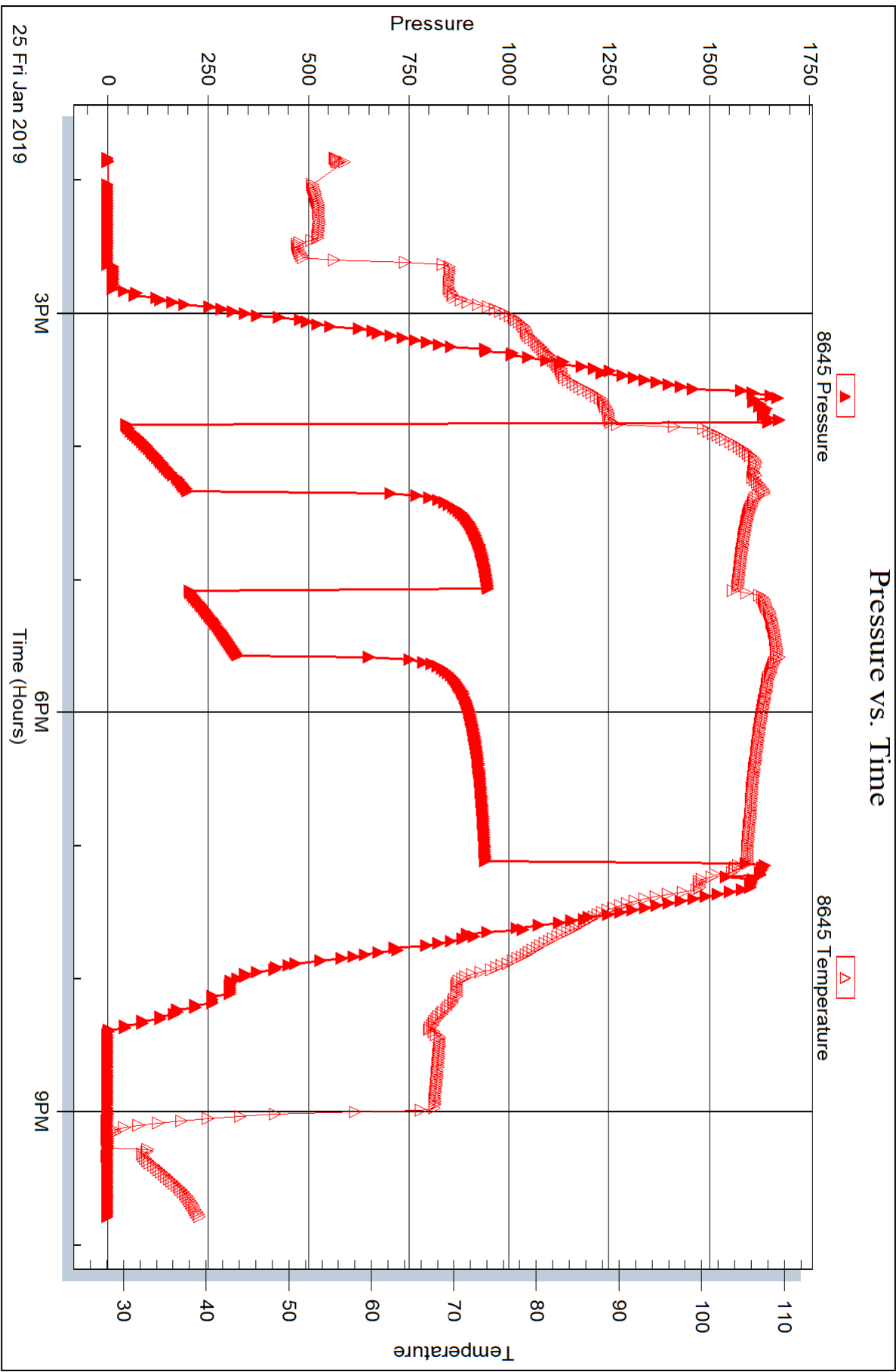
Num Fluid Samples: 0      Num Gas Bombs: 0      Serial #:

Laboratory Name:      Laboratory Location:

Recovery Comments: Gravity of oil = 24.6 @ 82 degs  
Gravity corected to 22.4 @ 60 degs  
RW= .235 @ 27 degs= 84,000PPM









## DRILL STEM TEST REPORT

Prepared For: **Cobalt Energy LLC**

PO Box 8037  
Wchita, KS 67208

ATTN: Larry Nicholson

**UMC " A " #1-21**

**21-8S.-22W Graham,KS**

Start Date: 2019.01.26 @ 09:10:00

End Date: 2019.01.26 @ 15:11:46

Job Ticket #: 65333                      DST #: 3

Trilobite Testing, Inc  
1515 Commerce Parkway Hays, KS 67601  
ph: 785-625-4778 fax: 785-625-5620

Printed: 2019.01.28 @ 09:28:49



**TRILOBITE TESTING, INC.**

# DRILL STEM TEST REPORT

Cobalt Energy LLC

**21-8S.-22W Graham,KS**

PO Box 8037  
Wchita, KS 67208

**UMC " A " #1-21**

Job Ticket: 65333

**DST#: 3**

ATTN: Larry Nicholson

Test Start: 2019.01.26 @ 09:10:00

## GENERAL INFORMATION:

Formation: **LKC " H - J "**

Deviated: No Whipstock: ft (KB)

Time Tool Opened: 11:04:46

Time Test Ended: 15:11:46

Test Type: Conventional Bottom Hole (Reset)

Tester: Martine Salinas

Unit No: 76

**Interval: 3523.00 ft (KB) To 3588.00 ft (KB) (TVD)**

Reference Elevations: 2161.00 ft (KB)

Total Depth: 3588.00 ft (KB) (TVD)

2156.00 ft (CF)

Hole Diameter: 7.88 inches Hole Condition: Good

KB to GR/CF: 5.00 ft

**Serial #: 6731**

**Inside**

Press@RunDepth: 22.15 psig @ 3524.00 ft (KB)

Capacity: 8000.00 psig

Start Date: 2019.01.26

End Date:

2019.01.26

Last Calib.:

2019.01.26

Start Time: 09:10:01

End Time:

15:11:46

Time On Btm:

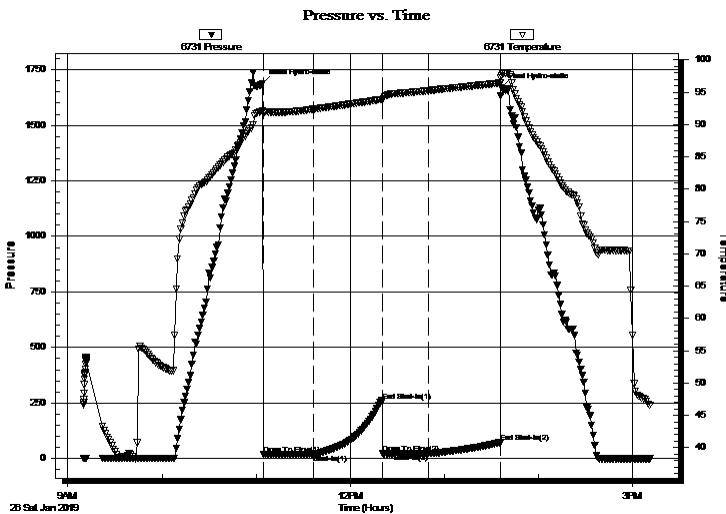
2019.01.26 @ 11:04:16

Time Off Btm:

2019.01.26 @ 13:36:16

**TEST COMMENT:** 30-IF-1/4" blow built to 1 1/4"  
45-ISI-No blow  
30-FF-Surface blow @ 5 mins built to 1/2"  
45-FSI-No blow

## PRESSURE SUMMARY



Time (Min.)	Pressure (psig)	Temp (deg F)	Annotation
0	1689.09	92.15	Initial Hydro-static
1	18.72	91.77	Open To Flow (1)
33	19.36	92.38	Shut-In(1)
76	259.00	93.90	End Shut-In(1)
77	22.10	93.85	Open To Flow (2)
106	22.15	95.24	Shut-In(2)
152	71.55	96.40	End Shut-In(2)
152	1670.34	97.54	Final Hydro-static

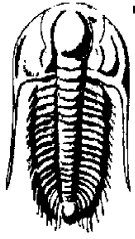
## Recovery

Length (ft)	Description	Volume (bbl)
8.00	OCM 20% O, 80%M	0.04
2.00	CO 100%O	0.01

## Gas Rates

Choke (inches)	Pressure (psig)	Gas Rate (Mcf/d)

\* Recovery from multiple tests



**TRILOBITE TESTING, INC.**

# DRILL STEM TEST REPORT

Cobalt Energy LLC

**21-8S.-22W Graham,KS**

PO Box 8037  
Wchita, KS 67208

**UMC " A " #1-21**

ATTN: Larry Nicholson

Job Ticket: 65333

**DST#: 3**

Test Start: 2019.01.26 @ 09:10:00

**GENERAL INFORMATION:**

Formation: **LKC " H - J "**

Deviated: No Whipstock: ft (KB)

Time Tool Opened: 11:04:46

Time Test Ended: 15:11:46

Test Type: Conventional Bottom Hole (Reset)

Tester: Martine Salinas

Unit No: 76

**Interval: 3523.00 ft (KB) To 3588.00 ft (KB) (TVD)**

Reference Elevations: 2161.00 ft (KB)

Total Depth: 3588.00 ft (KB) (TVD)

2156.00 ft (CF)

Hole Diameter: 7.88 inches Hole Condition: Good

KB to GR/CF: 5.00 ft

**Serial #: 8645 Outside**

Press@RunDepth: psig @ 3524.00 ft (KB)

Capacity: 8000.00 psig

Start Date: 2019.01.26

End Date:

2019.01.26

Last Calib.:

2019.01.26

Start Time: 09:10:01

End Time:

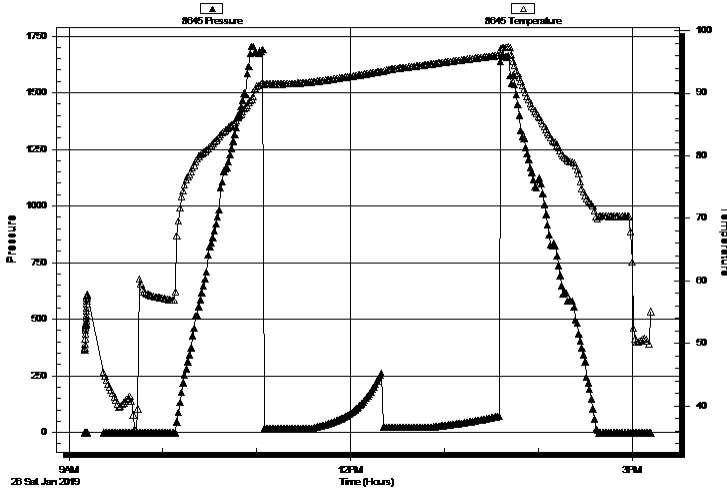
15:12:01

Time On Btm:

Time Off Btm:

TEST COMMENT: 30-IF-1/4" blow built to 1 1/4"  
45-ISI-No blow  
30-FF-Surface blow @ 5 mins built to 1/2"  
45-FSI-No blow

Pressure vs. Time



**PRESSURE SUMMARY**

Time (Min.)	Pressure (psig)	Temp (deg F)	Annotation

**Recovery**

**Gas Rates**

Length (ft)	Description	Volume (bbl)
8.00	OCM 20% O, 80%M	0.04
2.00	CO 100%O	0.01

Choke (inches)	Pressure (psig)	Gas Rate (Mcf/d)

\* Recovery from multiple tests





**TRILOBITE  
TESTING, INC.**

# DRILL STEM TEST REPORT

**TOOL DIAGRAM**

Cobalt Energy LLC

**21-8S.-22W Graham,KS**

PO Box 8037  
Wchita, KS 67208

**UMC " A " #1-21**

Job Ticket: 65333

**DST#: 3**

ATTN: Larry Nicholson

Test Start: 2019.01.26 @ 09:10:00

## Tool Information

Drill Pipe:	Length: 3484.00 ft	Diameter: 3.80 inches	Volume: 48.87 bbl	Tool Weight: 2500.00 lb
Heavy Wt. Pipe:	Length: 0.00 ft	Diameter: 2.75 inches	Volume: 0.00 bbl	Weight set on Packer: 25000.00 lb
Drill Collar:	Length: 29.00 ft	Diameter: 2.25 inches	Volume: 0.14 bbl	Weight to Pull Loose: 53000.00 lb
			<u>Total Volume: 49.01 bbl</u>	Tool Chased 0.00 ft
Drill Pipe Above KB:	22.00 ft			String Weight: Initial 48000.00 lb
Depth to Top Packer:	3523.00 ft			Final 48000.00 lb
Depth to Bottom Packer:	ft			
Interval between Packers:	65.00 ft			
Tool Length:	97.00 ft			
Number of Packers:	2	Diameter: 6.75 inches		

Tool Comments:

## Tool Description

**Length (ft) Serial No. Position Depth (ft) Accum. Lengths**

Change Over Sub	1.00			3492.00	
Shut In Tool	5.00			3497.00	
Hydraulic tool	5.00		Inside	3502.00	
Jars	5.00			3507.00	
EM Tool	4.00			3511.00	
Safety Joint	3.00			3514.00	
Packer	5.00			3519.00	32.00 Bottom Of Top Packer
Packer	4.00			3523.00	
Stubb	1.00			3524.00	
Recorder	0.00	8645	Outside	3524.00	
Recorder	0.00	6731	Inside	3524.00	
Perforations	27.00			3551.00	
Change Over Sub	1.00			3552.00	
Drill Pipe	32.00			3584.00	
Change Over Sub	1.00			3585.00	
Bullnose	3.00			3588.00	65.00 Bottom Packers & Anchor
<b>Total Tool Length:</b>	<b>97.00</b>				



**TRILOBITE  
TESTING, INC.**

# DRILL STEM TEST REPORT

**FLUID SUMMARY**

Cobalt Energy LLC

**21-8S.-22W Graham,KS**

PO Box 8037  
Wchita, KS 67208

**UMC " A " #1-21**

Job Ticket: 65333

**DST#: 3**

ATTN: Larry Nicholson

Test Start: 2019.01.26 @ 09:10:00

## Mud and Cushion Information

Mud Type: Gel Chem

Cushion Type:

Oil API:

deg API

Mud Weight: 9.00 lb/gal

Cushion Length:

ft

Water Salinity:

ppm

Viscosity: 57.00 sec/qt

Cushion Volume:

bbbl

Water Loss: 6.39 in<sup>3</sup>

Gas Cushion Type:

Resistivity: ohm.m

Gas Cushion Pressure:

psig

Salinity: 1700.00 ppm

Filter Cake: 1.00 inches

## Recovery Information

Recovery Table

Length ft	Description	Volume bbbl
8.00	OCM 20% O, 80%M	0.039
2.00	CO 100%O	0.010

Total Length: 10.00 ft      Total Volume: 0.049 bbl

Num Fluid Samples: 0

Num Gas Bombs: 0

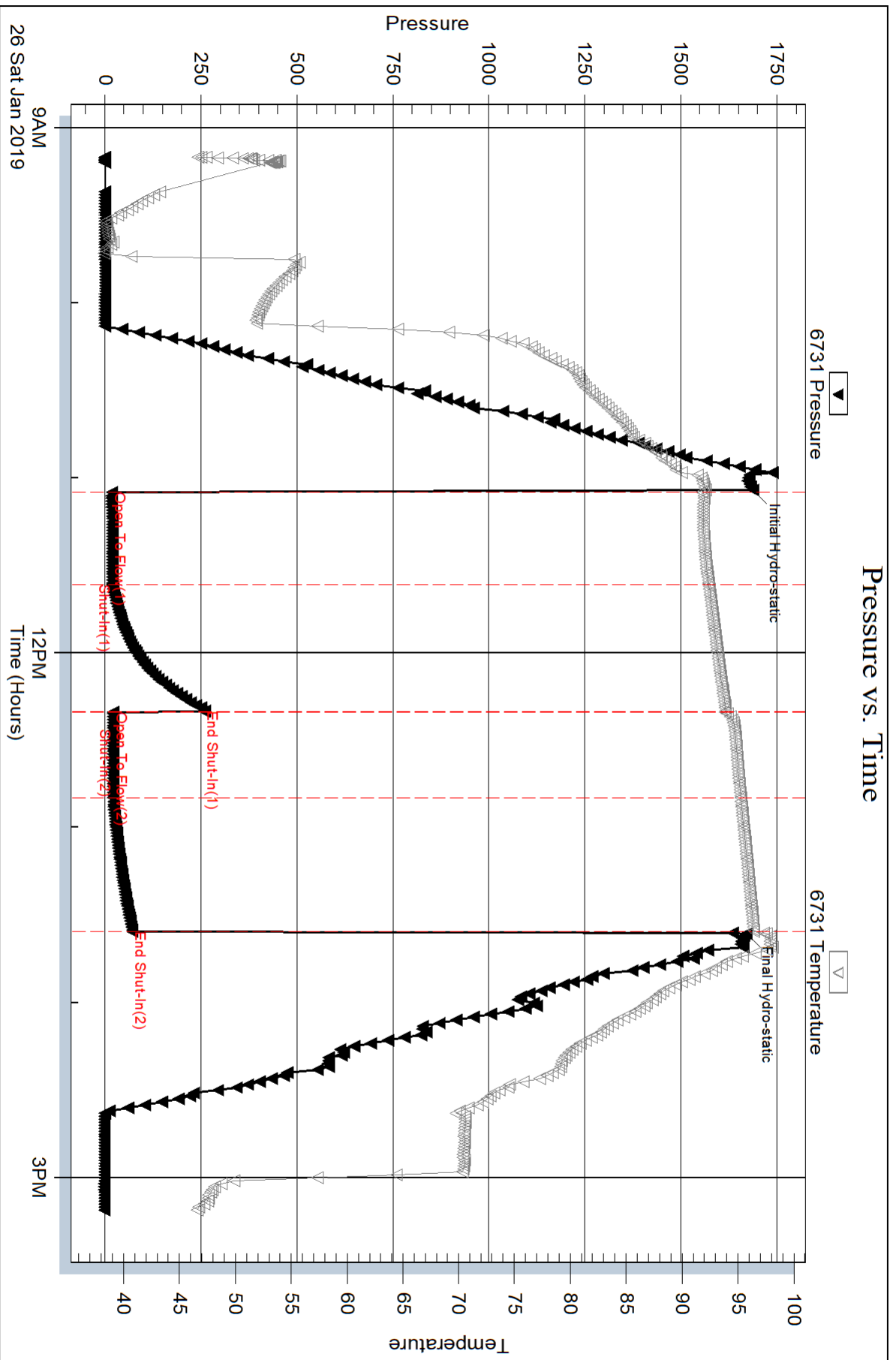
Serial #:

Laboratory Name:

Laboratory Location:

Recovery Comments: Not enough oil to catch gravity

### Pressure vs. Time

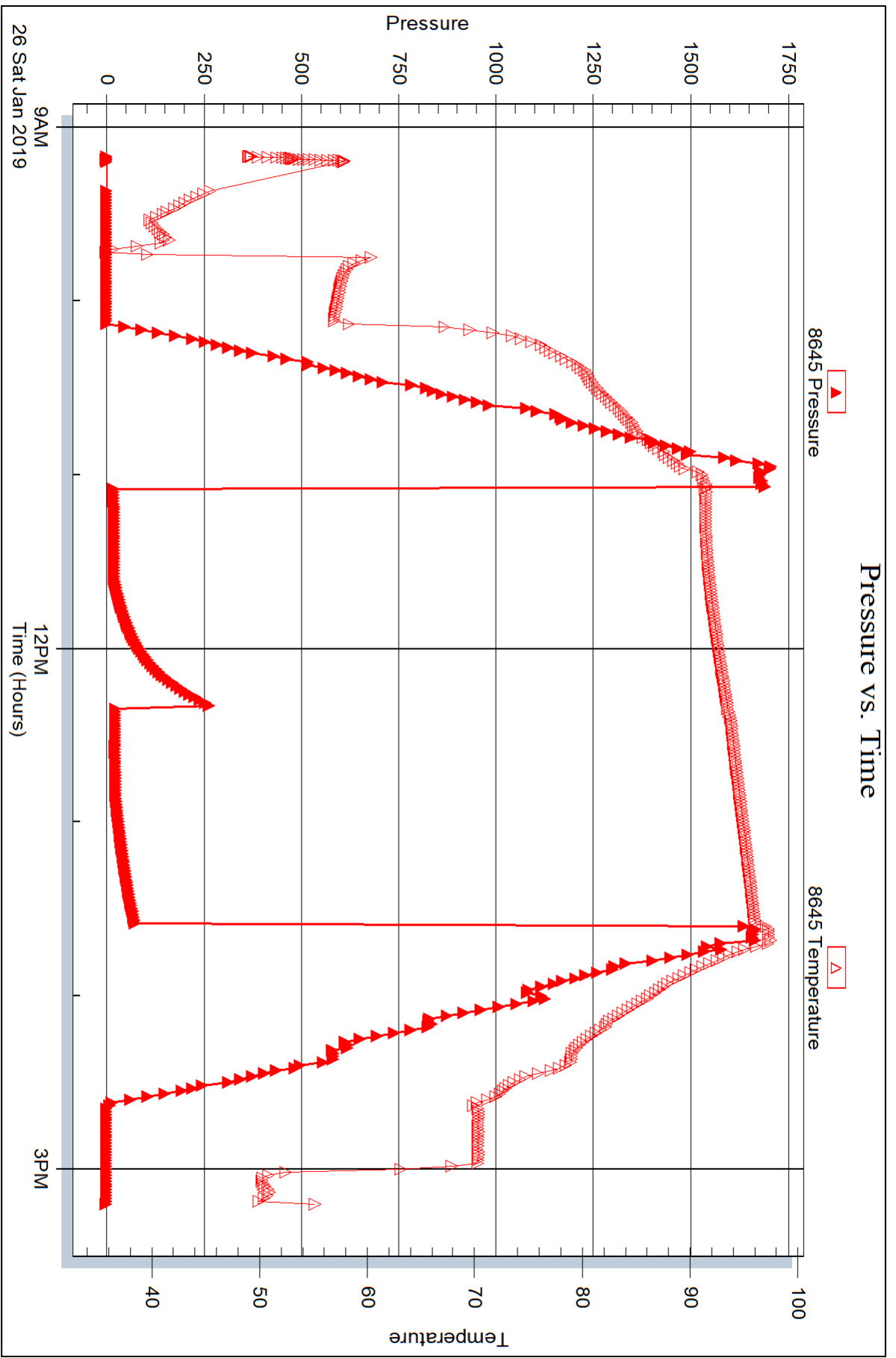


Serial #: 8645

Outside Cobalt Energy LLC

UMC "A" #1-21

DST Test Number: 3



Trilobite Testing, Inc

Ref. No: 65333

Printed: 2019.01.28 @ 09:28:50



## DRILL STEM TEST REPORT

Prepared For: **Cobalt Energy LLC**

PO Box 8037  
Wchita, KS 67208

ATTN: Larry Nicholson

**UMC " A " #1-21**

**21-8S.-22W Graham,KS**

Start Date: 2019.01.26 @ 20:46:00

End Date: 2019.01.27 @ 03:05:16

Job Ticket #: 65334                      DST #: 4

Trilobite Testing, Inc  
1515 Commerce Parkway Hays, KS 67601  
ph: 785-625-4778 fax: 785-625-5620

Printed: 2019.01.28 @ 09:27:23



**TRILOBITE TESTING, INC.**

# DRILL STEM TEST REPORT

Cobalt Energy LLC

**21-8S.-22W Graham,KS**

PO Box 8037  
Wchita, KS 67208

**UMC " A " #1-21**

Job Ticket: 65334

**DST#: 4**

ATTN: Larry Nicholson

Test Start: 2019.01.26 @ 20:46:00

## GENERAL INFORMATION:

Formation: **LKC " K "**

Deviated: No Whipstock: ft (KB)

Time Tool Opened: 22:15:16

Time Test Ended: 03:05:16

Test Type: Conventional Bottom Hole (Reset)

Tester: Martine Salinas

Unit No: 76

**Interval: 3583.00 ft (KB) To 3606.00 ft (KB) (TVD)**

Reference Elevations: 2161.00 ft (KB)

Total Depth: 3606.00 ft (KB) (TVD)

2156.00 ft (CF)

Hole Diameter: 7.88 inches Hole Condition: Good

KB to GR/CF: 5.00 ft

**Serial #: 6731**

**Inside**

Press@RunDepth: 27.62 psig @ 3588.00 ft (KB)

Capacity: 8000.00 psig

Start Date: 2019.01.26

End Date:

2019.01.27

Last Calib.: 2019.01.27

Start Time: 20:46:01

End Time:

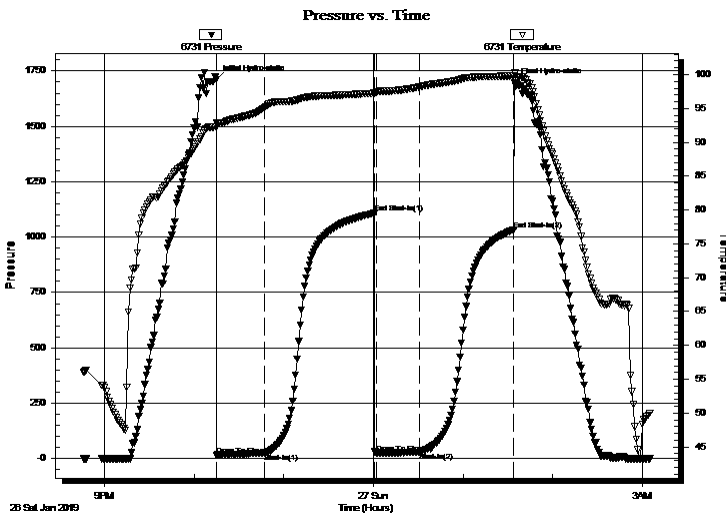
03:05:16

Time On Btm: 2019.01.26 @ 22:15:01

Time Off Btm: 2019.01.27 @ 01:34:46

**TEST COMMENT:** 30-IF-Surface blow built to 2"  
75-ISI-No blow  
30-FF-Surface blow built to 2"  
60-FSI-No blow

## PRESSURE SUMMARY



Time (Min.)	Pressure (psig)	Temp (deg F)	Annotation
0	1710.75	92.83	Initial Hydro-static
1	15.84	92.29	Open To Flow (1)
33	24.67	95.13	Shut-In(1)
106	1107.13	97.25	End Shut-In(1)
107	24.38	97.42	Open To Flow (2)
136	27.62	98.19	Shut-In(2)
199	1033.80	99.84	End Shut-In(2)
200	1695.01	100.32	Final Hydro-static

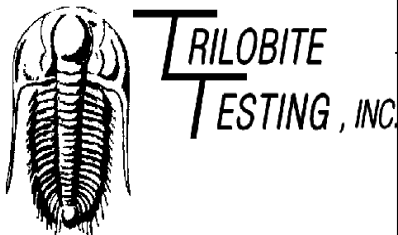
## Recovery

Length (ft)	Description	Volume (bbl)
40.00	MCO 30%M, 70%O,	0.30

\* Recovery from multiple tests

## Gas Rates

Choke (inches)	Pressure (psig)	Gas Rate (Mcf/d)



# DRILL STEM TEST REPORT

Cobalt Energy LLC

21-8S.-22W Graham,KS

PO Box 8037  
Wchita, KS 67208

UMC " A " #1-21

Job Ticket: 65334 **DST#: 4**

ATTN: Larry Nicholson

Test Start: 2019.01.26 @ 20:46:00

## GENERAL INFORMATION:

Formation: **LKC " K "**

Deviated: No Whipstock: ft (KB)

Time Tool Opened: 22:15:16

Time Test Ended: 03:05:16

Test Type: Conventional Bottom Hole (Reset)

Tester: Martine Salinas

Unit No: 76

Interval: **3583.00 ft (KB) To 3606.00 ft (KB) (TVD)**

Reference Elevations: 2161.00 ft (KB)

Total Depth: 3606.00 ft (KB) (TVD)

2156.00 ft (CF)

Hole Diameter: 7.88 inches Hole Condition: Good

KB to GR/CF: 5.00 ft

**Serial #: 8645 Outside**

Press@RunDepth: psig @ 3588.00 ft (KB)

Capacity: 8000.00 psig

Start Date: 2019.01.26 End Date: 2019.01.27

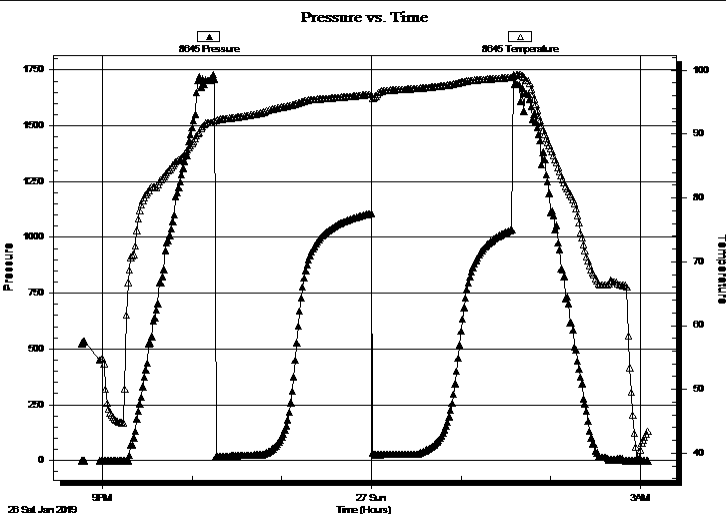
Last Calib.: 2019.01.27

Start Time: 20:46:01 End Time: 03:05:31

Time On Btm:

Time Off Btm:

TEST COMMENT: 30-IF-Surface blow built to 2"  
75-ISI-No blow  
30-FF-Surface blow built to 2"  
60-FSI-No blow



## PRESSURE SUMMARY

Time (Min.)	Pressure (psig)	Temp (deg F)	Annotation

## Recovery

Length (ft)	Description	Volume (bbl)
40.00	MCO 30%M, 70%O,	0.30

## Gas Rates

Choke (inches)	Pressure (psig)	Gas Rate (Mcf/d)

\* Recovery from multiple tests



**TRILOBITE  
TESTING, INC.**

# DRILL STEM TEST REPORT

**TOOL DIAGRAM**

Cobalt Energy LLC

**21-8S.-22W Graham,KS**

PO Box 8037  
Wchita, KS 67208

**UMC " A " #1-21**

Job Ticket: 65334

**DST#: 4**

ATTN: Larry Nicholson

Test Start: 2019.01.26 @ 20:46:00

## Tool Information

Drill Pipe:	Length: 3548.00 ft	Diameter: 3.80 inches	Volume: 49.77 bbl	Tool Weight:	2500.00 lb
Heavy Wt. Pipe:	Length: 0.00 ft	Diameter: 2.75 inches	Volume: 0.00 bbl	Weight set on Packer:	25000.00 lb
Drill Collar:	Length: 29.00 ft	Diameter: 2.25 inches	Volume: 0.14 bbl	Weight to Pull Loose:	60000.00 lb
			<u>Total Volume: 49.91 bbl</u>	Tool Chased	0.00 ft
Drill Pipe Above KB:	26.00 ft			String Weight: Initial	48000.00 lb
Depth to Top Packer:	3583.00 ft			Final	48000.00 lb
Depth to Bottom Packer:	ft				
Interval between Packers:	27.00 ft				
Tool Length:	59.00 ft				
Number of Packers:	2	Diameter: 6.75 inches			

Tool Comments:

## Tool Description

Tool Description	Length (ft)	Serial No.	Position	Depth (ft)	Accum. Lengths
Change Over Sub	1.00			3552.00	
Shut In Tool	5.00			3557.00	
Hydraulic tool	5.00		Inside	3562.00	
Jars	5.00			3567.00	
EM Tool	4.00			3571.00	
Safety Joint	2.00			3573.00	
Packer	5.00			3578.00	32.00 Bottom Of Top Packer
Packer	5.00			3583.00	
Stubb	1.00			3584.00	
Perforations	4.00			3588.00	
Recorder	0.00	8645	Outside	3588.00	
Recorder	0.00	6731	Inside	3588.00	
Perforations	19.00			3607.00	
Bullnose	3.00			3610.00	27.00 Bottom Packers & Anchor

**Total Tool Length: 59.00**





**TRILOBITE  
TESTING, INC.**

# DRILL STEM TEST REPORT

**FLUID SUMMARY**

Cobalt Energy LLC

**21-8S.-22W Graham,KS**

PO Box 8037  
Wchita, KS 67208

**UMC " A " #1-21**

Job Ticket: 65334

**DST#: 4**

ATTN: Larry Nicholson

Test Start: 2019.01.26 @ 20:46:00

## Mud and Cushion Information

Mud Type: Gel Chem

Cushion Type:

Oil API:

deg API

Mud Weight: 9.00 lb/gal

Cushion Length:

ft

Water Salinity:

ppm

Viscosity: 48.00 sec/qt

Cushion Volume:

bbbl

Water Loss: 6.40 in<sup>3</sup>

Gas Cushion Type:

Resistivity: ohm.m

Gas Cushion Pressure:

psig

Salinity: 1700.00 ppm

Filter Cake: 1.00 inches

## Recovery Information

Recovery Table

Length ft	Description	Volume bbl
40.00	MCO 30%M, 70%O,	0.297

Total Length: 40.00 ft      Total Volume: 0.297 bbl

Num Fluid Samples: 0

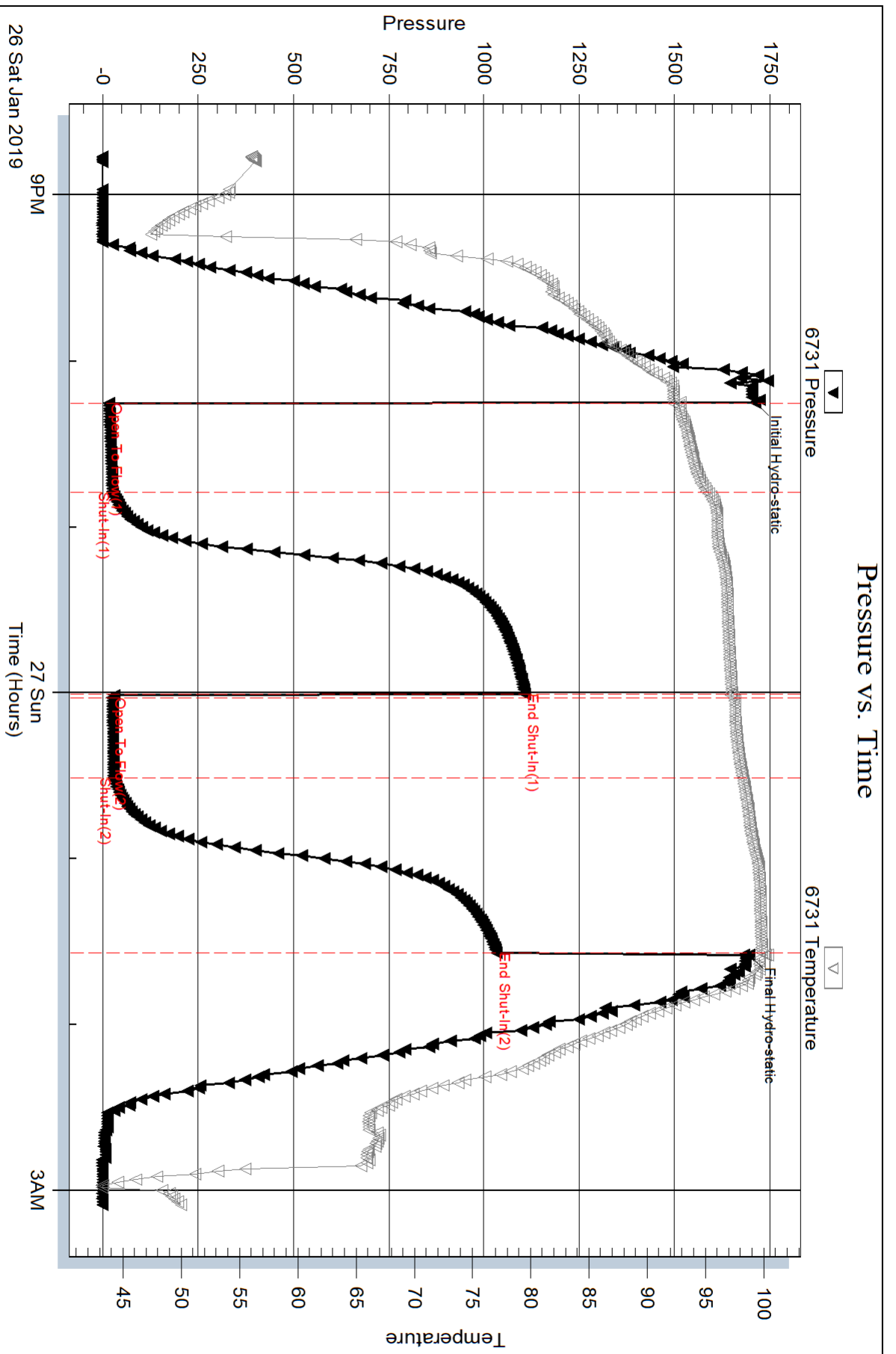
Num Gas Bombs: 0

Serial #:

Laboratory Name:

Laboratory Location:

Recovery Comments:

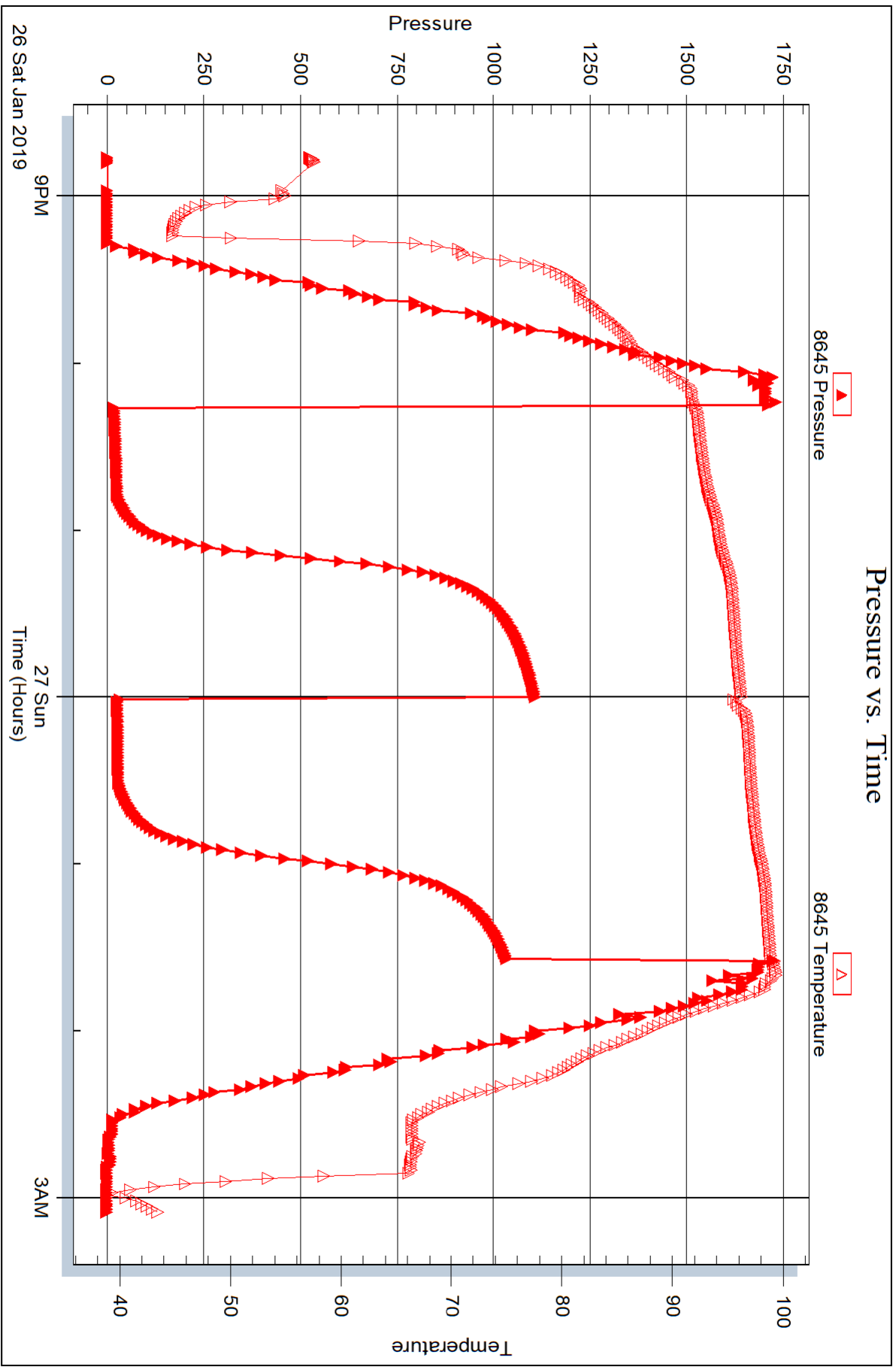


Serial #: 8645

Outside Cobalt Energy LLC

UMC "A" #1-21

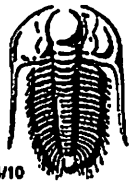
DST Test Number: 4



Trilobite Testing, Inc

Ref. No: 65334

Printed: 2019.01.28 @ 09:27:24



# TRILOBITE TESTING INC.

1515 Commerce Parkway • Hays, Kansas 67601

## Test Ticket

NO. 65331

Well Name & No. UMC "A" #1-21 Test No. 1 Date 01-24-19  
 Company Cobalt Energy LLC Elevation 2161 KB 2156 GL  
 Address P.O. Box 8037 Wichita, KS 67208  
 Co. Rep / Geo. Larry Nicholson Rig Murfin #16  
 Location: Sec. 21 Twp 8S. Rge. 22 W. Co. Graham State KS

Interval Tested 3432-3454 Zone Tested LKC "C"  
 Anchor Length 22 Drill Pipe Run 3388 Mud Wt. 8.9  
 Top Packer Depth 3427 Drill Collars Run 29 Vis 52  
 Bottom Packer Depth 3432 Wt. Pipe Run — WL 6.2  
 Total Depth 3454 Chlorides 800 ppm System LCM 2#  
 Blow Description IF: 1/2" blow built to 1 1/2"  
ISI: No blow

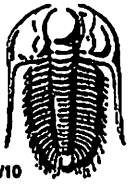
FF: S. blow built to B.O.B. (11 inches) @ 3 mins (blow increased to 89")  
FST: S. blow back @ 23 mins built to 3/4"

Rec	Feet of	%gas	%oil	%water	%mud
<u>570</u>	<u>MSW</u>		<u>97</u>	<u>3</u>	
<u>190</u>	<u>GOS/MCW</u>	<u>5</u>	<u>5</u>	<u>70</u>	<u>20</u>
Rec	Feet of	%gas	%oil	%water	%mud
Rec	Feet of	%gas	%oil	%water	%mud

Rec Total 760 BHT 104 Gravity — API RW 222 @ 25.7 °F Chlorides 90,000 ppm

(A) Initial Hydrostatic <u>1660</u>	<input checked="" type="checkbox"/> Test <u>1050</u>	T-On Location <u>21:10</u>
(B) First Initial Flow <u>754</u>	<input checked="" type="checkbox"/> Jars <u>250</u>	T-Started <u>22:22</u>
(C) First Final Flow <u>995</u>	<input checked="" type="checkbox"/> Safety Joint <u>75</u>	T-Open <u>00:13</u>
(D) Initial Shut-In <u>994</u>	<input type="checkbox"/> Circ Sub	T-Pulled <u>03:28</u>
(E) Second Initial Flow <u>88</u>	<input type="checkbox"/> Hourly Standby	T-Out <u>05:44</u>
(F) Second Final Flow <u>347</u>	<input checked="" type="checkbox"/> Mileage <u>157 RT</u> 120	Comments
(G) Final Shut-In <u>949</u>	<input type="checkbox"/> Sampler	
(H) Final Hydrostatic <u>1619</u>	<input type="checkbox"/> Straddle	<input type="checkbox"/> EM Tool <u>350</u>
Initial Open <u>30</u>	<input type="checkbox"/> Shale Packer	<input type="checkbox"/> Ruined Shale Packer
Initial Shut-In <u>45</u>	<input type="checkbox"/> Extra Packer	<input type="checkbox"/> Ruined Packer
Final Flow <u>30</u>	<input type="checkbox"/> Extra Recorder	<input type="checkbox"/> Extra Copies
Final Shut-In <u>90</u>	<input type="checkbox"/> Day Standby	Sub Total <u>0</u>
	<input type="checkbox"/> Accessibility	Total <u>1495</u>
	Sub Total <u>1495</u>	MP/DST Disc't

Approved By \_\_\_\_\_ Our Representative [Signature]  
 Trilobite Testing Inc. shall not be liable for damaged of any kind of the property or personnel of the one for whom a test is made, or for any loss suffered or sustained, directly or indirectly, through the use of its equipment, or its statements or opinion concerning the results of any test, tools lost or damaged in the hole shall be paid for at cost by the party for whom the test is made.



# TRILOBITE TESTING INC.

1515 Commerce Parkway • Hays, Kansas 67601

## Test Ticket

NO. 65332

Well Name & No. UMC "A" #1-21 Test No. 2 Date 1-25-19  
 Company Cobalt Energy LLC Elevation 2161 KB 2156 GL  
 Address P.O. Box 8037 Wichita, KS 67208  
 Co. Rep / Geo. Larry Nicholson Rig Murfin #16  
 Location: Sec. 21 Twp 8S. Rge. 22W. Co. Graham State KS.

Interval Tested 3453 - 3490 Zone Tested LKC "D G"  
 Anchor Length 37' Drill Pipe Run 3421 Mud Wt. 9.1  
 Top Packer Depth 3448 Drill Collars Run 29 Vls 56  
 Bottom Packer Depth 3453 Wt. Pipe Run — WL 7.2  
 Total Depth 3490 Chlorides 1600 ppm System LCM 1#  
 Blow Description IF - 1/2" blow built to B.O.B (11 inches) @ 4mins (blow increased to 49 1/2")  
ISI - S. blow back @ 4mins. built to 2 1/2"  
FF - S. blow built to B.O.B (11 inches) @ 8mins (blow increased to 37")  
FSE - S. blow back @ 1min built to 3 1/4"

Rec	Feet of	%gas	%oil	%water	%mud
<u>225</u>	<u>50/SMCW</u>	<u>5</u>	<u>90</u>	<u>5</u>	
<u>315</u>	<u>GSU/MCW</u>	<u>8</u>	<u>73</u>	<u>11</u>	
<u>120</u>	<u>SM/GWCO</u>	<u>15</u>	<u>60</u>	<u>5</u>	
<u>20</u>	<u>CC70</u>	<u>7</u>	<u>93</u>		

Rec Total 680 BHT 105 Gravity 22.4 API RW 235 @ 27.0°F Chlorides 84,000 ppm

(A) Initial Hydrostatic 1647  Test 1050 T-On Location 13:10  
 (B) First Initial Flow 40  Jars 250 T-Started 13:50  
 (C) First Final Flow 197  Safety Joint 75 T-Open 15:50  
 (D) Initial Shut-In 948  Circ Sub \_\_\_\_\_ T-Pulled 19:05  
 (E) Second Initial Flow 202  Hourly Standby \_\_\_\_\_ T-Out 21:48  
 (F) Second Final Flow 323  Mileage 157 RT 120 Comments \_\_\_\_\_  
 (G) Final Shut-In 941  Sampler \_\_\_\_\_  
 (H) Final Hydrostatic 1645  Straddle \_\_\_\_\_  EM Tool 350  
 Shale Packer \_\_\_\_\_  Ruined Shale Packer \_\_\_\_\_  
 Extra Packer \_\_\_\_\_  Ruined Packer \_\_\_\_\_  
 Extra Recorder \_\_\_\_\_  Extra Copies \_\_\_\_\_  
 Initial Open 30  Day Standby \_\_\_\_\_ Sub Total 0  
 Initial Shut-In 45  Accessibility \_\_\_\_\_ Total 1845  
 Final Flow 30 Sub Total 1495 MP/DST Disc't \_\_\_\_\_  
 Final Shut-In 90

Approved By \_\_\_\_\_ Our Representative [Signature]  
 Trilobite Testing Inc. shall not be liable for damaged of any kind of the property or personnel of the one for whom a test is made, or for any loss suffered or sustained, directly or indirectly, through the use of its equipment, or its statements or opinion concerning the results of any test, tools lost or damaged in the hole shall be paid for at cost by the party for whom the test is made.



# TRILOBITE TESTING INC.

1515 Commerce Parkway • Hays, Kansas 67601

## Test Ticket

NO. 65333

Well Name & No. LMC "A" #1-21- Test No. 3 Date 1-25-19  
 Company Cobalt Energy LLC Elevation 2161 KB 2156 GL  
 Address P.O. Box 8037 Wichita, KS 67208  
 Co. Rep / Geo. Larry Nicholson Rig Murfin #16  
 Location: Sec. 21 Twp 8S Rge. 22W Co. Graham State KS

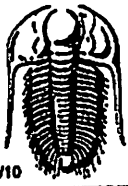
Interval Tested ~~3523-3588~~ 3523-3588 Zone Tested LKC "H-J"  
 Anchor Length ~~65~~ 65 Drill Pipe Run 3484 Mud Wt. 9.1  
 Top Packer Depth ~~3518~~ 3518 Drill Collars Run 29 Vls 57  
 Bottom Packer Depth ~~3523~~ 3523 Wt. Pipe Run — WL 6.4  
 Total Depth 3588 Chlorides 1700 ppm System LCM 1#  
 Blow Description IF - 1/4" blow built to 1 1/4"  
ISI - No blow  
FF - S. blow @ .5 min built to 1/2"  
FSE - No blow

Rec	Feet of	%gas	%oil	%water	%mud
<u>8</u>	<u>OCM</u>	<u>20</u>		<u>80</u>	
<u>2</u>	<u>CO</u>	<u>100</u>			

Rec Total 10' BHT 98 Gravity — API RW — @ — ° F Chlorides — ppm

(A) Initial Hydrostatic <u>1689</u>	<input checked="" type="checkbox"/> Test <u>1050</u>	T-On Location <u>08:10</u>
(B) First Initial Flow <u>19</u>	<input checked="" type="checkbox"/> Jars <u>250</u>	T-Started <u>09:10</u>
(C) First Final Flow <u>19</u>	<input checked="" type="checkbox"/> Safety Joint <u>75</u>	T-Open <u>11:04</u>
(D) Initial Shut-In <u>259</u>	<input type="checkbox"/> Circ Sub	T-Pulled <u>13:34</u>
(E) Second Initial Flow <u>22</u>	<input type="checkbox"/> Hourly Standby	T-Out <u>15:12</u>
(F) Second Final Flow <u>22</u>	<input checked="" type="checkbox"/> Mileage <u>157 RT</u> 120	Comments _____
(G) Final Shut-In <u>72</u>	<input type="checkbox"/> Sampler	_____
(H) Final Hydrostatic <u>1670</u>	<input type="checkbox"/> Straddle	<input type="checkbox"/> EM Tool
Initial Open <u>30</u>	<input type="checkbox"/> Shale Packer	<input type="checkbox"/> Ruined Shale Packer
Initial Shut-In <u>45</u>	<input type="checkbox"/> Extra Packer	<input type="checkbox"/> Ruined Packer
Final Flow <u>30</u>	<input type="checkbox"/> Extra Recorder	<input type="checkbox"/> Extra Copies
Final Shut-In <u>45</u>	<input type="checkbox"/> Day Standby	Sub Total <u>0</u>
	<input type="checkbox"/> Accessibility	Total <u>1845</u>
	Sub Total <u>1495</u>	MP/DST Disc't _____

Approved By \_\_\_\_\_ Our Representative Martin Johnson  
 Trilobite Testing Inc. shall not be liable for damaged of any kind of the property or personnel of the one for whom a test is made, or for any loss suffered or sustained, directly or indirectly, through the use of its equipment, or its statements or opinion concerning the results of any test, tools lost or damaged in the hole shall be paid for at cost by the party for whom the test is made.



# TRILOBITE TESTING INC.

1515 Commerce Parkway • Hays, Kansas 67601

## Test Ticket

NO. 65334

Well Name & No. UMC "A" #1-21 Test No. 4 Date 01-26-19  
 Company Cobalt Energy LLC Elevation 2161 KB 2156 GL  
 Address P.O. Box 8037 Wichita, KS 67208  
 Co. Rep / Geo. Larry Nicholson Rig Murfin #16  
 Location: Sec. 21 Twp 8S. Rge. 22W. Co. Graham State KS

Interval Tested 3583-3606 Zone Tested LKC "K"  
 Anchor Length 23 Drill Pipe Run 3548 Mud Wt. 9.0  
 Top Packer Depth 3598 Drill Collars Run 29 Vis 48  
 Bottom Packer Depth 3583 Wt. Pipe Run — WL 6.4  
 Total Depth 3606 Chlorides 1700 ppm System LCM #  
 Blow Description IF - S. blow built to 2"  
ISE - No blow  
FE - S. blow built to 2"  
FSI - No blow

Rec	Feet of	%gas	%oil	%water	%mud
<u>40</u>	<u>HMC0</u>	<u>70</u>		<u>30</u>	
Rec	Feet of	%gas	%oil	%water	%mud
Rec	Feet of	%gas	%oil	%water	%mud
Rec	Feet of	%gas	%oil	%water	%mud
Rec	Feet of	%gas	%oil	%water	%mud

Rec Total 40 BHT 100 Gravity — API RW — @ — ° F Chlorides — ppm

(A) Initial Hydrostatic <u>1711</u>	<input checked="" type="checkbox"/> Test <u>1050</u>	T-On Location <u>20:10</u>
(B) First Initial Flow <u>16</u>	<input checked="" type="checkbox"/> Jars <u>250</u>	T-Started <u>20:46</u>
(C) First Final Flow <u>25</u>	<input checked="" type="checkbox"/> Safety Joint <u>75</u>	T-Open <u>22:16</u>
(D) Initial Shut-In <u>1107</u>	<input type="checkbox"/> Circ Sub	T-Pulled <u>01:31</u>
(E) Second Initial Flow <u>24</u>	<input type="checkbox"/> Hourly Standby	T-Out <u>03:06</u>
(F) Second Final Flow <u>28</u>	<input checked="" type="checkbox"/> Mileage <u>157 RT X 2</u> 240	Comments <u>Released @ 08:00</u>
(G) Final Shut-In <u>1034</u>	<input type="checkbox"/> Sampler	<u>1-27-19</u>
(H) Final Hydrostatic <u>1695</u>	<input type="checkbox"/> Straddle	<input type="checkbox"/> EM Tool <u>350</u>
Initial Open <u>30</u>	<input type="checkbox"/> Shale Packer	<input type="checkbox"/> Ruined Shale Packer
Initial Shut-In <u>75</u>	<input type="checkbox"/> Extra Packer	<input type="checkbox"/> Ruined Packer
Final Flow <u>30</u>	<input type="checkbox"/> Extra Recorder	<input type="checkbox"/> Extra Copies
Final Shut-In <u>60</u>	<input type="checkbox"/> Day Standby	Sub Total <u>0</u>
	<input type="checkbox"/> Accessibility	Total <u>1965</u>
	Sub Total <u>1615</u>	MP/DST Disc't

Approved By \_\_\_\_\_ Our Representative Mark [Signature]

Trilobite Testing Inc. shall not be liable for damaged of any kind of the property or personnel of the one for whom a test is made, or for any loss suffered or sustained, directly or indirectly, through the use of its equipment, or its statements or opinion concerning the results of any test, tools lost or damaged in the hole shall be paid for at cost by the party for whom the test is made.