

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](mailto: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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# QUALITY OILWELL CEMENTING, INC.

Federal Tax I.D.# 20-2886107

Phone 785-483-1071  
Cell 785-324-1041

Home Office P.O. Box 32 Russell, KS 67665

No. 3152

Date	9-10-22	Sec.	17	Twp.	17	Range	14	County	Barton	State	Ks	On Location		Finish	3:30 PM
Lease								Morgenstern		Well No. #1		Location Eggs 4 Sale - 2 W, 1/2 S, W/Into			
Contractor								Southwind #1		Owner To Quality Oilwell Cementing, Inc. You are hereby requested to rent cementing equipment and furnish cementer and helper to assist owner or contractor to do work as listed.					
Type Job								Surface		Charge To Charter Energy					
Hole Size				12 1/4"		T.D.		915'		Cement Amount Ordered 375 60/40 4% CC 2% Gel					
Csg.				8 5/8"		Depth		914.89'		Street					
Tbg. Size						Depth				City State					
Tool						Depth				The above was done to satisfaction and supervision of owner agent or contractor.					
Cement Left in Csg.				30'		Shoe Joint		30'		Cement Amount Ordered 375 60/40 4% CC 2% Gel					
Meas Line				Displace		56 1/4 BLS									
<b>EQUIPMENT</b>															
Pumptrk 5				No.		Cementer		David		Common 225					
Bulktrk 19				No.		Helper		Cory		Poz. Mix 150					
Bulktrk p.u.				No.		Driver		Tim		Gel. 7					
				No.		Driver		Rick		Calcium 17					
<b>JOB SERVICES &amp; REMARKS</b>															
Remarks:				Cement did Circulate											
Rat Hole				Flowseal											
Mouse Hole				Kol-Seal											
Centralizers				Mud CLR 48											
Baskets				CFL-117 or CD110 CAF 38											
D/V or Port Collar				Sand											
				Handling 399											
				Mileage											
<b>FLOAT EQUIPMENT</b>															
				Guide Shoe Rubber plug											
				Centralizer 2											
				Baskets											
				AFU Inserts											
				Float Shoe											
				Latch Down											
				Pumptrk Charge Long Surface											
				Mileage 19											
Signature				Tax											
Thank J. Rene				Discount											
				Total Charge											
				Thanks											



Services, Inc.

CHARGE TO: Charter Energy  
 ADDRESS  
 CITY, STATE, ZIP CODE

TICKET 34542

PAGE 1 OF 2  
 42

1. <u>Ness City, KS</u>	WELL/PROJECT NO. #1	LEASE <u>Morgensheim</u>	COUNTY/PARISH <u>Barton</u>	STATE <u>KS</u>	CITY	DATE <u>9/17/2022</u>	OWNER
2.	TICKET TYPE <input checked="" type="checkbox"/> SERVICE <input type="checkbox"/> SALES	CONTRACTOR <u>Southwind</u>	RIG NAME/NO.	SHIPPED VIA <u>CT</u>	DELIVERED TO	ORDER NO.	
3.	WELL TYPE <u>Oil</u>	WELL CATEGORY <u>Development</u>	JOB PURPOSE <u>Long String</u>	WELL PERMIT NO.		WELL LOCATION <u>Highway 4 + 287 Jct.</u>	
4.	REFERRAL LOCATION	INVOICE INSTRUCTIONS				<u>2-N-2-W, 12-N-W-INTO</u>	

PRICE REFERENCE	SECONDARY REFERENCE/ PART NUMBER	ACCOUNTING			DESCRIPTION	MILEAGE	QTY.		UNIT PRICE	AMOUNT
		LOC	ACCT	DF			U/M	U/M		
576					Trk #115	65	1	M	7.00	455.00
578					Pump Charge - Long String	1	1	job	1,600.00	1,600.00
402					Centralizers	6	1	EA	86.00	510.00
403					Cement Baskets	1	1	EA	300.00	300.00
406					Larch Down Plug + Baffle	1	1	EA	250.00	250.00
407					Insor Flow Shear w/ Auto Fill	1	1	EA	350.00	350.00
290					D-Air	2	1	gal	42.00	84.00
281					Mud Flush	500	2	gal	2.00	1,000.00
221					Liquid KCL	2	1	gal	25.00	50.00

LEGAL TERMS: Customer hereby acknowledges and agrees to the terms and conditions on the reverse side hereof which include, but are not limited to, PAYMENT, RELEASE, INDEMNITY, and LIMITED WARRANTY provisions.

MUST BE SIGNED BY CUSTOMER OR CUSTOMER'S AGENT PRIOR TO START OF WORK OR DELIVERY OF GOODS.

X

DATE SIGNED 9/17/2022 TIME SIGNED 7:15  A.M.  P.M.

REMIT PAYMENT TO:

SWIFT SERVICES, INC.  
 P.O. BOX 466  
 NESS CITY, KS 67560  
 785-798-2300

SURVEY

OUR EQUIPMENT PERFORMED WITHOUT BREAKDOWN?	AGREE	UNDECIDED	DISAGREE
WE UNDERSTOOD AND MET YOUR NEEDS?			
OUR SERVICE WAS PERFORMED WITHOUT DELAYS?			
WE OPERATED THE EQUIPMENT AND PERFORMED JOB CALCULATIONS SATISFACTORILY?			
ARE YOU SATISFIED WITH OUR SERVICE?	<input type="checkbox"/> YES	<input type="checkbox"/> NO	
	<input type="checkbox"/> CUSTOMER DID NOT WISH TO RESPOND		

PAGE TOTAL 1 4,599.00

TOTAL 2 5,245.00

Butson 9,844.00

TOTAL 10,377.30

CUSTOMER ACCEPTANCE OF MATERIALS AND SERVICES The customer hereby acknowledges receipt of the materials and services listed on this ticket.

SWIFT OPERATOR

*Butson*

APPROVAL

Thank You!



PO Box 466  
Ness City, KS 67560  
Off: 785-798-2300

TICKET CONTINUATION

Morgensstern

TICKET No. 34548

CUSTOMER: Charter Energy

WELL #1

DATE: 9/17/2022

PAGE 2 OF 2

PRICE REFERENCE	SECONDARY REFERENCE/ PART NUMBER	ACCOUNTING			TIME	DESCRIPTION	WELL		UNIT PRICE	AMOUNT
		LOC	ACCT	DF			QTY	U/M		
325						Standard Cement			15.00	2,625.00
284						Calscal			50.00	400.00
283						SALT			0.25	225.00
292						Halao-322			9.00	900.00
276						Floccle			3.00	150.00
581									2.00	350.00
583									1.00	595.00

SERVICE CHARGE  
MILEAGE CHARGE  
TOTAL WEIGHT  
LOADED MILES

CUBIC FEET  
TON MILES

175  
595  
2  
1  
350  
595

CONTINUATION TOTAL 5245.00

JOB LOG

SWIFT Services, Inc.

DATE: 9/17/2022 PAGE NO. 17

CUSTOMER		WELL NO.		LEASE		JOB TYPE		TICKET NO.	
CHARTER Energy		#1		Morgenstern		Long String 5 1/2"		34542	
CHART NO.	TIME	RATE (BPM)	VOLUME (BBL) (GAL)	PUMPS		PRESSURE (PSI)		DESCRIPTION OF OPERATION AND MATERIALS	
				T	C	TUBING	CASING		
	1430								ON LOCATION 5 1/2" 1416/18 RTD: 3,501' LTD: 3,502' TP: 3,491' SJ: 21.15' Cent: 3,5,8,11,14,17 Basket: #2
	1610								Begin 5 1/2" Csg in well
	1740								Drop Ball - Circulate
	1810	4	12		✓				Pump 500 gal Mud Flush
		4	20		✓				Pump 20 bbl KCL SPACER
	1820	2	7.5				75		Plug RH+MH [30,20]
	1830	3 1/2	30		✓				Mix 125 sks of EA-2 @ 15.36 ppg
	1840								Wash Pump + Lines Release Latch Down Plug
	<del>1845</del>								
	1845	6 1/2	0		✓		200		Begin Displacement
		6 1/2	61		✓		250		LIFE PSI
		6 1/2	84		✓		800		MAX LIFE PSI
	1900	5 1/2	85		✓		1600		LAND Latch Down Plug -Release PSI *Hold*
	1910								Wash up Trk #112
	1940								Job Complete
									175 sks of EA-2 used
									Plug Down @ 7:00 PM CST
									Thanks!
									Gideon Kieby, John



## DRILL STEM TEST REPORT

Prepared For: **Charter Energy Inc**

PO Box 252  
Great Bend, KS. 67530

ATTN: Jim Musgrove

### **Morgenstern #1**

#### **17-17S-14W Barton,KS**

Start Date: 2022.09.14 @ 08:22:22

End Date: 2022.09.14 @ 15:51:52

Job Ticket #: 65051                      DST #: 1

Trilobite Testing, Inc

PO Box 362 Hays, KS 67601

ph: 785-625-4778 fax: 785-625-5620

Printed: 2022.09.20 @ 08:12:21





**TRILOBITE TESTING, INC**

# DRILL STEM TEST REPORT

Charter Energy Inc  
 PO Box 252  
 Great Bend, KS. 67530  
 ATTN: Jim Musgrove

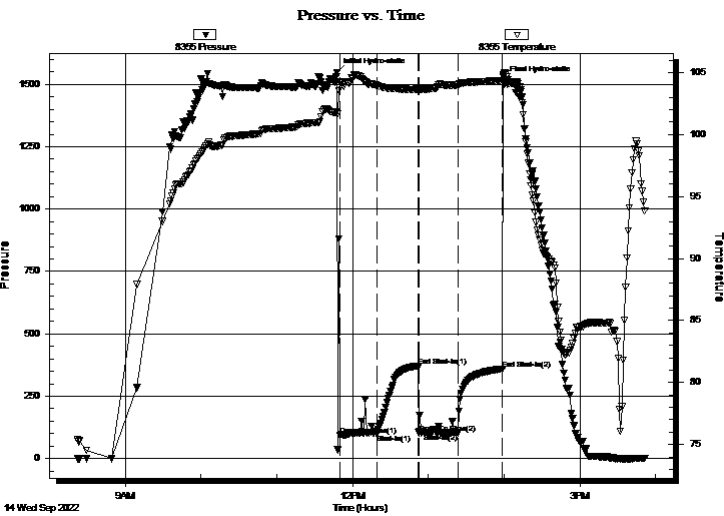
**17-17S-14W Barton,KS**  
**Morgenstern #1**  
 Job Ticket: 65051 **DST#: 1**  
 Test Start: 2022.09.14 @ 08:22:22

## GENERAL INFORMATION:

Formation: **LKC A**  
 Deviated: No Whipstock: ft (KB)  
 Time Tool Opened: 11:49:52  
 Time Test Ended: 15:51:52  
 Interval: **3168.00 ft (KB) To 3187.00 ft (KB) (TVD)**  
 Total Depth: 3187.00 ft (KB) (TVD)  
 Hole Diameter: inches Hole Condition: Good  
 Test Type: Conventional Bottom Hole (Initial)  
 Tester: Richie Samora  
 Unit No: 66  
 Reference Elevations: 1940.00 ft (KB)  
 1930.00 ft (CF)  
 KB to GR/CF: 10.00 ft

**Serial #: 8355 Inside**  
 Press@RunDepth: 102.60 psig @ 3174.01 ft (KB) Capacity: 8000.00 psig  
 Start Date: 2022.09.14 End Date: 2022.09.14 Last Calib.: 2022.09.14  
 Start Time: 08:22:27 End Time: 15:51:51 Time On Btm: 2022.09.14 @ 11:47:37  
 Time Off Btm: 2022.09.14 @ 13:59:22

**TEST COMMENT:** 30-IF-Strong blow BOB in one and a half minutes, built to 16"  
 30-ISI-No blow back  
 30-FF-Initially no blow flushed tool, weak surface blow  
 30-FSI-No blow back



## PRESSURE SUMMARY

Time (Min.)	Pressure (psig)	Temp (deg F)	Annotation
0	1547.55	101.84	Initial Hydro-static
3	94.28	104.19	Open To Flow (1)
32	97.55	103.95	Shut-In(1)
65	369.09	103.66	End Shut-In(1)
65	103.53	103.53	Open To Flow (2)
96	102.60	104.01	Shut-In(2)
131	359.48	104.37	End Shut-In(2)
132	1515.63	104.81	Final Hydro-static

## Recovery

Length (ft)	Description	Volume (bbl)
160.00	drilling mud	2.24

## Gas Rates

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





**TRILOBITE  
TESTING, INC**

# DRILL STEM TEST REPORT

**TOOL DIAGRAM**

Charter Energy Inc  
PO Box 252  
Great Bend, KS. 67530  
ATTN: Jim Musgrove

**17-17S-14W Barton,KS**  
**Morgenstern #1**  
Job Ticket: 65051 **DST#: 1**  
Test Start: 2022.09.14 @ 08:22:22

**Tool Information**

Drill Pipe:	Length: 3212.00 ft	Diameter: 3.80 inches	Volume: 45.06 bbl	Tool Weight: 2100.00 lb
Heavy Wt. Pipe:	Length: 0.00 ft	Diameter: 0.00 inches	Volume: 0.00 bbl	Weight set on Packer: 25000.00 lb
Drill Collar:	Length: 0.00 ft	Diameter: 2.25 inches	Volume: 0.00 bbl	Weight to Pull Loose: 69000.00 lb
			<u>Total Volume: 45.06 bbl</u>	Tool Chased 8.00 ft
Drill Pipe Above KB:	70.00 ft			String Weight: Initial 38000.00 lb
Depth to Top Packer:	3168.00 ft			Final 39000.00 lb
Depth to Bottom Packer:	ft			
Interval between Packers:	19.02 ft			
Tool Length:	45.02 ft			
Number of Packers:	2	Diameter: 6.75 inches		

Tool Comments:

<b>Tool Description</b>	<b>Length (ft)</b>	<b>Serial No.</b>	<b>Position</b>	<b>Depth (ft)</b>	<b>Accum. Lengths</b>
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Shut In Tool	4.00			3146.00	
Hydraulic tool	4.00			3150.00	
Sampler	4.00			3154.00	
EM	5.00			3159.00	
Safety Joint	2.00			3161.00	
Packer	4.00			3165.00	26.00 Bottom Of Top Packer
Packer	3.00			3168.00	
Stubb	1.00			3169.00	
Recorder Carrier	5.00			3174.00	
Recorder	0.01	8355	Inside	3174.01	
Recorder	0.01	6839	Outside	3174.02	
Perforations	10.00			3184.02	
Bullnose	3.00			3187.02	19.02 Bottom Packers & Anchor

**Total Tool Length: 45.02**



**TRILOBITE  
TESTING, INC**

# DRILL STEM TEST REPORT

## FLUID SUMMARY

Charter Energy Inc

**17-17S-14W Barton,KS**

PO Box 252  
Great Bend, KS. 67530

**Morgenstern #1**

Job Ticket: 65051

**DST#: 1**

ATTN: Jim Musgrove

Test Start: 2022.09.14 @ 08:22:22

### 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: 56.00 sec/qt

Cushion Volume:

bbbl

Water Loss: 5.38 in<sup>3</sup>

Gas Cushion Type:

Resistivity: ohm.m

Gas Cushion Pressure:

psig

Salinity: 2400.00 ppm

Filter Cake: inches

### Recovery Information

Recovery Table

Length ft	Description	Volume bbl
160.00	drilling mud	2.244

Total Length: 160.00 ft      Total Volume: 2.244 bbl

Num Fluid Samples: 0

Num Gas Bombs: 0

Serial #:

Laboratory Name:

Laboratory Location:

Recovery Comments: Oil specs in tool

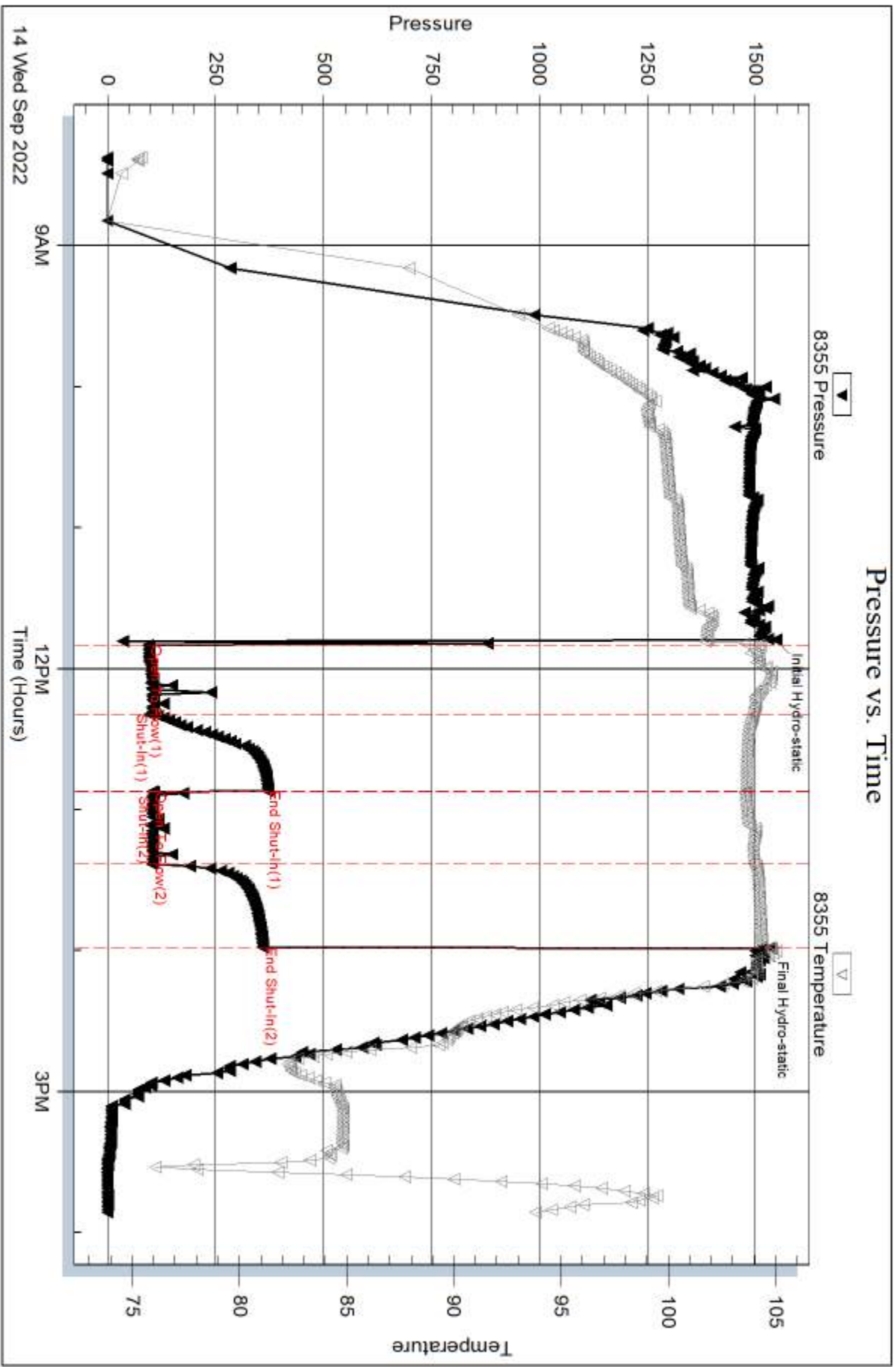
Serial #: 8355

Inside

Charter Energy Inc

Morgenstern #1

DST Test Number: 1



Trilobite Testing, Inc

Ref. No: 65051

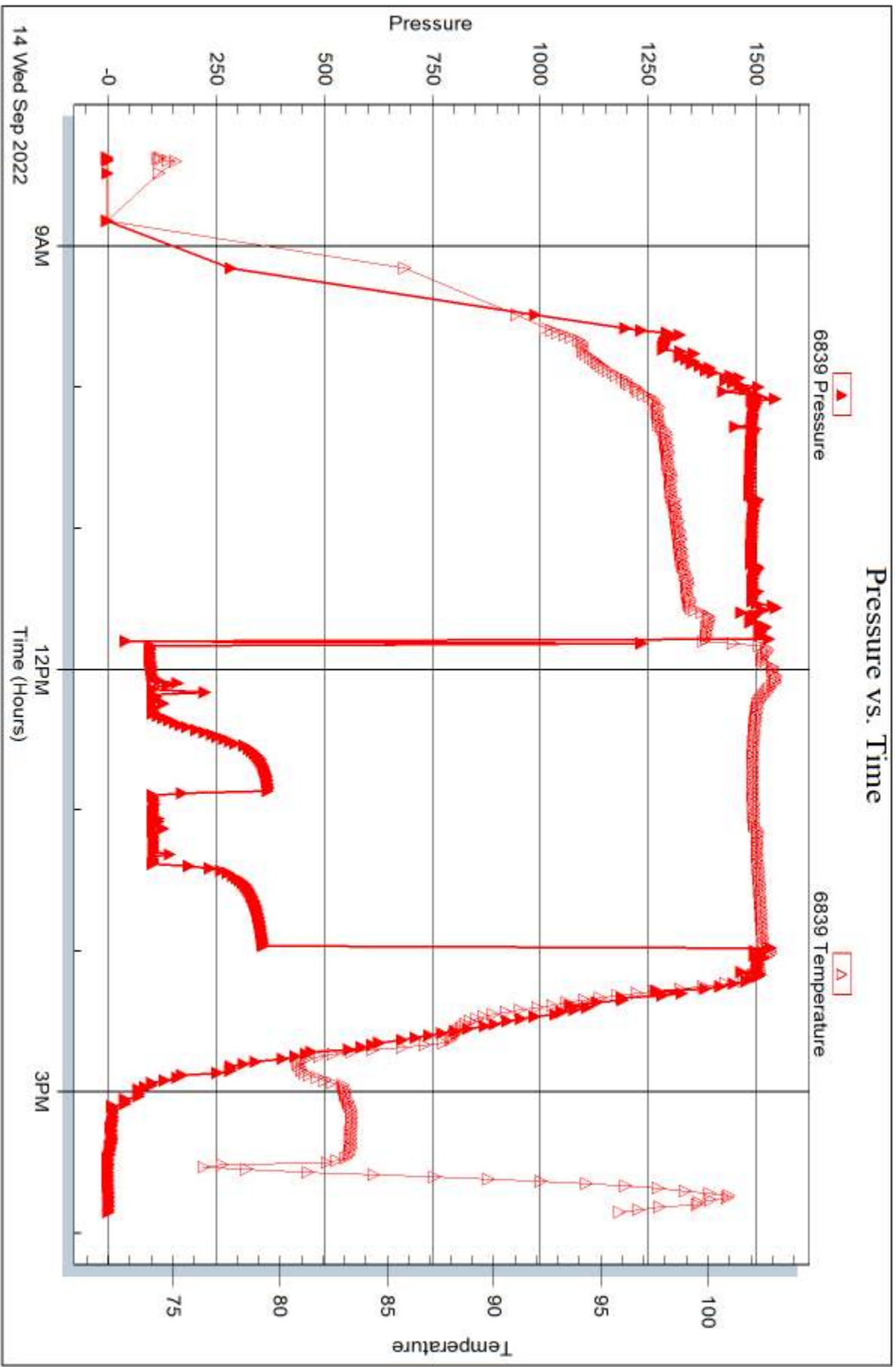
Printed: 2022.09.20 @ 08:12:21

Serial #: 6839

Outside Charter Energy Inc

Morgenstern #1

DST Test Number: 1



14 Wed Sep 2022



## DRILL STEM TEST REPORT

Prepared For: **Charter Energy Inc**

PO Box 252  
Great Bend, KS. 67530

ATTN: Jim Musgrove

### **Morgenstern #1**

#### **17-17S-14W Barton,KS**

Start Date: 2022.09.14 @ 21:34:00

End Date: 2022.09.15 @ 04:13:45

Job Ticket #: 65052                      DST #: 2

Trilobite Testing, Inc

PO Box 362 Hays, KS 67601

ph: 785-625-4778 fax: 785-625-5620

Printed: 2022.09.20 @ 08:11:47



**TRILOBITE  
TESTING, INC**

# DRILL STEM TEST REPORT

Charter Energy Inc  
PO Box 252  
Great Bend, KS. 67530  
ATTN: Jim Musgrove

**17-17S-14W Barton,KS**

**Morgenstern #1**

Job Ticket: 65052      **DST#: 2**  
Test Start: 2022.09.14 @ 21:34:00

## GENERAL INFORMATION:

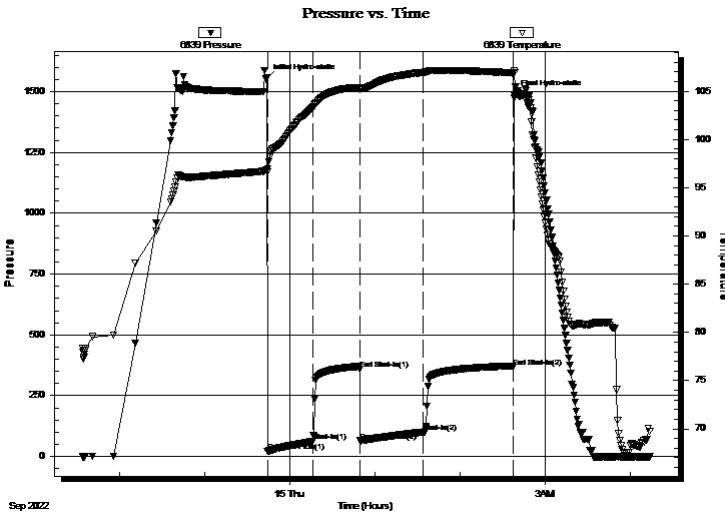
Formation: **LKC**  
Deviated: No Whipstock: ft (KB)  
Time Tool Opened: 23:44:15  
Time Test Ended: 04:13:45  
Interval: **3182.00 ft (KB) To 3202.00 ft (KB) (TVD)**  
Total Depth: 3202.00 ft (KB) (TVD)  
Hole Diameter: inches Hole Condition: Good  
Reference Elevations: 1940.00 ft (KB)  
1930.00 ft (CF)  
KB to GR/CF: 10.00 ft  
Test Type: Conventional Bottom Hole (Reset)  
Tester: Richie Samora  
Unit No: 66

## Serial #: 6839 Outside

Press@RunDepth: 100.61 psig @ 3188.01 ft (KB)      Capacity: 8000.00 psig  
Start Date: 2022.09.14      End Date: 2022.09.15      Last Calib.: 2022.09.14  
Start Time: 21:34:05      End Time: 04:13:44      Time On Btm: 2022.09.14 @ 23:43:45  
Time Off Btm: 2022.09.15 @ 02:38:15

TEST COMMENT: 30-IF: Fair blow built to 9.65"  
30-ISI: No blow back  
45-FF: Fair blow built to 6.23"  
60-FSI: No blow back

## PRESSURE SUMMARY



Time (Min.)	Pressure (psig)	Temp (deg F)	Annotation
0	1554.99	96.83	Initial Hydro-static
1	20.43	96.62	Open To Flow (1)
33	62.00	103.31	Shut-In(1)
66	358.85	105.36	End Shut-In(1)
66	63.82	105.27	Open To Flow (2)
111	100.61	106.95	Shut-In(2)
174	367.63	106.89	End Shut-In(2)
175	1487.53	107.10	Final Hydro-static

## Recovery

Length (ft)	Description	Volume (bbl)
150.00	MW 10%M 90%W	2.10

\* Recovery from multiple tests

## Gas Rates

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





**TRILOBITE  
TESTING, INC**

# DRILL STEM TEST REPORT

**TOOL DIAGRAM**

Charter Energy Inc  
PO Box 252  
Great Bend, KS. 67530  
ATTN: Jim Musgrove

**17-17S-14W Barton,KS**  
**Morgenstern #1**  
Job Ticket: 65052      **DST#: 2**  
Test Start: 2022.09.14 @ 21:34:00

**Tool Information**

Drill Pipe:	Length: 3167.00 ft	Diameter: 3.80 inches	Volume: 44.42 bbl	Tool Weight:	2100.00 lb
Heavy Wt. Pipe:	Length: 0.00 ft	Diameter: 0.00 inches	Volume: 0.00 bbl	Weight set on Packer:	25000.00 lb
Drill Collar:	Length: 0.00 ft	Diameter: 2.25 inches	Volume: 0.00 bbl	Weight to Pull Loose:	60000.00 lb
			<u>Total Volume: 44.42 bbl</u>	Tool Chased	0.00 ft
Drill Pipe Above KB:	11.00 ft			String Weight: Initial	38000.00 lb
Depth to Top Packer:	3182.00 ft			Final	39000.00 lb
Depth to Bottom Packer:	ft				
Interval between Packers:	20.02 ft				
Tool Length:	46.02 ft				
Number of Packers:	2	Diameter: 6.75 inches			

Tool Comments:

<b>Tool Description</b>	<b>Length (ft)</b>	<b>Serial No.</b>	<b>Position</b>	<b>Depth (ft)</b>	<b>Accum. Lengths</b>
-------------------------	--------------------	-------------------	-----------------	-------------------	-----------------------

Shut In Tool	4.00			3160.00	
Hydraulic tool	4.00			3164.00	
Sampler	4.00			3168.00	
EM	5.00			3173.00	
Safety Joint	2.00			3175.00	
Packer	4.00			3179.00	26.00      Bottom Of Top Packer
Packer	3.00			3182.00	
Stubb	1.00			3183.00	
Recorder Carrier	5.00			3188.00	
Recorder	0.01	6839	Outside	3188.01	
Recorder	0.01		Outside	3188.02	
Perforations	11.00			3199.02	
Bullnose	3.00			3202.02	20.02      Bottom Packers & Anchor

**Total Tool Length: 46.02**



**TRILOBITE  
TESTING, INC**

# DRILL STEM TEST REPORT

**FLUID SUMMARY**

Charter Energy Inc  
PO Box 252  
Great Bend, KS. 67530  
ATTN: Jim Musgrove

**17-17S-14W Barton,KS**  
**Morgenstern #1**  
Job Ticket: 65052      **DST#: 2**  
Test Start: 2022.09.14 @ 21:34:00

## Mud and Cushion Information

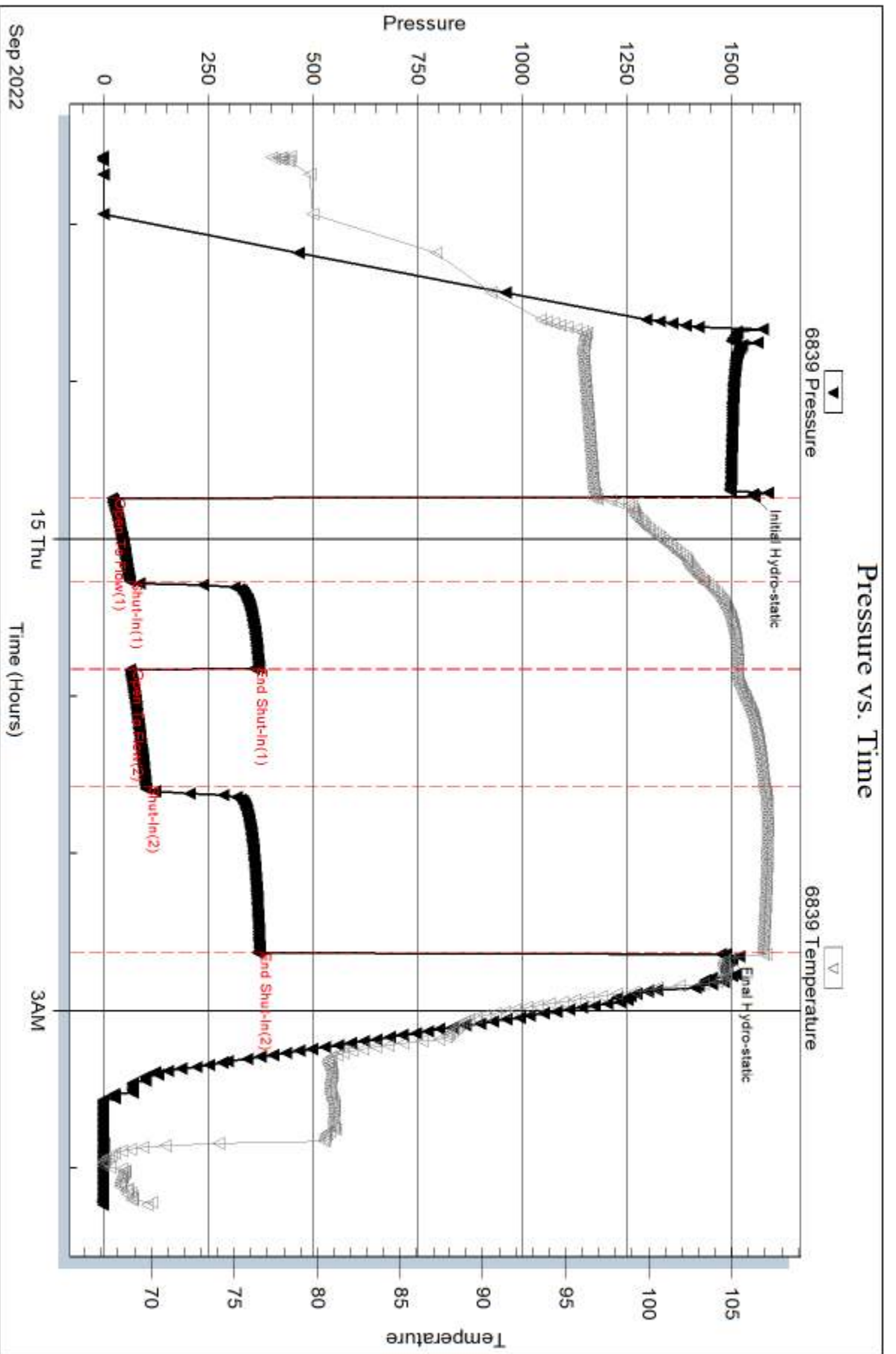
Mud Type: Gel Chem	Cushion Type:	Oil API:	deg API
Mud Weight: 9.00 lb/gal	Cushion Length: ft	Water Salinity:	ppm
Viscosity: 56.00 sec/qt	Cushion Volume: bbl		
Water Loss: 5.38 in <sup>3</sup>	Gas Cushion Type:		
Resistivity: ohm.m	Gas Cushion Pressure: psig		
Salinity: 2400.00 ppm			
Filter Cake: inches			

## Recovery Information

Recovery Table

Length ft	Description	Volume bbl
150.00	MW 10%M 90%W	2.104

Total Length: 150.00 ft      Total Volume: 2.104 bbl  
Num Fluid Samples: 0      Num Gas Bombs: 0      Serial #:  
Laboratory Name:      Laboratory Location:  
Recovery Comments:





## DRILL STEM TEST REPORT

Prepared For: **Charter Energy Inc**

PO Box 252  
Great Bend, KS. 67530

ATTN: Jim Musgrove

### **Morgenstern #1**

#### **17-17S-14W Barton,KS**

Start Date: 2022.09.15 @ 23:23:00

End Date: 2022.09.16 @ 04:35:45

Job Ticket #: 65053                      DST #: 3

Trilobite Testing, Inc

PO Box 362 Hays, KS 67601

ph: 785-625-4778 fax: 785-625-5620

Printed: 2022.09.19 @ 16:51:13



**TRILOBITE  
TESTING, INC**

# DRILL STEM TEST REPORT

Charter Energy Inc  
PO Box 252  
Great Bend, KS. 67530  
ATTN: Jim Musgrove

**17-17S-14W Barton,KS**

**Morgenstern #1**

Job Ticket: 65053      **DST#: 3**  
Test Start: 2022.09.15 @ 23:23:00

## GENERAL INFORMATION:

Formation: **lower lansing & KC**  
 Deviated: No Whipstock: ft (KB)  
 Test Type: Conventional Bottom Hole (Reset)  
 Time Tool Opened: 00:35:45  
 Tester: Richie Samora  
 Time Test Ended: 04:35:45  
 Unit No: 66  
 Interval: **3304.00 ft (KB) To 3390.00 ft (KB) (TVD)**  
 Reference Elevations: 1940.00 ft (KB)  
 Total Depth: 3390.00 ft (KB) (TVD) 1930.00 ft (CF)  
 Hole Diameter: inches Hole Condition: Good KB to GR/CF: 10.00 ft

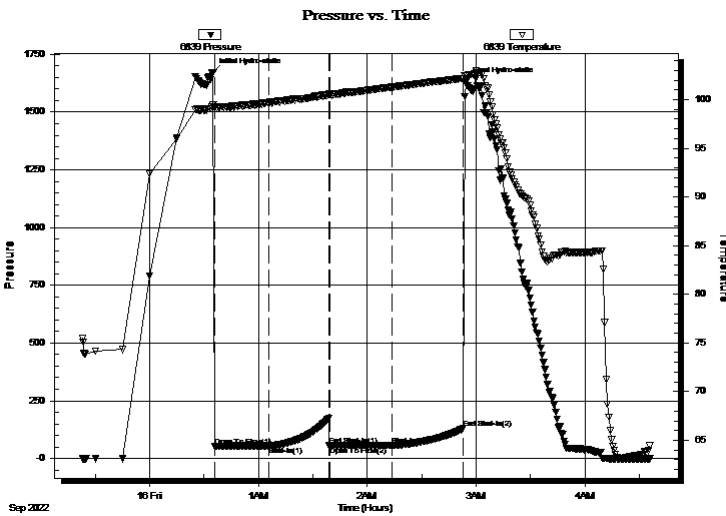
## Serial #: 6839

**Outside**

Press@RunDepth: 56.75 psig @ 3310.00 ft (KB) Capacity: 8000.00 psig  
 Start Date: 2022.09.15 End Date: 2022.09.16 Last Calib.: 2022.09.16  
 Start Time: 23:23:05 End Time: 04:35:44 Time On Btm: 2022.09.16 @ 00:35:00  
 Time Off Btm: 2022.09.16 @ 02:54:30

TEST COMMENT: 30-IF: Weak surface blow, built to .7"  
 30-IS: No blow back  
 30-FF: No blow  
 30-FS: No blow back

## PRESSURE SUMMARY



Time (Min.)	Pressure (psig)	Temp (deg F)	Annotation
0	1671.81	99.42	Initial Hydro-static
1	53.18	99.20	Open To Flow (1)
31	54.98	99.62	Shut-In(1)
64	55.53	100.51	End Shut-In(1)
65	54.72	100.54	Open To Flow (2)
99	56.75	101.28	Shut-In(2)
138	129.93	102.19	End Shut-In(2)
140	1630.60	102.42	Final Hydro-static

## Recovery

Length (ft)	Description	Volume (bbl)
10.00	Drilling Mud	0.14

\* Recovery from multiple tests

## Gas Rates

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



**TRILOBITE TESTING, INC.**

# DRILL STEM TEST REPORT

Charter Energy Inc  
 PO Box 252  
 Great Bend, KS. 67530  
 ATTN: Jim Musgrove

**17-17S-14W Barton,KS**  
**Morgenstern #1**  
 Job Ticket: 65053 **DST#: 3**  
 Test Start: 2022.09.15 @ 23:23:00

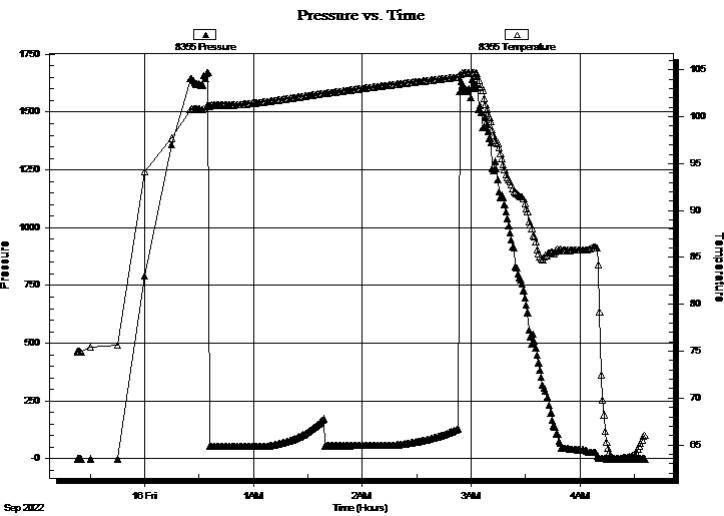
## GENERAL INFORMATION:

Formation: **lower lansing & KC**  
 Deviated: No Whipstock: ft (KB)  
 Time Tool Opened: 00:35:45  
 Time Test Ended: 04:35:45  
 Interval: **3304.00 ft (KB) To 3390.00 ft (KB) (TVD)**  
 Total Depth: 3390.00 ft (KB) (TVD)  
 Hole Diameter: inches Hole Condition: Good  
 Test Type: Conventional Bottom Hole (Reset)  
 Tester: Richie Samora  
 Unit No: 66  
 Reference Elevations: 1940.00 ft (KB)  
 1930.00 ft (CF)  
 KB to GR/CF: 10.00 ft

## Serial #: 8355 Outside

Press@RunDepth: psig @ 3310.00 ft (KB) Capacity: 8000.00 psig  
 Start Date: 2022.09.15 End Date: 2022.09.16 Last Calib.: 1899.12.30  
 Start Time: 23:23:05 End Time: 04:35:44 Time On Btm:  
 Time Off Btm:

TEST COMMENT: 30-IF: Weak surface blow, built to .7"  
 30-IS: No blow back  
 30-FF: No blow  
 30-FSI: No blow back



## PRESSURE SUMMARY

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

## Recovery

Length (ft)	Description	Volume (bbl)
10.00	Drilling Mud	0.14

\* Recovery from multiple tests

## Gas Rates

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



**TRILOBITE  
TESTING, INC**

# DRILL STEM TEST REPORT

**TOOL DIAGRAM**

Charter Energy Inc  
PO Box 252  
Great Bend, KS. 67530  
ATTN: Jim Musgrove

**17-17S-14W Barton,KS**  
**Morgenstern #1**  
Job Ticket: 65053 **DST#: 3**  
Test Start: 2022.09.15 @ 23:23:00

**Tool Information**

Drill Pipe:	Length: 3302.00 ft	Diameter: 3.80 inches	Volume: 46.32 bbl	Tool Weight:	2100.00 lb
Heavy Wt. Pipe:	Length: 0.00 ft	Diameter: 0.00 inches	Volume: 0.00 bbl	Weight set on Packer:	25000.00 lb
Drill Collar:	Length: 0.00 ft	Diameter: 2.25 inches	Volume: 0.00 bbl	Weight to Pull Loose:	55000.00 lb
			<u>Total Volume: 46.32 bbl</u>	Tool Chased	0.00 ft
Drill Pipe Above KB:	24.00 ft			String Weight: Initial	40000.00 lb
Depth to Top Packer:	3304.00 ft			Final	40500.00 lb
Depth to Bottom Packer:	ft				
Interval between Packers:	86.00 ft				
Tool Length:	112.00 ft				
Number of Packers:	2	Diameter: 6.75 inches			

Tool Comments:

<b>Tool Description</b>	<b>Length (ft)</b>	<b>Serial No.</b>	<b>Position</b>	<b>Depth (ft)</b>	<b>Accum. Lengths</b>
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Shut In Tool	5.00			3283.00	
Hydraulic tool	6.00			3289.00	
EM	4.00			3293.00	
Safety Joint	2.00			3295.00	
Packer	5.00			3300.00	26.00 Bottom Of Top Packer
Packer	4.00			3304.00	
Stubb	1.00			3305.00	
Recorder Carrier	5.00			3310.00	
Recorder	0.00	6839	Outside	3310.00	
Recorder	0.00	8355	Outside	3310.00	
Drill Pipe	65.00			3375.00	
Perforations	12.00			3387.00	
Bullnose	3.00			3390.00	86.00 Bottom Packers & Anchor

**Total Tool Length: 112.00**



**TRILOBITE  
TESTING, INC**

# DRILL STEM TEST REPORT

**FLUID SUMMARY**

Charter Energy Inc  
PO Box 252  
Great Bend, KS. 67530  
ATTN: Jim Musgrove

**17-17S-14W Barton,KS**  
**Morgenstern #1**  
Job Ticket: 65053      **DST#: 3**  
Test Start: 2022.09.15 @ 23:23:00

## 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: 56.00 sec/qt	Cushion Volume: bbl		
Water Loss: 5.38 in <sup>3</sup>	Gas Cushion Type:		
Resistivity: ohm.m	Gas Cushion Pressure: psig		
Salinity: 2400.00 ppm			
Filter Cake: inches			

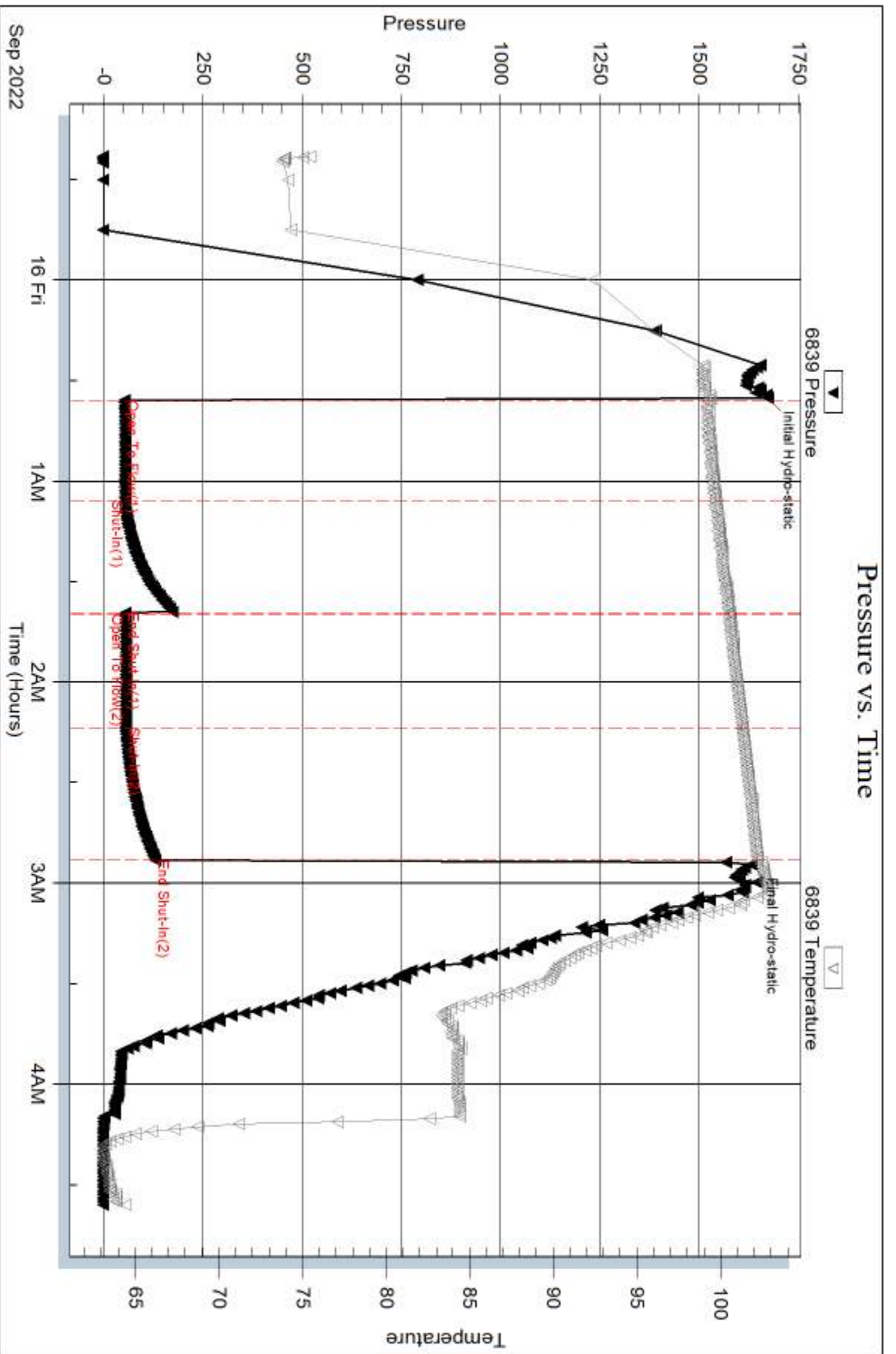
## Recovery Information

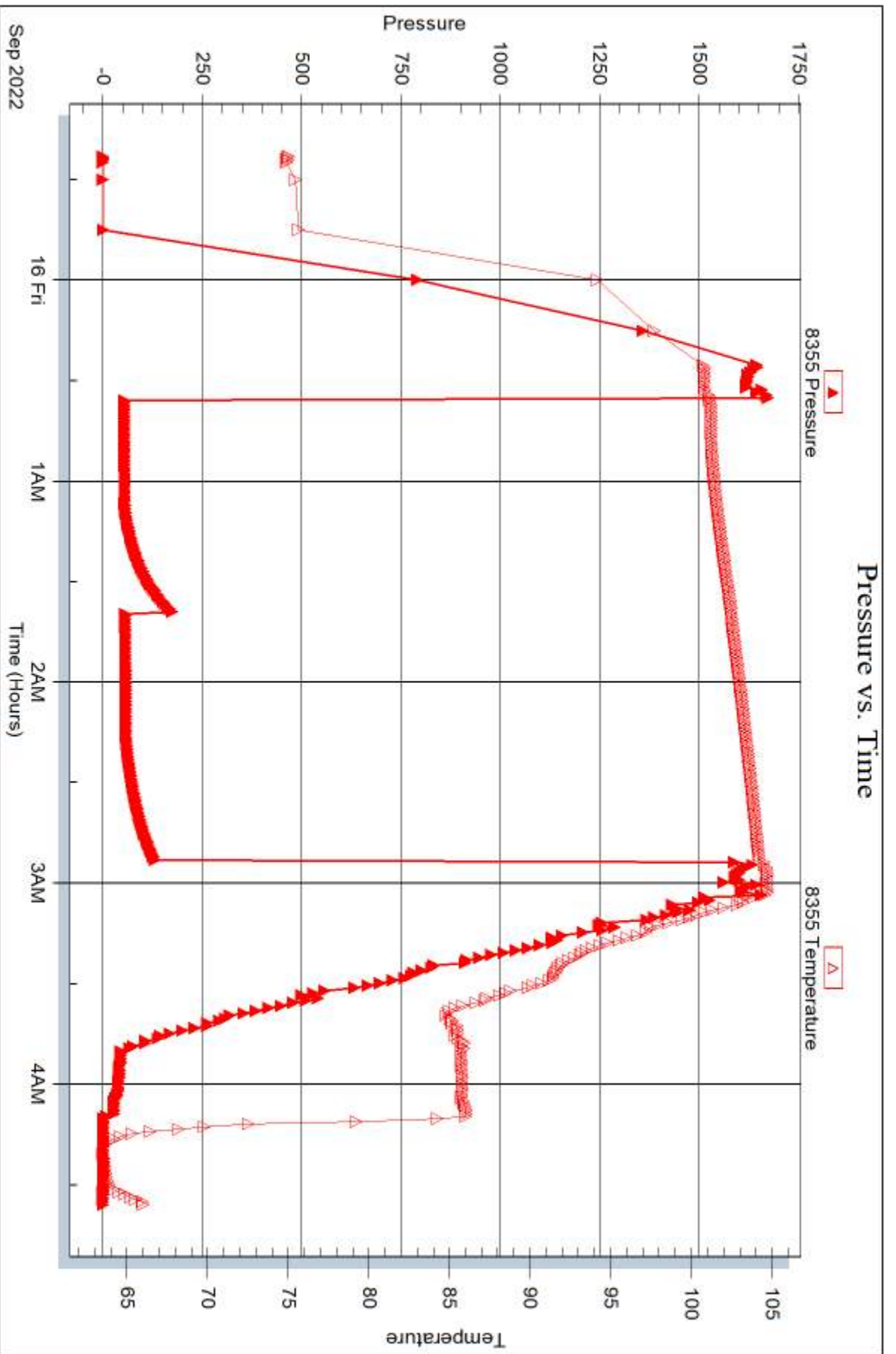
Recovery Table

Length ft	Description	Volume bbl
10.00	Drilling Mud	0.140

Total Length: 10.00 ft      Total Volume: 0.140 bbl  
Num Fluid Samples: 0      Num Gas Bombs: 0      Serial #:  
Laboratory Name:      Laboratory Location:  
Recovery Comments:









## DRILL STEM TEST REPORT

Prepared For: **Charter Energy Inc**

PO Box 252  
Great Bend, KS. 67530

ATTN: Jim Musgrove

### **Morgenstern #1**

#### **17-17S-14W Barton,KS**

Start Date: 2022.09.16 @ 14:34:00

End Date: 2022.09.16 @ 22:58:00

Job Ticket #: 65054                      DST #: 4

Trilobite Testing, Inc  
PO Box 362 Hays, KS 67601  
ph: 785-625-4778 fax: 785-625-5620

Printed: 2022.09.19 @ 16:50:35



**TRILOBITE  
TESTING, INC**

# DRILL STEM TEST REPORT

Charter Energy Inc  
PO Box 252  
Great Bend, KS. 67530  
ATTN: Jim Musgrove

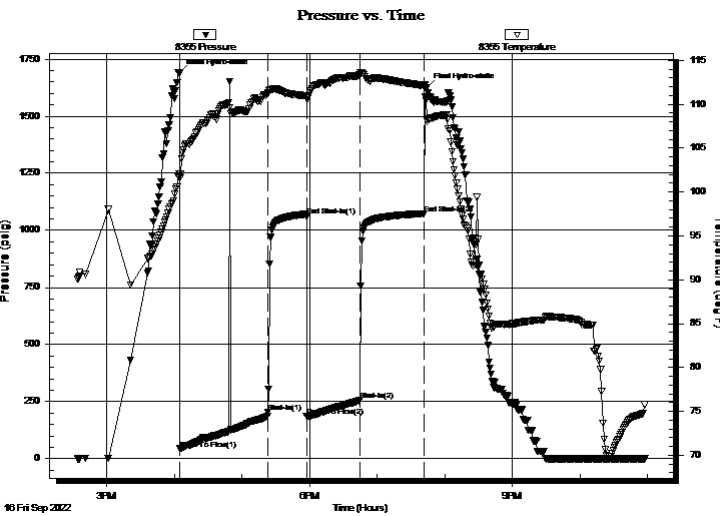
**17-17S-14W Barton,KS**  
**Morgenstern #1**  
Job Ticket: 65054 **DST#: 4**  
Test Start: 2022.09.16 @ 14:34:00

## GENERAL INFORMATION:

Formation: **Arbuckled**  
Deviated: No Whipstock: ft (KB)  
Time Tool Opened: 16:05:00  
Time Test Ended: 22:58:00  
Interval: **3381.00 ft (KB) To 3441.00 ft (KB) (TVD)**  
Total Depth: 3187.00 ft (KB) (TVD)  
Hole Diameter: inches Hole Condition: Good  
Test Type: Conventional Bottom Hole (Reset)  
Tester: Richie Samora  
Unit No: 66  
Reference Elevations: 1940.00 ft (KB)  
1930.00 ft (CF)  
KB to GR/CF: 10.00 ft

**Serial #: 8355 Outside**  
Press@RunDepth: 255.51 psig @ 3429.01 ft (KB) Capacity: 8000.00 psig  
Start Date: 2022.09.16 End Date: 2022.09.16 Last Calib.: 2022.09.16  
Start Time: 14:34:05 End Time: 22:57:59 Time On Btm: 2022.09.16 @ 16:04:15  
Time Off Btm: 2022.09.16 @ 19:44:15

**TEST COMMENT:** 30-IF: Strong blow ,BOB in 14 minutes, built to 25" (tool opened w hen making up head joint)  
30-ISI: no blow back  
45-FF: Strong blow , BOB in 17 minutes, built to 32"  
45-FSI: no blow back



## PRESSURE SUMMARY

Time (Min.)	Pressure (psig)	Temp (deg F)	Annotation
0	1688.67	102.05	Initial Hydro-static
1	43.24	101.61	Open To Flow (1)
79	204.54	111.23	Shut-In(1)
113	1061.71	110.95	End Shut-In(1)
113	185.12	110.70	Open To Flow (2)
160	255.51	113.35	Shut-In(2)
217	1073.86	112.13	End Shut-In(2)
220	1624.36	108.07	Final Hydro-static

## Recovery

Length (ft)	Description	Volume (bbl)
61.00	GIP 100%G	0.86
32.00	CGO 15%G 85% O	0.45
250.00	GMO 10%G 85%O 5%M	3.51
130.00	OCM 70%O 30%M	1.82

\* Recovery from multiple tests

## Gas Rates

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



**TRILOBITE TESTING, INC**

# DRILL STEM TEST REPORT

Charter Energy Inc  
 PO Box 252  
 Great Bend, KS. 67530  
 ATTN: Jim Musgrove

**17-17S-14W Barton,KS**  
**Morgenstern #1**  
 Job Ticket: 65054 **DST#: 4**  
 Test Start: 2022.09.16 @ 14:34:00

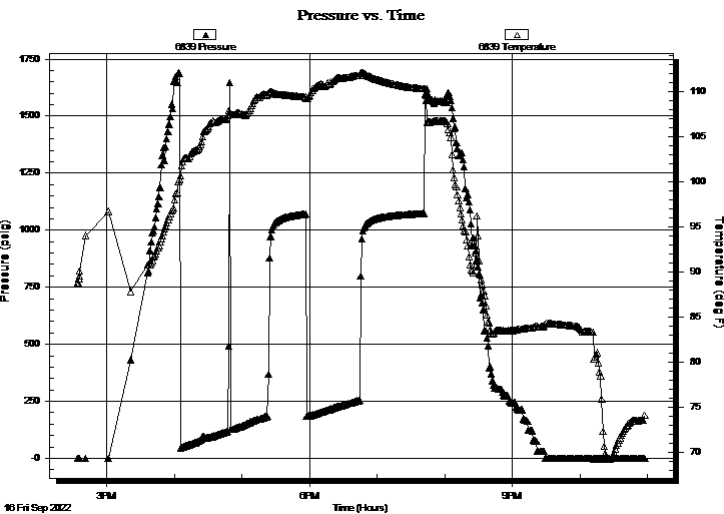
## GENERAL INFORMATION:

Formation: **Arbuckled**  
 Deviated: No Whipstock: ft (KB) Test Type: Conventional Bottom Hole (Reset)  
 Time Tool Opened: 16:05:00 Tester: Richie Samora  
 Time Test Ended: 22:58:00 Unit No: 66  
**Interval: 3381.00 ft (KB) To 3441.00 ft (KB) (TVD)** Reference Elevations: 1940.00 ft (KB)  
 Total Depth: 3187.00 ft (KB) (TVD) 1930.00 ft (CF)  
 Hole Diameter: inches Hole Condition: Good KB to GR/CF: 10.00 ft

## Serial #: 6839 Outside

Press@RunDepth: psig @ 3429.02 ft (KB) Capacity: 8000.00 psig  
 Start Date: 2022.09.16 End Date: 2022.09.16 Last Calib.: 1899.12.30  
 Start Time: 14:34:05 End Time: 22:57:59 Time On Btm:  
 Time Off Btm:

**TEST COMMENT:** 30-IF: Strong blow ,BOB in 14 minutes, built to 25" (tool opened w hen making up head joint)  
 30-ISI: no blow back  
 45-FF: Strong blow , BOB in 17 minutes, built to 32"  
 45-FSI: no blow back



## PRESSURE SUMMARY

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

## Recovery

Length (ft)	Description	Volume (bbl)
61.00	GIP 100%G	0.86
32.00	CGO 15%G 85% O	0.45
250.00	GMO 10%G 85%O 5%M	3.51
130.00	OCM 70%O 30%M	1.82

\* Recovery from multiple tests

## Gas Rates

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



**TRILOBITE  
TESTING, INC**

# DRILL STEM TEST REPORT

**TOOL DIAGRAM**

Charter Energy Inc  
PO Box 252  
Great Bend, KS. 67530  
ATTN: Jim Musgrove

**17-17S-14W Barton,KS**  
**Morgenstern #1**  
Job Ticket: 65054 **DST#: 4**  
Test Start: 2022.09.16 @ 14:34:00

## Tool Information

Drill Pipe:	Length: 3387.00 ft	Diameter: 3.80 inches	Volume: 47.51 bbl	Tool Weight: 2100.00 lb
Heavy Wt. Pipe:	Length: 0.00 ft	Diameter: 0.00 inches	Volume: 0.00 bbl	Weight set on Packer: 25000.00 lb
Drill Collar:	Length: 0.00 ft	Diameter: 2.25 inches	Volume: 0.00 bbl	Weight to Pull Loose: 46000.00 lb
			<u>Total Volume: 47.51 bbl</u>	Tool Chased 0.00 ft
Drill Pipe Above KB:	32.00 ft			String Weight: Initial 40000.00 lb
Depth to Top Packer:	3381.00 ft			Final 45000.00 lb
Depth to Bottom Packer:	ft			
Interval between Packers:	60.02 ft			
Tool Length:	86.02 ft			
Number of Packers:	2	Diameter: 6.75 inches		

Tool Comments:

## Tool Description

Tool Description	Length (ft)	Serial No.	Position	Depth (ft)	Accum. Lengths
Shut In Tool	4.00			3359.00	
Hydraulic tool	4.00			3363.00	
Sampler	4.00			3367.00	
EM	5.00			3372.00	
Safety Joint	2.00			3374.00	
Packer	4.00			3378.00	26.00 Bottom Of Top Packer
Packer	3.00			3381.00	
Stubb	1.00			3382.00	
Perforations	4.00			3386.00	
Perforations	5.00			3391.00	
Change Over Sub	1.00			3392.00	
Drill Pipe	31.00			3423.00	
Change Over Sub	1.00			3424.00	
Recorder Carrier	5.00			3429.00	
Recorder	0.01	8355	Outside	3429.01	
Recorder	0.01	6839	Outside	3429.02	
Perforations	9.00			3438.02	
Bullnose	3.00			3441.02	60.02 Bottom Packers & Anchor

**Total Tool Length: 86.02**



**TRILOBITE  
TESTING, INC**

# DRILL STEM TEST REPORT

**FLUID SUMMARY**

Charter Energy Inc  
PO Box 252  
Great Bend, KS. 67530  
ATTN: Jim Musgrove

**17-17S-14W Barton,KS**  
**Morgenstern #1**  
Job Ticket: 65054      **DST#: 4**  
Test Start: 2022.09.16 @ 14:34:00

## Mud and Cushion Information

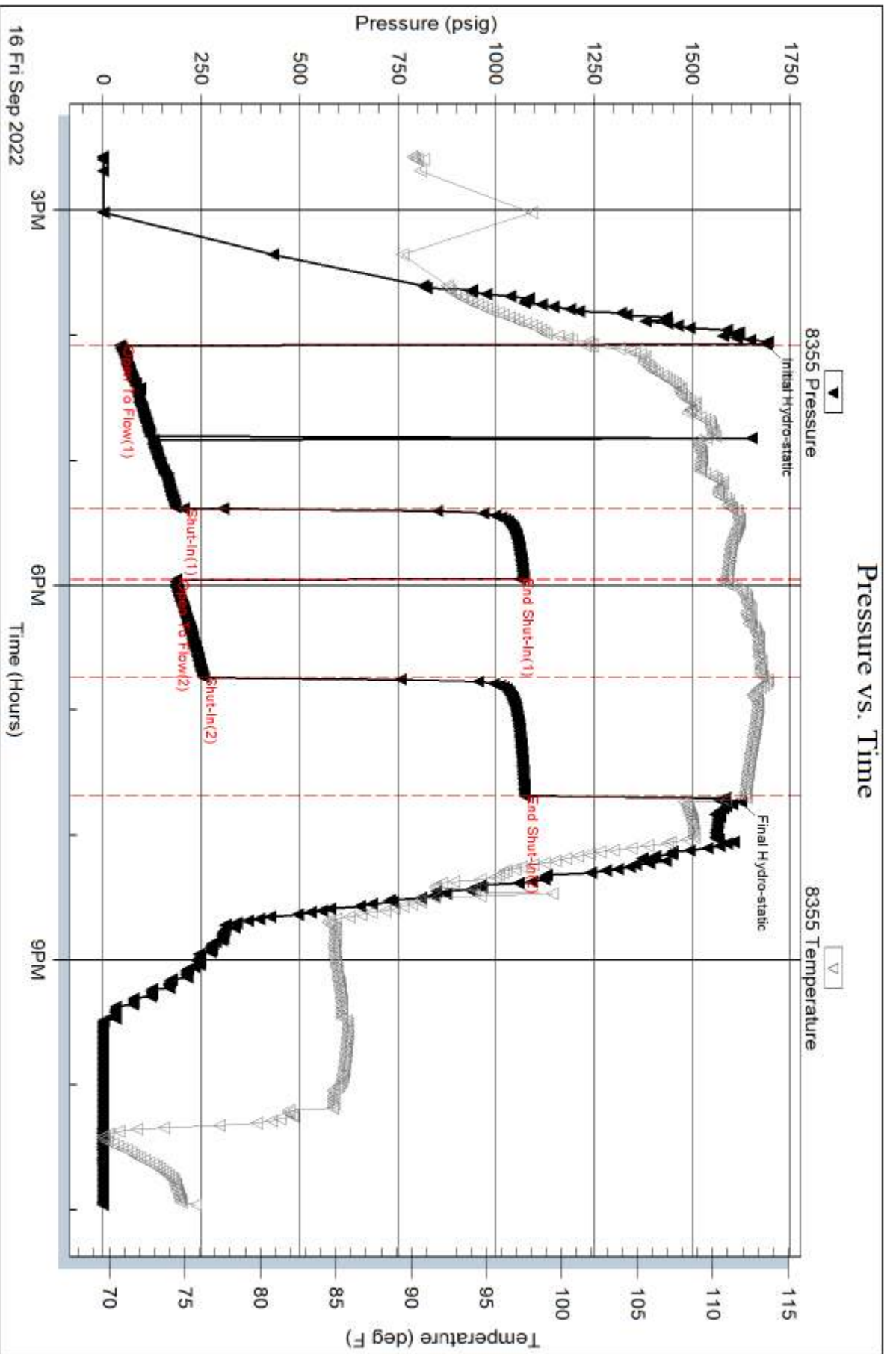
Mud Type: Gel Chem	Cushion Type:	Oil API:	deg API
Mud Weight: 9.00 lb/gal	Cushion Length: ft	Water Salinity:	ppm
Viscosity: 56.00 sec/qt	Cushion Volume: bbl		
Water Loss: 5.38 in <sup>3</sup>	Gas Cushion Type:		
Resistivity: ohm.m	Gas Cushion Pressure: psig		
Salinity: 2400.00 ppm			
Filter Cake: 0.20 inches			

## Recovery Information

Recovery Table

Length ft	Description	Volume bbl
61.00	GIP 100%G	0.856
32.00	CGO 15%G 85% O	0.449
250.00	GMO 10%G 85%O 5%M	3.507
130.00	OCM 70%O 30%M	1.824

Total Length: 473.00 ft      Total Volume: 6.636 bbl  
Num Fluid Samples: 0      Num Gas Bombs: 0      Serial #:  
Laboratory Name:      Laboratory Location:  
Recovery Comments:



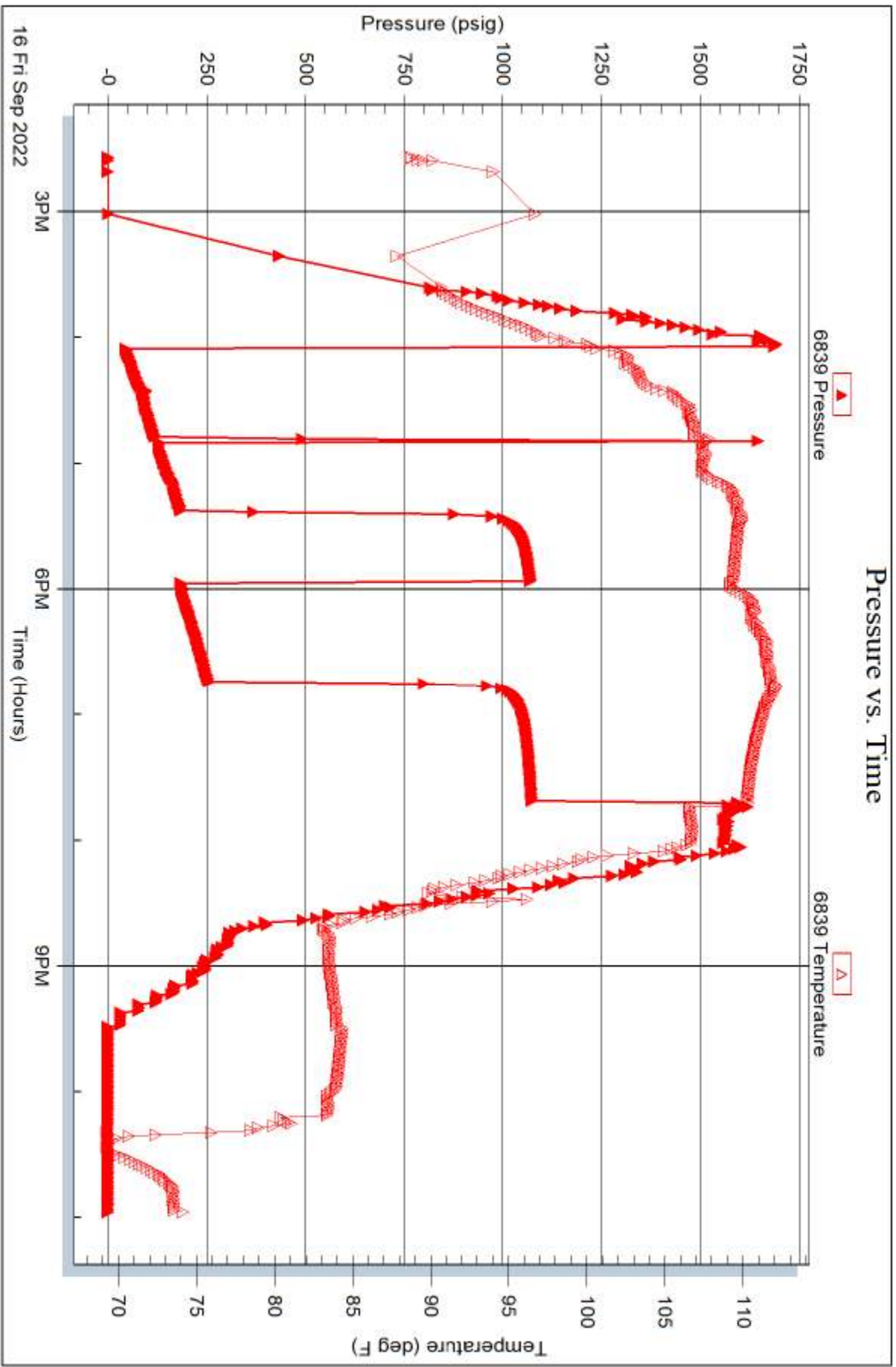


Serial #: 6839

Outside Charter Energy Inc

Morgenstern #1

DST Test Number: 4





# TRILOBITE TESTING INC.

1515 Commerce Parkway • Hays, Kansas 67601

## Test Ticket

NO. 65051

Well Name & No. Mangestern #1 Test No. 1 Date 9-14-22  
 Company Charter Energy Inc Elevation 1940 KB 1430 GL  
 Address P.O. Box 252 Great Bend KS 67530 Rig Southwind  
 Co. Rep / Geo. Jim Musgrave Rge. 14W Co. Barton State KS  
 Location: Sec. 17 Twp 17S

Interval Tested 3168-3187 Zone Tested Lansing A Mud Wt. 8.9  
 Anchor Length 19' Drill Pipe Run 3212 Vis 56  
 Top Packer Depth 3163 Drill Collars Run 0 WL 5.4  
 Bottom Packer Depth 3168 Wt. Pipe Run 0 LCM 1#  
 Total Depth 3187 Chlorides 2400 ppm System

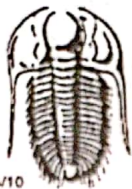
Blow Description IF: Strong blow, BOB in 1 minute and 30 seconds, Built to 16"  
ISI: No blow back  
FF: Initially no blow Flushed 15 minutes into Flow, weak surface  
FSI: No blow back

Rec	Feet of	%gas	%oil	%water	%mud
100	DRILL MUD				100

Rec Total 100 BHT NC Gravity NC API RW @ NC °F Chlorides NC ppm  
 Test 1800  
 Jars  
 Safety Joint  
 Circ Sub  
 Hourly Standby  
 Mileage 40rt 60  
 Sampler  
 Straddle  
 Shale Packer  
 Extra Packer  
 Extra Recorder  
 Day Standby  
 Accessibility  
 Sub Total 1860

T-On Location 06:30  
 T-Started 08:22  
 T-Open 11:48  
 T-Pulled 13:58  
 T-Out 15:51  
 Comments Flushed Tool 15 minutes into FF  
 EM Tool  
 Ruined Shale Packer  
 Ruined Packer  
 Extra Copies  
 Sub Total 0  
 Total 1860  
 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. 65052

Well Name & No. Margenstern #1 Test No. 2 Date 9-14-22  
 Company Charter Energy Inc Elevation 1940 KB 1530 GL  
 Address P.O. Box 252 Great Bend KS 67530  
 Co. Rep / Geo. Jim Musgrave Rig Southwind  
 Location: Sec. 17 Twp 17S Rge. 14W Co. Barton State KS

Interval Tested 3182 - 3202 Zone Tested Lansing  
 Anchor Length 20' Drill Pipe Run 3167 Mud Wt. 8.9  
 Top Packer Depth 3177 Drill Collars Run 0 Vis 56  
 Bottom Packer Depth 3182 Wt. Pipe Run 0 WL 5.4  
 Total Depth 3202 Chlorides 2400 ppm System LCM 1

Blow Description IF: Fair blow, built to 9.65"  
ISI: No blow back  
FF: Fair blow, built to 6.23"  
FST: No blow back

Rec	Feet of	%gas	%oil	%water	%mud
<u>100</u>	<u>MW</u>		<u>90</u>	<u>10</u>	
<u>50</u>	<u>MW</u>		<u>70</u>	<u>30</u>	

Rec Total 150 BHT N/A Gravity N/A API RW \_\_\_\_\_ @ \_\_\_\_\_ °F Chlorides 9,000 ppm

(A) Initial Hydrostatic N/A  Test 1800 T-On Location 21:15  
 (B) First Initial Flow 1555  Jars \_\_\_\_\_ T-Started 21:34  
 (C) First Final Flow 62  Safety Joint \_\_\_\_\_ T-Open 22:45  
 (D) Initial Shut-In 359  Circ Sub \_\_\_\_\_ T-Pulled 02:37  
 (E) Second Initial Flow 64  Hourly Standby \_\_\_\_\_ T-Out 04:20  
 (F) Second Final Flow 101  Mileage 60 Comments \_\_\_\_\_  
 (G) Final Shut-In 368  Sampler \_\_\_\_\_  
 (H) Final Hydrostatic N/A  Straddle \_\_\_\_\_  EM Tool -350

Initial Open 30  Shale Packer \_\_\_\_\_  Ruined Shale Packer \_\_\_\_\_  
 Initial Shut-In 30  Extra Packer \_\_\_\_\_  Ruined Packer \_\_\_\_\_  
 Final Flow 45  Extra Recorder \_\_\_\_\_  Extra Copies \_\_\_\_\_  
 Final Shut-In 60  Day Standby \_\_\_\_\_ Sub Total -350  
 Accessibility \_\_\_\_\_ Total 1510  
 Sub Total 1860 MP/DST Disc't \_\_\_\_\_

Approved By \_\_\_\_\_ Our Representative Rickie Sanner

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 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. 65053

Well Name & No. Morgenstern #1 Test No. 3 Date 9-15-22  
 Company Charter Energy Inc Elevation 1940 KB 1930 GL  
 Address PO Box 252 Great Bend KS 67530  
 Co. Rep / Geo. Jim Musgrave Rig Southward  
 Location: Sec. 17 Twp 17s Rge. 14w Co. Barton State KS

Interval Tested 3304-3390 Zone Tested Lower Lansing + KC  
 Anchor Length 86' Drill Pipe Run 3302 Mud Wt. 9.0  
 Top Packer Depth 3299 Drill Collars Run 0 Vis 56  
 Bottom Packer Depth 3304 Wt. Pipe Run 0 WL 5.4  
 Total Depth 3390 Chlorides 2400 ppm System LCM 1

Blow Description IF: Weak surface blow, built to 7"  
ZST: NO blowback  
FF: No blow  
FST: No blowback

Rec	Feet of	%gas	%oil	%water	%mud
<u>10</u>	<u>Drilling Mud</u>				<u>100</u>
Rec	Feet of	%gas	%oil	%water	%mud
Rec	Feet of	%gas	%oil	%water	%mud
Rec	Feet of	%gas	%oil	%water	%mud

Rec Total 10 BHT N/A Gravity N/A API RW NA @      °F Chlorides N/A

(A) Initial Hydrostatic 1672  Test 1800 T-On Location 20:45  
 (B) First Initial Flow 53  Jars      T-Started 23:26  
 (C) First Final Flow 55  Safety Joint      T-Open 00:38  
 (D) Initial Shut-In 56  Circ Sub      T-Pulled 02:41  
 (E) Second Initial Flow 54  Hourly Standby      T-Out 04:30  
 (F) Second Final Flow 57  Mileage 60 Comments       
 (G) Final Shut-In 129  Sampler       
 (H) Final Hydrostatic 1631  Straddle       
 Shale Packer       
 Extra Packer       
 Extra Recorder       
 Day Standby       
 Accessibility     

Initial Open 30  EM Tool -350  
 Initial Shut-In 30  Ruined Shale Packer       
 Final Flow 30  Ruined Packer       
 Final Shut-In 30  Extra Copies       
 Sub Total -350  
 Total 1510  
 Sub Total 1860 MP/DST Disc't     

Approved By      Our Representative     

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# TRILOBITE TESTING INC.

1515 Commerce Parkway • Hays, Kansas 67601

## Test Ticket

NO. 65054

Well Name & No. Morgenstern #1 Test No. 4 Date 9-16-22  
 Company Charter Energy Inc Elevation 1940 KB 1930 GL  
 Address PO Box 252 Great Bend KS 67530  
 Co. Rep / Geo. Jim Musgrave Rig Southwind  
 Location: Sec. 17 Twp 17s Rge. 14w Co. Barton State KS

Interval Tested 3381-3441 Zone Tested Arbuckle  
 Anchor Length 60 Drill Pipe Run 3387 Mud Wt. 9.3  
 Top Packer Depth 3376 Drill Collars Run 0 Vls 51  
 Bottom Packer Depth 3381 Wt. Pipe Run 0 WL 6.0  
 Total Depth 3441 Chlorides 4100 ppm System LCM 1

Blow Description IF: Strong blow, BOB in 14 minutes, Built to 25.43'  
ISI: No Blowback  
FF: Strong blow, BOB in 17 minutes, Built to 31.52'  
F.S.I. No Blowback

Rec	Feet of	%gas	%oil	%water	%mud
<u>61</u>	<u>GIP</u>	<u>100</u>	<u>0</u>	<u>0</u>	<u>0</u>
<u>32</u>	<u>CB.O</u>	<u>15</u>	<u>85</u>	<u>0</u>	<u>0</u>
<u>250</u>	<u>GMO</u>	<u>10</u>	<u>85</u>	<u>0</u>	<u>5</u>
<u>130</u>	<u>QM</u>	<u>0</u>	<u>70</u>	<u>0</u>	<u>30</u>
Rec	Feet of	%gas	%oil	%water	%mud

Rec Total 411 BHT \_\_\_\_\_ Gravity \_\_\_\_\_ API RW 11 @ 60 °F Chlorides NA ppm

(A) Initial Hydrostatic 1489  Test 1800 T-On Location 15:16  
 (B) First Initial Flow 127  Jars \_\_\_\_\_ T-Started 14:34  
 (C) First Final Flow 969  Safety Joint \_\_\_\_\_ T-Open 16:50  
 (D) Initial Shut-In 1071  Circ Sub \_\_\_\_\_ T-Pulled 19:32  
 (E) Second Initial Flow 185954  Hourly Standby \_\_\_\_\_ T-Out 22:30  
 (F) Second Final Flow 955724  Mileage 60 Comments \_\_\_\_\_  
 (G) Final Shut-In 1074  Sampler \_\_\_\_\_  
 (H) Final Hydrostatic 1624  Straddle \_\_\_\_\_

Shale Packer \_\_\_\_\_  EM Tool -350  
 Extra Packer \_\_\_\_\_  Ruined Shale Packer \_\_\_\_\_  
 Extra Recorder \_\_\_\_\_  Ruined Packer \_\_\_\_\_  
 Day Standby \_\_\_\_\_ Sub Total -350  
 Accessibility \_\_\_\_\_ Total 1510  
 Sub Total 1860 MP/DST Disc't \_\_\_\_\_

Approved By \_\_\_\_\_ Our Representative Richie Samora

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.

Richie Samora

**OPERATOR**

Company: Charter Energy Inc.  
Address: PO Box 252  
Great Bend, KS 67525

Contact Geologist: Jim Musgrove  
Contact Phone Nbr: 620-786-0839  
Well Name: Morgenstern #1  
Location: 17-17s-14w N2-SE-NE-SE  
API: 15-009-26367-00-00  
Pool:  
State: Kansas

Field: Carroll  
Country: USA



**CHARTER ENERGY, INC.**

P.O. BOX 252  
GREAT BEND, KS 67530  
(820) 793-9090



Scale 1:240 Imperial

Well Name: Morgenstern #1  
Surface Location: 17-17s-14w N2-SE-NE-SE  
Bottom Location:  
API: 15-009-26367-00-00  
License Number: 9090  
Spud Date: 9/9/2022 Time: 12:00 AM  
Region: Barton  
Drilling Completed: 9/17/2022 Time: 12:00 AM  
Surface Coordinates: 1749' FSL & 330' FEL  
Bottom Hole Coordinates:  
Ground Elevation: 1930.00ft  
K.B. Elevation: 1940.00ft  
Logged Interval: 3502.00ft To: 0.00ft  
Total Depth: 3500.00ft  
Formation: Arbuckle  
Drilling Fluid Type: Chemical/Fresh Water Gel

**CASING SUMMARY**

	Surface	Intermediate	Main		
Bit Size					
Hole Size					
	Size	Set At	Type	# of Joints	Drilled Out At
Surf Casing	8 5/8" in	914' ft			
Int Casing					
Prod Casing	5 1/2" in	3491" ft			

**CASING SEQUENCE**

Type	Hole Size	Casing Size	At
	0.00 in	0.00	0.00 ft

**SURFACE CO-ORDINATES**

Well Type: Vertical  
Longitude:  
Latitude:  
N/S Co-ord: 1749' FSL  
E/W Co-ord: 330' FEL

**LOGGED BY**



Company: James C Musgrove Petroleum LLC  
Address: 212 Main Street/PO Box 215

Phone Nbr: 620-588-4250 620-786-08  
 Logged By: KLG #307

Name: James C Musgrove

**CONTRACTOR**

Contractor: Southwind  
 Rig #: 1  
 Rig Type: mud rotary  
 Spud Date: 9/9/2022  
 TD Date: 9/17/2022  
 Rig Release:

Time: 12:00 AM  
 Time: 12:00 AM  
 Time:

**ELEVATIONS**

K.B. Elevation: 1940.00ft  
 K.B. to Ground: 10.00ft  
 Ground Elevation: 1930.00ft

**NOTES**

Remarks:

5 1/2" production casing was set and cemented on the Charter Energy, Inc. Morgenstern #1.

Respectfully Submitted,

James C Musgrove  
 Petroleum Geologist

**well comparison sheet**

Formation	MORGENSTERN #1 CHARTER ENERGY INC. N2-SE-NE-SE 17-17s-14w				BOYD HEIRS #1 PENDLETON LAND & EXPL & RAMCO DRL NE-NE-SE 17-17s-14w				MORGENSTERN #C-1 HUPFER OPERATING NW-NE-SW-SE 17-17s-14w				
	1940 KB				1948 KB				1931 KB				
	Sample	Sub-Sea	Log	Sub-Sea	Log	Sub-Sea	Sample	Log	Log	Sub-Sea	Sample	Log	
Anhydrite			911	1029		1948		-919		901	1030		-1
Base Anhydrite			943	997									
Topeka			2869	-929	2882								
Heebner			3101	-1161	3116	-1168		7	3095	-1164			3
Toronto			3114	-1174					3108	-1177			3
Douglas			3126	-1186					3121	-1190			4
Brown Lime			3168	-1228	3182	-1234		6	3161	-1230			2
Lansing			3178	-1238	3198	-1250		12	3172	-1241			3
Base Kansas City			3388	-1448					3385	-1454			6
Conglomerate			3394	-1454					3391	-1460			6
Arbuckle			3435	-1495	3446	-1498		3	3432	-1501			6
Rotary Total Depth			3500	-1560	3600	-1652		92	3486	-1555			-5
Log Total Depth			3502	-1562					3440	-1509			-53

**well comparison sheet**

Formation	MORGENSTERN #1 CHARTER ENERGY INC. N2-SE-NE-SE 17-17s-14w				BOYD HEIRS #1 PENDLETON LAND & EXPL & RAMCO DRL NE-NE-SE 17-17s-14w				MORGENSTERN #C-1 HUPFER OPERATING NW-NE-SW-SE 17-17s-14w				
	1940 KB				1948 KB				1931 KB				
	Sample	Sub-Sea	Log	Sub-Sea	Log	Sub-Sea	Sample	Log	Log	Sub-Sea	Sample	Log	
Anhydrite			911	1029		1948		-919		901	1030		-1
Base Anhydrite			943	997									
Topeka			2869	-929	2882								
Heebner			3101	-1161	3116	-1168		7	3095	-1164			3
Toronto			3114	-1174					3108	-1177			3
Douglas			3126	-1186					3121	-1190			4
Brown Lime			3168	-1228	3182	-1234		6	3161	-1230			2

Lansing			3178	-1238	3198	-1250		12	3172	-1241		3
Base Kansas City			3388	-1448					3385	-1454		6
Conglomerate			3394	-1454					3391	-1460		6
Arbuckle			3435	-1495	3446	-1498		3	3432	-1501		6
Rotary Total Depth			3500	-1560	3600	-1652		92	3486	-1555		-5
Log Total Depth			3502	-1562					3440	-1509		-53



**TRILOBITE  
TESTING, INC.**

## DRILL STEM TEST REPORT

Charter Energy Inc

17-17S-14W / Barton

PO Box 252  
Great Bend, KS. 67530

Morgenstern #1

Job Ticket: 65051

DST#: 1

ATTN: Jim Musgrove

Test Start: 2022.09.14 @ 08:22:22

### GENERAL INFORMATION:

Formation: **LKC A**

Deviated: No Whipstock: ft (KB)

Time Tool Opened: 11:49:52

Time Test Ended: 15:51:52

Test Type: Conventional Bottom Hole (Initial)

Tester: Richie Samora

Unit No: 66

Interval: **3168.00 ft (KB) To 3187.00 ft (KB) (TVD)**

Total Depth: 3187.00 ft (KB) (TVD)

Hole Diameter: inches Hole Condition: Good

Reference Elevations: 1940.00 ft (KB)

1930.00 ft (CF)

KB to GR/CF: 10.00 ft

### Serial #: 8355

Press@RunDepth: 102.60 psig @ ft (KB)

Start Date: 2022.09.14

End Date:

2022.09.14

Capacity: 8000.00 psig

Last Calib.: 1899.12.30

Start Time: 08:22:27

End Time:

15:51:51

Time On Btm: 2022.09.14 @ 11:47:37

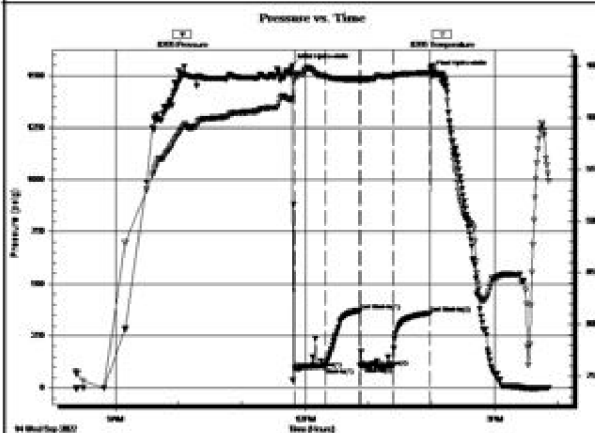
Time Off Btm: 2022.09.14 @ 13:59:22

TEST COMMENT: IF: Strong blow, BOB in 1 and a half minutes. Built to 16" (30)

IS: No blow back (30)

FF: No blow initially, flushed tool 18 minutes into FF, weak surface blow after flushing the tool. (30)

FS: No blow back (30)



### PRESSURE SUMMARY

Time (Min.)	Pressure (psig)	Temp (deg F)	Annotation
0	1547.55	101.84	Initial Hydro-static
3	94.28	104.19	Open To Flow (1)
32	97.55	103.95	Shut-In(1)
65	369.09	103.66	End Shut-In(1)
65	103.53	103.53	Open To Flow (2)
96	102.60	104.01	Shut-In(2)
131	359.48	104.37	End Shut-In(2)
132	1515.63	104.81	Final Hydro-static

### Recovery

Length (ft)	Description	Volume (bbl)
160.00	drilling mud	2.24

### Gas Rates

Choke (inches)	Pressure (psig)	Gas Rate (Mcfd)

TriLOBITE Testing, Inc

Ref. No: 65051

Printed: 2022.09.14 @ 17:36:56



## DRILL STEM TEST REPORT





TRIOBITE TESTING, INC

Charter Energy Inc  
PO Box 252  
Great Bend, KS. 67530  
ATTN: Jim Musgrove

17-17S-14W / Barton

Morgenstern #1  
Job Ticket: 65052 DST#: 2  
Test Start: 2022.09.14 @ 21:34:00

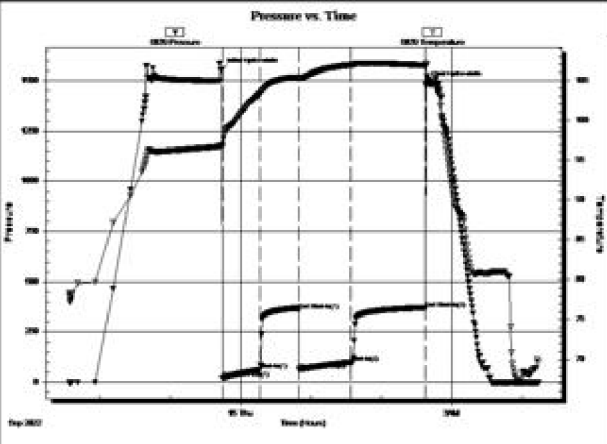
GENERAL INFORMATION:

Formation: **Lansing**  
Deviated: No Whipstock: ft (KB)  
Time Tool Opened: 23:44:15  
Time Test Ended: 04:13:45  
Interval: **3182.00 ft (KB) To 3202.00 ft (KB) (TVD)**  
Total Depth: 3202.00 ft (KB) (TVD)  
Hole Diameter: inches Hole Condition: Good  
Test Type: Conventional Bottom Hole (Reset)  
Tester: Richie Samora  
Unit No: 66  
Reference Elevations: 1940.00 ft (KB)  
1930.00 ft (CF)  
KB to GR/CF: 10.00 ft

Serial #: 6839

Press@RunDepth: 100.61 psig @ ft (KB)  
Start Date: 2022.09.14 End Date: 2022.09.15  
Start Time: 21:34:05 End Time: 04:13:44  
Capacity: 8000.00 psig  
Last Calib.: 1899.12.30  
Time On Btm: 2022.09.14 @ 23:43:45  
Time Off Btm: 2022.09.15 @ 02:38:15

TEST COMMENT: 30-IF: Fair blow built to 9.65"  
30-ISI: No blow back  
45-FF: Fair blow built to 6.23"  
60-FST: No blow back



PRESSURE SUMMARY

Time (Mn.)	Pressure (psig)	Temp (deg F)	Annotation
0	1554.99	96.83	Initial Hydro-static
1	20.43	96.62	Open To Flow (1)
33	62.00	103.31	Shut-In(1)
66	358.85	105.36	End Shut-In(1)
66	63.82	105.27	Open To Flow (2)
111	100.61	106.95	Shut-In(2)
174	367.63	106.89	End Shut-In(2)
175	1487.53	107.10	Final Hydro-static

Recovery

Length (ft)	Description	Volume (bbl)
150.00	MW 10%M 90%W	2.10

\* Recovery from multiple tests

Gas Rates

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



TRIOBITE TESTING, INC

DRILL STEM TEST REPORT

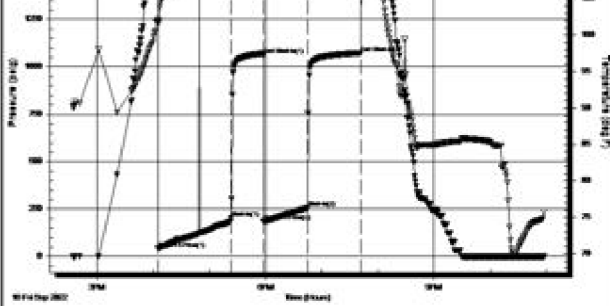
Charter Energy Inc  
PO Box 252  
Great Bend, KS. 67530  
ATTN: Jim Musgrove

17-17S-14W / Barton  
Morgenstern #1  
Job Ticket: 65053 DST#: 3  
Test Start: 2022.09.15 @ 23:23:00

GENERAL INFORMATION:

Formation: **lower lansing & KC**  
Deviated: No Whipstock: ft (KB)  
Time Tool Opened: 00:35:45  
Time Test Ended: 04:35:45  
Interval: **3304.00 ft (KB) To 3390.00 ft (KB) (TVD)**  
Total Depth: 3390.00 ft (KB) (TVD)  
Hole Diameter: inches Hole Condition: Good  
Test Type: Conventional Bottom Hole (Reset)  
Tester: Richie Samora  
Unit No: 66  
Reference Elevations: 1940.00 ft (KB)  
1930.00 ft (CF)  
KB to GR/CF: 10.00 ft





79	204.54	111.23	Shut-In(1)
113	1061.71	110.95	End Shut-In(1)
113	185.12	110.70	Open To Flow (2)
160	255.51	113.35	Shut-In(2)
217	1073.86	112.13	End Shut-In(2)
220	1624.36	108.07	Final Hydro-static

**Recovery**

Length (ft)	Description	Volume (bbl)
61.00	GIP 100%G	0.86
32.00	CGO 15%G 85% O	0.45
250.00	GMO 10%G 85%O 5%M	3.51
130.00	OM 70%O 30%M	1.82

**Gas Rates**

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

\* Recovery from multiple tests

Tribotest Testing, Inc

Ref. No: 65054

Printed: 2022.09.17 @ 11:43:29

**ROCK TYPES**

	Coal		Dolprim		shale, gry		Shcol
	Congl		Lmst fw7>		Carbon Sh		Ss
	Chtcong		shale, grn		shale, red		Siltst

**OTHER SYMBOLS**

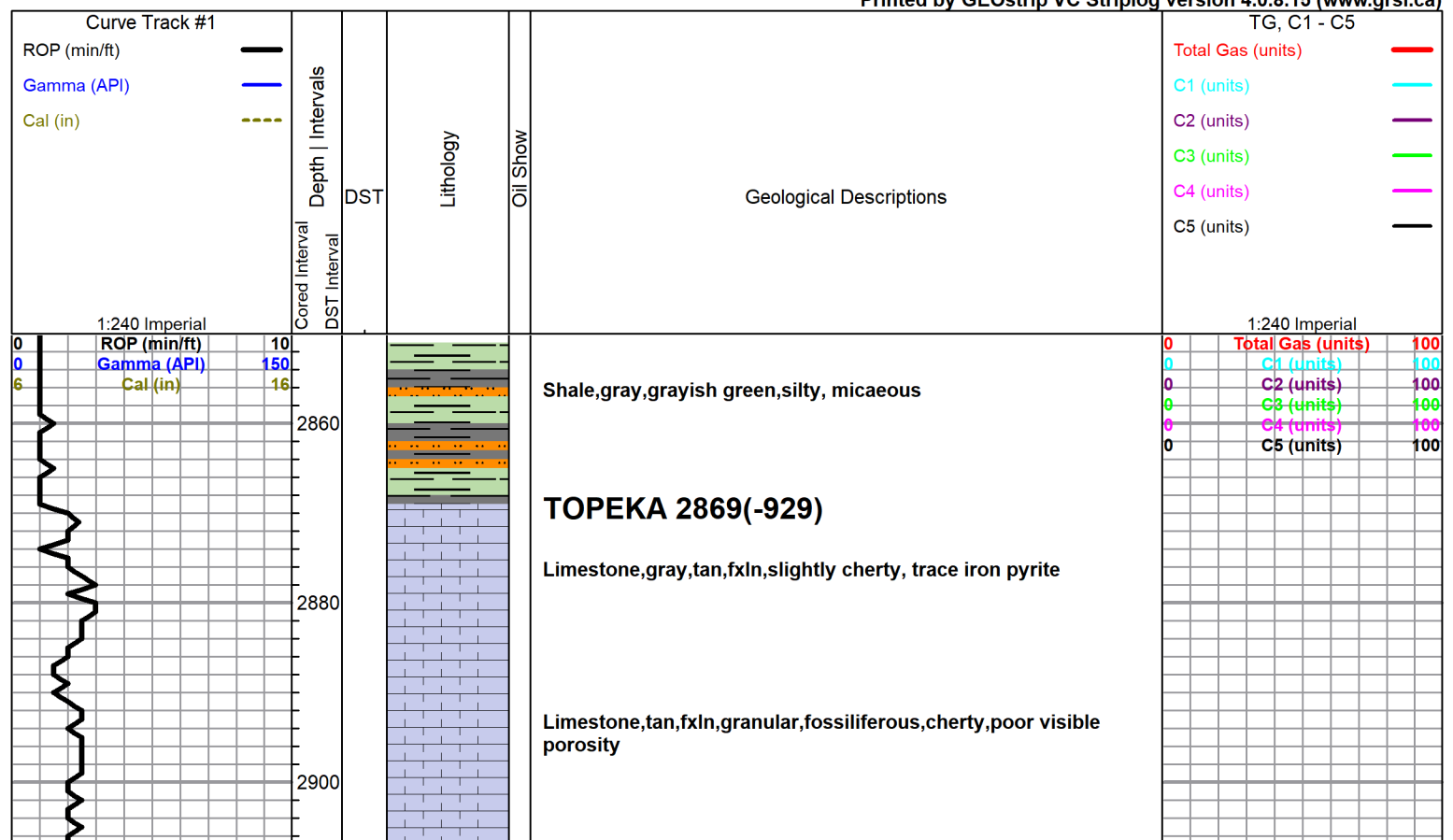
**Oil Show**

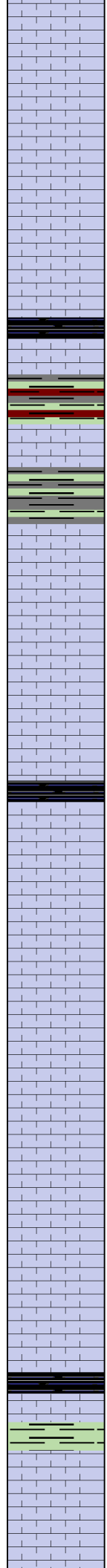
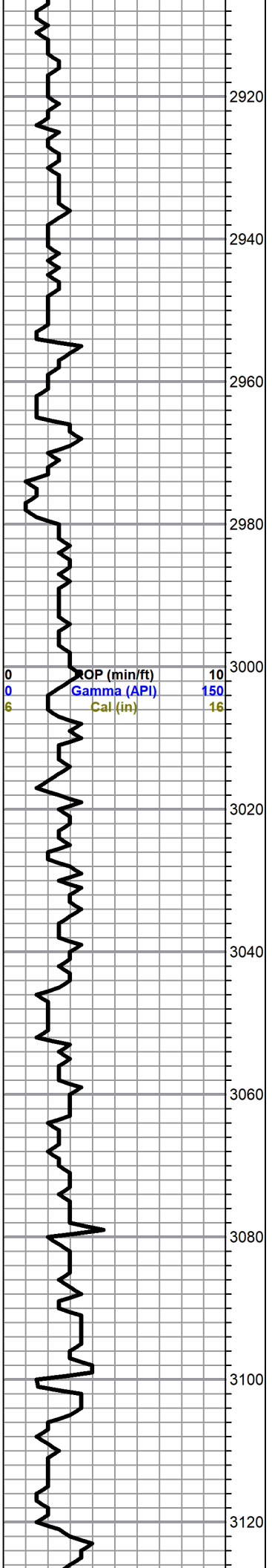
- Good Show
- Fair Show
- Poor Show
- Spotted or Trace
- Questionable Stn
- D Dead Oil Stn
- Fluorescence
- \* Gas

**DST**

- DST Int
- DST alt
- Core
- || tail pipe

Printed by GEOstrip VC Striplog version 4.0.8.15 (www.grsi.ca)





Limestone,tan,fxln,granular,dense,with gray,white,fossiliferous chert

Limestone,tan,fxln,fossiliferous,dense,trace smokey gray chert

as above,poorly developed porosity

**KING HILL 2953**

Shale, black, carbonaceous.  
 Limestone,tan,fossiliferous,dense

Shale,gray,maroon,soft

Shale,gray,green,maroon

Limestone,white,cream,dense

Limestone,white,cream,gray,oolitic,fossiliferous,chalky,poor visible porosity

0	Total Gas (units)	100
0	C1 (units)	100
0	C2 (units)	100
0	C3 (units)	100
0	C4 (units)	100
0	C5 (units)	100

**QUEEN HILL 3015**

Shale, black, carbonaceous.  
 Limestone,white,oolitic,chalky in part,scattered porosity,light brown spotty stain,trace of free oil and no odor

Limestone,gray,white,fossiliferous,chalky,brown and golden brown stain,show of free oil and no odor,with Chert,gray,boney

Limestone,white,tan,fxln,few granular,chalky,poor visible porosity

as above with gray,boney chert

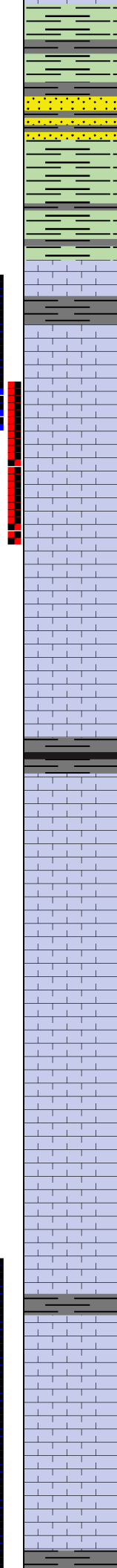
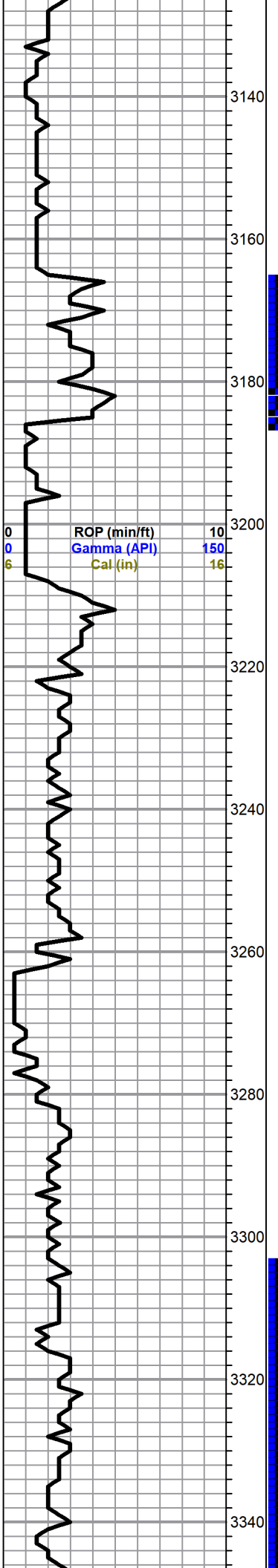
**HEEBNER 3099(-1159)**

Shale, black, carbonaceous.

**TORONTO 3111(-1171)**

Limestone,chalky,poor pinpoint type porosity,light brown stain, no free oil and no odor

**DOUGLAS 3127(-1187)**



DOUGLAS 3127 (-1187)  
 Shale,gray,grayish green,maroon,silty

trace sand,white,lime green,vfg,micaeous,poor porosity

Shale,as above

**BROWN LIME 3166(-1226)**  
 Limestone,brown,gray,fxln,dense

**LANSING 3177(-1237)**  
 Limestone,white,cream,oolitic,chalky,scattered porosity,brown and golden brown stain,show of free oil and no odor

Limestone,cream,white,oomodic,fair oomoldic porosity,spotted brown stain, trace of free oil and faint odor

as above with white chalk

Limestone,white,gray,chalky,poor porosity

Shale,gray,black

Limestone,tan,oolitic,fossiliferous,(bioclastic) slightly cherty,dense

Limestone,white,cream,oolitic,chalky,poor visible porosity, brown stain, no free oil and no odor

Limestone,tan,white,oomoldic,chalky,trace brown stian, trace of free oil ( few pieces), no odor

Limestone,gray,white,fxln,chalky,poor porosity

Limestone,gray,white,cream,chalky..poor porosity

Trace gray,black shale

Limestone,white,gray,fxln, sucrosic,pinpoint type porosity,gray,black stain,no free oil and questionable odor

as above

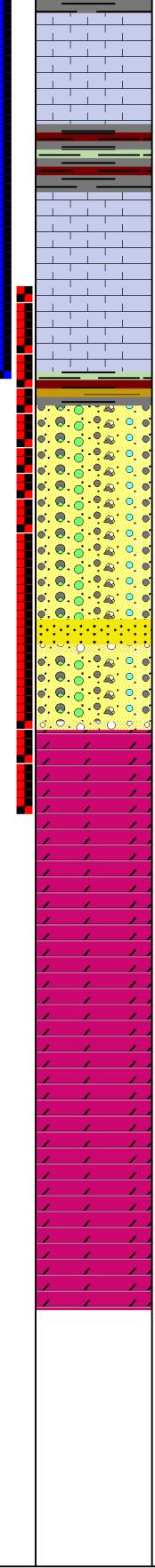
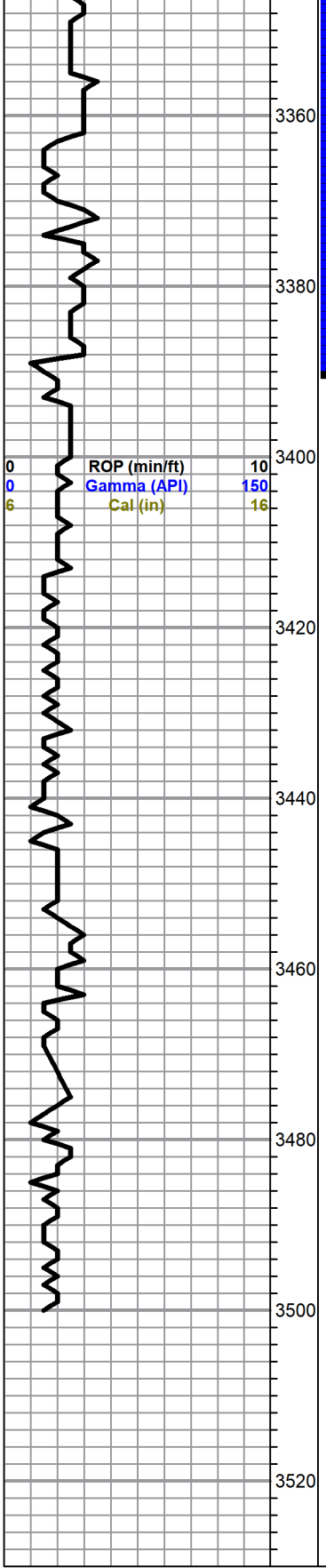
DST#1 3168-3187  
 30-30-30-30  
 Blow,strong (obb 1 1/2 mins)  
 2nd open.no blow,flushed tool ,no help  
 Recovery 160 mud  
 BHP 369-360 psi  
 FP 94-98,104-103  
 HSH 1548-1516 psi

DST#2 3182-3202  
 30-30-45-60  
 Blow,fair (9.65 inches)  
 2nd open,fair (6.23 inches)

0 Total Gas (scf) 400  
 0 Recovery..150'muddy  
 0 water(10% mud,90%  
 0 water)  
 0 BHP 359-368 psi 100  
 FP 20-62,64-101 psi  
 HSH 1555-1488 psi

DST#3 3304-3390  
 30-30-30-30  
 Blow,weak  
 2nd open.no blow  
 Recovery 10'mud  
 BHP 56-130 psi

ROP (min/ft) 10  
 Gamma (API) 150  
 Cal (in) 16



Limestone, white, gray, fossiliferous/oolitic, chalky, gray and black stain, show of free oil and no odor

Shale, gray, green, rusty brown

Limestone, white, gray, fossiliferous, chalky, poor visible porosity, gray and black stain, show of free oil and no odor

**BASE KANSAS CITY 3388(-1448)**

Varied colored shales

**CONGLOMERATE 3394(-1454)**

Chert, white, gray, orange, yellow, oolitic, opaque in matrix of varied colored shales

as above, with chert, scattered pinpoint to fine vuggy type porosity, gray and black stain, no free oil and no odor

sand, white, gray, vfg, subrounded, sub angular, trace gray, white, chert, inclusions, gray and black staining, no free oil and no odor

**ARBUCKLE 3433(-1493)**

Dolomite, white, gray, fine and medium crystalline, fair intercrystalline porosity, brown and golden brown stain, show of free oil and fair odor in fresh samples

Dolomite, as above, fair stain and saturation, show of free oil and fair odor

Dolomite, white, cream, medium crystalline, few coarse crystalline, fair to good intercrystalline porosity, brown stain, show of free oil and fair odor with white and translucent chert

as above; good porosity, black and gray and brown stain, show of free oil and faint odor

Dolomite, white, gray, cream, medium and coarse crystalline, fair to good intercrystalline porosity, decreasing stain, no free oil and questionable odor

**ROTARY TOTAL DEPTH 3500**

FP 53-55, 55-57 psi  
HSH 1672-1631 psi

0	Total Gas (units)	100
0	C1 (units)	100
0	C2 (units)	100
0	C3 (units)	100
0	C4 (units)	100
0	C5 (units)	100

DST#4 3381-3441  
30-30-45-45

Blow, strong (bob 15 mins)  
2nd open, strong (bob 17 mins)

Recovery, 61' gas in pipe, 32; clean gassy oil, 250' gassy muddy oil (10% gas, 85% oil, 5% mud), 130' muddy oil (70% oil, 30% mud)

BHP 1062-1074 psi  
FP 43-205, 185-256 psi  
HSH 1689-1624 psi