

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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#4 Ellis 23D

335' FSL & 1,439' FEL

5' N & 119' W of S/2 S/2 SE Section 23-14S-32W

Logan County, Kansas

API# 15-109-21639-0000

Elevation: GL: 2,761', KB: 2,768'

Sample Tops			Ref. Well
Anhydrite	2219	+549	+5
B/Anhydrite	2244	+524	Flat
Stotloer	3380	-612	+7
Heebner	3746	-978	+5
Toronto	3764	-996	+4
Lansing	3781	-1013	+4
Muncie	3942	-1174	+10
Stark	4034	-1266	+8
Hushpuckney	4069	-1301	+8
BKC	4102	-1334	+6
Marmaton	4137	-1369	+10
Altamont	4160	-1392	+10
Pawnee	4238	-1470	+4
Myrick	4272	-1504	+7
Ft. Scott	4289	-1521	+6
Cherokee	4320	-1552	+2
Johnson	4360	-1592	+3
Morrow	4392	-1624	Flat
Mississippian	4408	-1640	+7
RTD	4490	-1722	

FRANKS Oilfield Service

◆ 815 Main Street Victoria, KS 67671 ◆ 24 Hour Phone (785) 639-7269
 ◆ Office Phone (785) 639-3949 ◆ Email: franksoilfield@yahoo.com

TICKET NUMBER 0634
 LOCATION Hoxie
 FOREMAN Tom Williams

FIELD TICKET & TREATMENT REPORT CEMENT

DATE	CUSTOMER #	WELL NAME & NUMBER	SECTION	TOWNSHIP	RANGE	COUNTY
11-30-22	4767	Ellis 23D #4	23	14	32	Laguna
CUSTOMER Ritchie Exploration Inc.			TRUCK #			
MAILING ADDRESS 8100 E 22 nd St N #700			DRIVER		TRUCK #	
CITY Wichita			DRIVER		TRUCK #	
STATE KS			DRIVER		TRUCK #	
ZIP CODE 67276			DRIVER		TRUCK #	

JOB TYPE Surface HOLE SIZE 12 1/4 HOLE DEPTH 220' CASING SIZE & WEIGHT 8 5/8" 23#
 CASING DEPTH 220' DRILL PIPE _____ TUBING _____ OTHER _____
 SLURRY WEIGHT 14 g SLURRY VOL 1.4 WATER gal/sk _____ CEMENT LEFT in CASING _____
 DISPLACEMENT 12.7 Bbl DISPLACEMENT PSI _____ MIX PSI _____ RATE _____

REMARKS: Safety meeting & set up on stp #1 circulated mud
Mix 225 qt surface blend & displaced with 12.7 Bbls. Spurt in 1:30 pm
CEMENT did circulate

Thanks Tom & Jack

ACCOUNT CODE	QUANTITY or UNITS	DESCRIPTION of SERVICES or PRODUCT	UNIT PRICE	TOTAL
PL002	1	PUMP CHARGE <u>Surface</u>	\$1150 ⁰⁰	\$1150 ⁰⁰
M001	68	MILEAGE	\$6 ⁵⁰	\$442 ⁰⁰
M002	11.03 tons	Ton Mileage Delivery	\$1125 ⁰⁶	\$1125 ⁰⁶
CB004	225 qt	Class A 3% cl 2% grt	\$24 ⁰⁰	\$5512 ⁵⁰
			sub total	\$8,229 ⁵⁶
			less 10% disc.	\$822 ⁹⁵
			sub total	\$7406 ⁶¹
			SALES TAX	396.90
			ESTIMATED TOTAL	7803.51

AUTHORIZATION Roy W

TITLE _____

DATE _____

We warrant that the payment terms, unless specifically amended in writing on the front of the form or in the customer's account records, at our conditions of service on the back of this form are in effect for services identified on this form.

FRANKS Oilfield Service

♦ 815 Main Street Victoria, KS 67671 ♦ 24 Hour Phone (785) 639-7269
 ♦ Office Phone (785) 639-3949 ♦ Email: franksoilfield@yahoo.com

TICKET NUMBER 0642
 LOCATION Hoyie
 FOREMAN Tom Williams

FIELD TICKET & TREATMENT REPORT CEMENT

DATE	CUSTOMER #	WELL NAME & NUMBER	SECTION	TOWNSHIP	RANGE	COUNTY
7-12-22	4767	Ellis 23D #4	23	14	32W	Logan
CUSTOMER			TRUCK #	DRIVER	TRUCK #	DRIVER
Ritchie Exploration Inc			101	Tom W		
MAILING ADDRESS			102	Sack		
PO Box 783188						
8100 E 22 nd ST N# 700						
CITY	STATE	ZIP CODE				
Wichita	KS	67278				

JOB TYPE PTA HOLE SIZE _____ HOLE DEPTH _____ CASING SIZE & WEIGHT _____
 CASING DEPTH _____ DRILL PIPE 4 1/2" TUBING _____ OTHER _____
 SLURRY WEIGHT 11.8 SLURRY VOL 2.2 WATER gal/sk _____ CEMENT LEFT in CASING _____
 DISPLACEMENT _____ DISPLACEMENT PSI _____ MIX PSI _____ RATE _____

REMARKS: Softly mixing & set up on STP #1 Plugged as advised

1 st 2250' - 505k
2 nd 1225' - 1005k
3 rd 275' - 505k
4 th 40' - 105k
5 th RH - 305k
240 x 670

ACCOUNT CODE	QUANTITY or UNITS	DESCRIPTION of SERVICES or PRODUCT	UNIT PRICE	TOTAL
10009	1	PUMP CHARGE PTA		
10001	6.8	MILEAGE		
10002	tons	Ton Mileage Delivery		
68010		60/40 48 gal 1/4" H ₂ O		
			SALES TAX	
			ESTIMATED TOTAL	

AUTHORIZATION [Signature] TITLE _____ DATE _____

I acknowledge that the payment terms, unless specifically amended in writing on the front of the form or in the customer's account records, at our office, and conditions of service on the back of this form are in effect for services identified on this form.



DRILL STEM TEST REPORT

Prepared For: **Ritchie Exploration Inc**

PO Box 783188
Wichita, KS 67278

ATTN: Kent Matson

Ellis 23 D #4

23-14-32 Logan,KS

Start Date: 2022.07.05 @ 04:42:00

End Date: 2022.07.05 @ 11:04:39

Job Ticket #: 67950 DST #: 1

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

Printed: 2022.07.14 @ 09:58:59

Ritchie Exploration Inc
23-14-32 Logan,KS
Ellis 23 D #4
DST # 1
LKC " C & D "
2022.07.05



**TRILOBITE
TESTING, INC**

DRILL STEM TEST REPORT

Ritchie Exploration Inc
PO Box 783188
Wichita, KS 67278
ATTN: Kent Matson

23-14-32 Logan,KS

Ellis 23 D #4

Job Ticket: 67950

DST#: 1

Test Start: 2022.07.05 @ 04:42:00

GENERAL INFORMATION:

Formation: **LKC " C & D "**

Deviated: No Whipstock: ft (KB)

Time Tool Opened: 06:52:40

Time Test Ended: 11:04:39

Test Type: Conventional Bottom Hole (Initial)

Tester: Martine Salinas

Unit No: 81

Interval: 3806.00 ft (KB) To 3850.00 ft (KB) (TVD)

Reference Elevations: 2768.00 ft (KB)

Total Depth: 3850.00 ft (KB) (TVD)

2761.00 ft (CF)

Hole Diameter: 7.88 inches Hole Condition: Good

KB to GR/CF: 7.00 ft

Serial #: 8734 Outside

Press@RunDepth: 41.32 psig @ 3807.00 ft (KB)

Capacity: 8000.00 psig

Start Date: 2022.07.05 End Date: 2022.07.05

Last Calib.: 2022.07.05

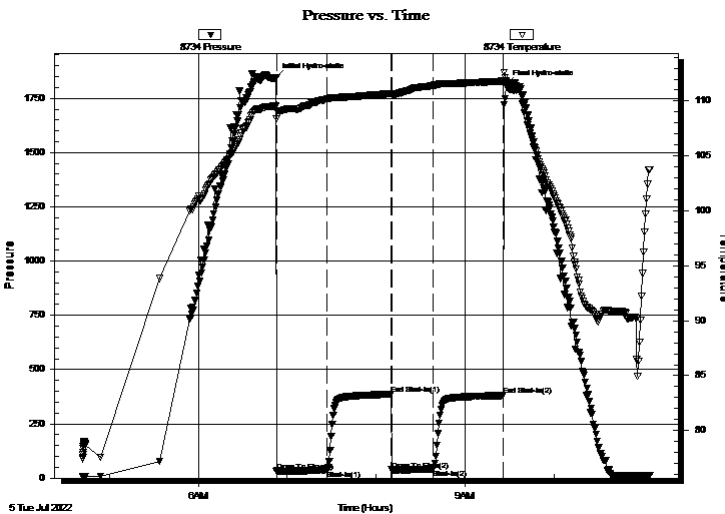
Start Time: 04:42:01 End Time: 11:04:40

Time On Btm: 2022.07.05 @ 06:52:30

Time Off Btm: 2022.07.05 @ 09:27:30

TEST COMMENT: 30-IF-1 /4" blow dead @ 30 mins
45-ISI-No return
30-FF-No blow
45-FSI-No return

PRESSURE SUMMARY



Time (Min.)	Pressure (psig)	Temp (deg F)	Annotation
0	1845.78	109.55	Initial Hydro-static
1	30.91	108.39	Open To Flow (1)
35	36.59	110.16	Shut-In(1)
78	386.39	110.68	End Shut-In(1)
78	38.07	110.56	Open To Flow (2)
106	41.32	111.43	Shut-In(2)
154	380.55	111.82	End Shut-In(2)
155	1811.52	111.87	Final Hydro-static

Recovery

Length (ft)	Description	Volume (bbl)
10.00	100% Mud	0.05

Gas Rates

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



DRILL STEM TEST REPORT

Ritchie Exploration Inc

23-14-32 Logan,KS

PO Box 783188
Wichita, KS 67278

Ellis 23 D #4

Job Ticket: 67950

DST#: 1

ATTN: Kent Matson

Test Start: 2022.07.05 @ 04:42:00

GENERAL INFORMATION:

Formation: **LKC " C & D "**

Deviated: No Whipstock: ft (KB)

Time Tool Opened: 06:52:40

Time Test Ended: 11:04:39

Test Type: Conventional Bottom Hole (Initial)

Tester: Martine Salinas

Unit No: 81

Interval: **3806.00 ft (KB) To 3850.00 ft (KB) (TVD)**

Total Depth: 3850.00 ft (KB) (TVD)

Hole Diameter: 7.88 inches Hole Condition: Good

Reference Elevations: 2768.00 ft (KB)

2761.00 ft (CF)

KB to GR/CF: 7.00 ft

Serial #: 8959 Inside

Press@RunDepth: psig @ 3807.00 ft (KB)

Start Date: 2022.07.05 End Date: 2022.07.05

Start Time: 04:42:01 End Time: 11:04:30

Capacity: 8000.00 psig

Last Calib.: 2022.07.05

Time On Btm:

Time Off Btm:

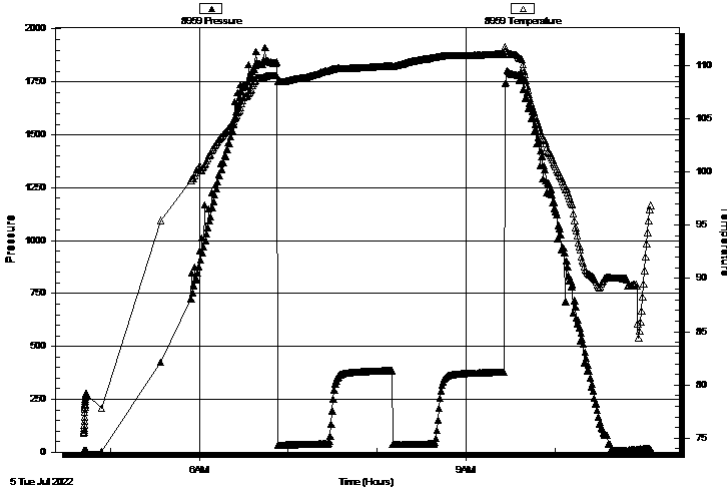
TEST COMMENT: 30-IF-1 /4" blow dead @ 30 mins

45-ISI-No return

30-FF-No blow

45-FSI-No return

Pressure vs. Time



PRESSURE SUMMARY

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

Recovery

Length (ft)	Description	Volume (bbl)
10.00	100% Mud	0.05

Gas Rates

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



**TRILOBITE
TESTING, INC**

DRILL STEM TEST REPORT

TOOL DIAGRAM

Ritchie Exploration Inc

23-14-32 Logan,KS

PO Box 783188
Wichita, KS 67278

Ellis 23 D #4

Job Ticket: 67950

DST#: 1

ATTN: Kent Matson

Test Start: 2022.07.05 @ 04:42:00

Tool Information

Drill Pipe:	Length: 3661.00 ft	Diameter: 3.80 inches	Volume: 51.35 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: 121.00 ft	Diameter: 2.25 inches	Volume: 0.60 bbl	Weight to Pull Loose: 68000.00 lb
			<u>Total Volume: 51.95 bbl</u>	Tool Chased 0.00 ft
Drill Pipe Above KB:	9.00 ft			String Weight: Initial 54000.00 lb
Depth to Top Packer:	3806.00 ft			Final 54000.00 lb
Depth to Bottom Packer:	ft			
Interval between Packers:	44.00 ft			
Tool Length:	77.00 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			3774.00	
Shut In Tool	5.00			3779.00	
Hydraulic tool	5.00	1113		3784.00	
Jars	5.00	01-07		3789.00	
EM Tool	5.00			3794.00	
Safety Joint	3.00	-001		3797.00	
Packer	5.00			3802.00	33.00 Bottom Of Top Packer
Packer	4.00			3806.00	
Stubb	1.00			3807.00	
Recorder	0.00	8959	Inside	3807.00	
Recorder	0.00	8734	Outside	3807.00	
Perforations	5.00			3812.00	
Change Over Sub	1.00			3813.00	
Drill Pipe	31.00			3844.00	
Change Over Sub	1.00			3845.00	
Bullnose	5.00			3850.00	44.00 Bottom Packers & Anchor
Total Tool Length:	77.00				



**TRILOBITE
TESTING, INC**

DRILL STEM TEST REPORT

FLUID SUMMARY

Ritchie Exploration Inc

23-14-32 Logan,KS

PO Box 783188
Wichita, KS 67278

Ellis 23 D #4

Job Ticket: 67950

DST#: 1

ATTN: Kent Matson

Test Start: 2022.07.05 @ 04:42:00

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: 50.00 sec/qt

Cushion Volume:

bbbl

Water Loss: 7.16 in³

Gas Cushion Type:

Resistivity: ohm.m

Gas Cushion Pressure:

psig

Salinity: 2200.00 ppm

Filter Cake: 1.00 inches

Recovery Information

Recovery Table

Length ft	Description	Volume bbl
10.00	100% Mud	0.049

Total Length: 10.00 ft Total Volume: 0.049 bbl

Num Fluid Samples: 0

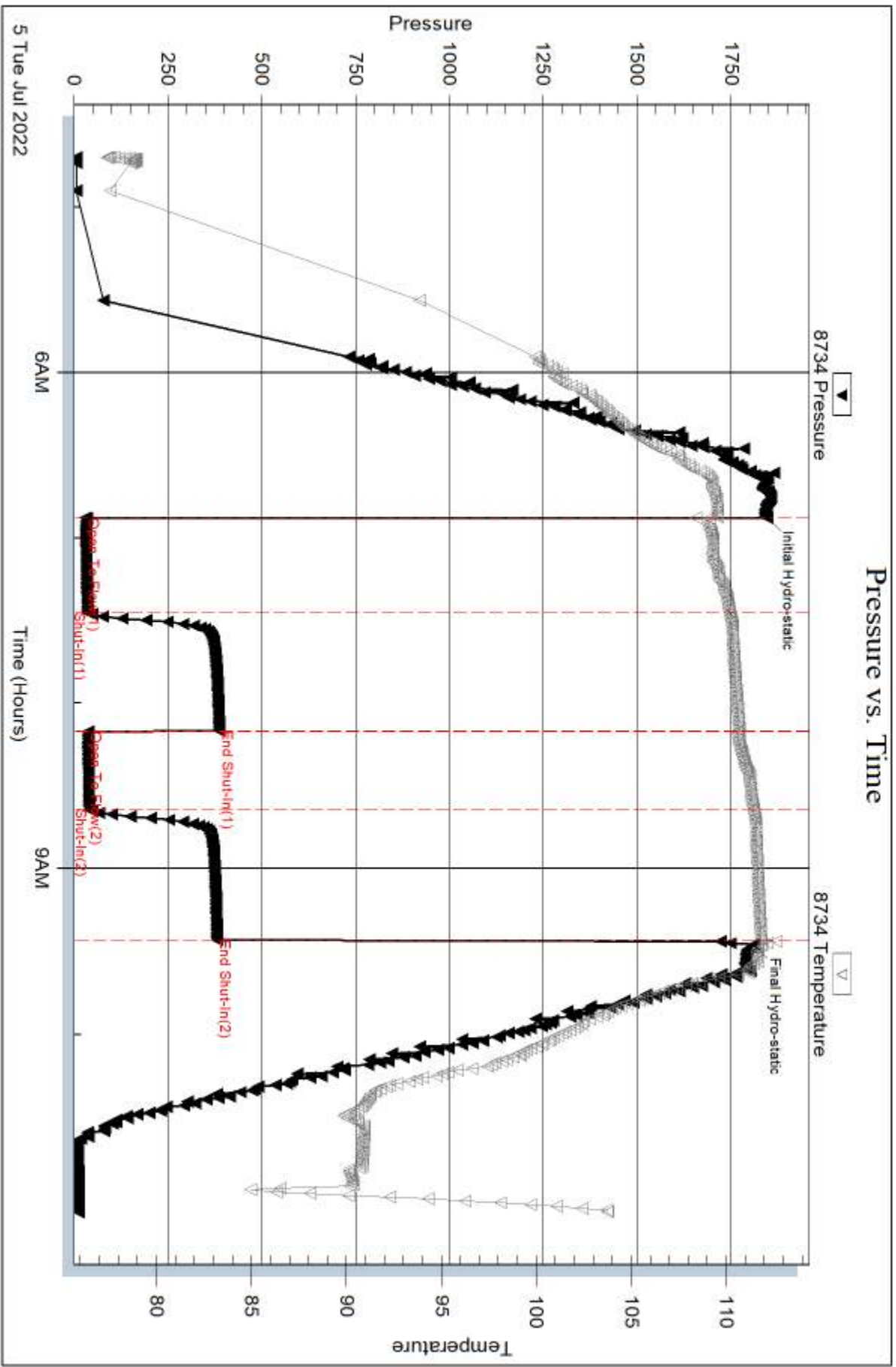
Num Gas Bombs: 0

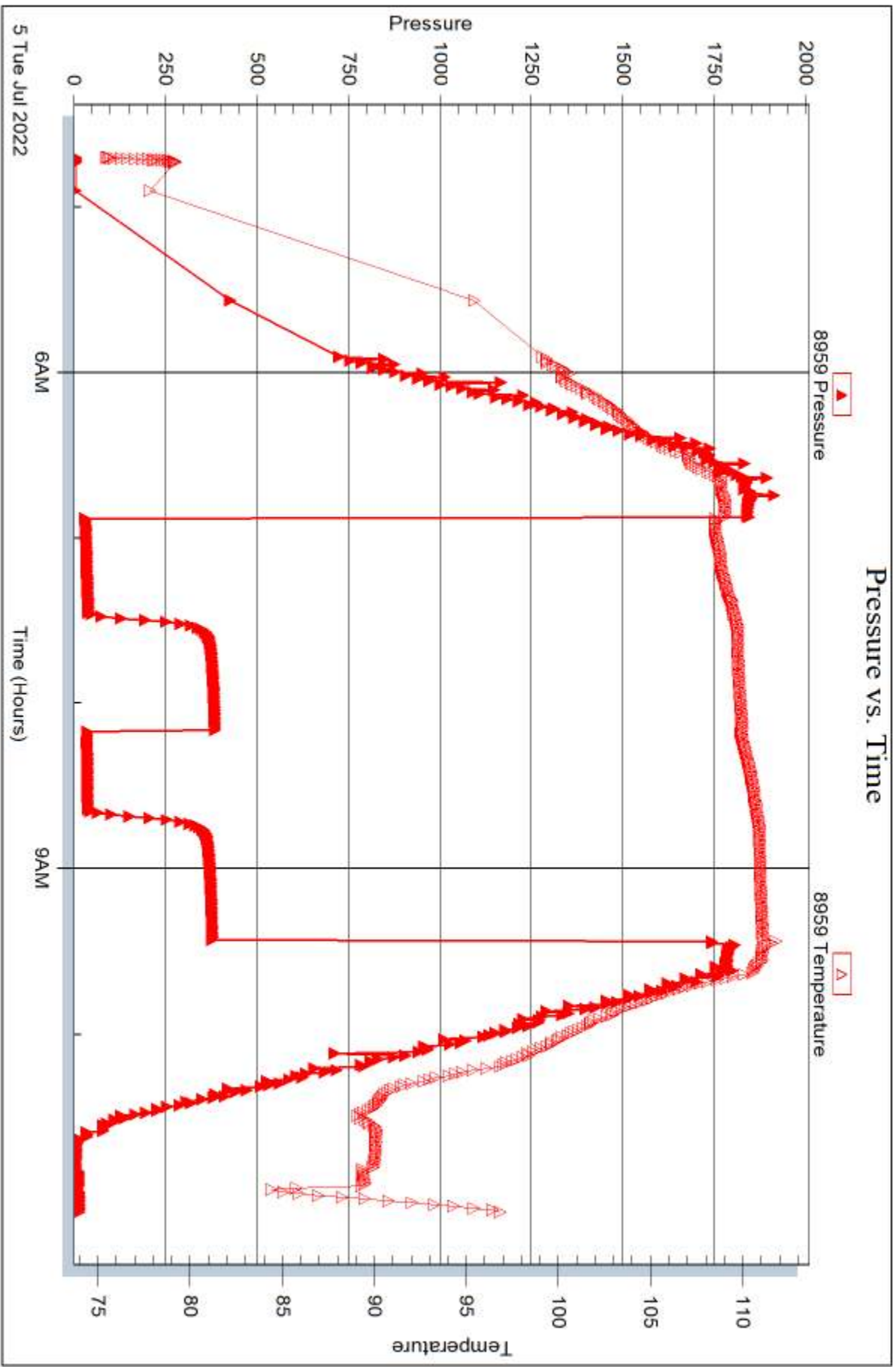
Serial #:

Laboratory Name:

Laboratory Location:

Recovery Comments:







DRILL STEM TEST REPORT

Prepared For: **Ritchie Exploration Inc**

PO Box 783188
Wichita, KS 67278

ATTN: Kent Matson

Ellis 23 D #4

23-14-32 Logan,KS

Start Date: 2022.07.05 @ 20:11:00

End Date: 2022.07.06 @ 03:05:00

Job Ticket #: 69201 DST #: 2

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

Printed: 2022.07.14 @ 09:58:06



**TRILOBITE
TESTING, INC**

DRILL STEM TEST REPORT

Ritchie Exploration Inc
PO Box 783188
Wichita, KS 67278
ATTN: Kent Matson

23-14-32 Logan,KS
Ellis 23 D #4
Job Ticket: 69201 **DST#: 2**
Test Start: 2022.07.05 @ 20:11:00

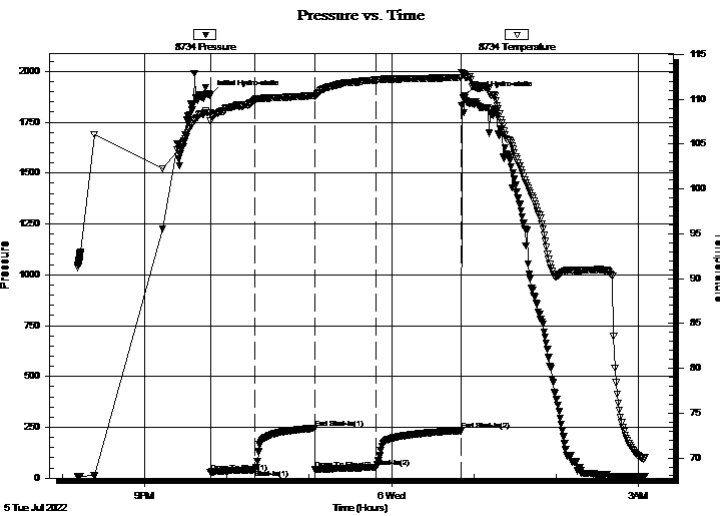
GENERAL INFORMATION:

Formation: **LKC " E "**
Deviated: No Whipstock: ft (KB) Test Type: Conventional Bottom Hole (Reset)
Time Tool Opened: 21:47:50 Tester: Martine Salinas
Time Test Ended: 03:05:00 Unit No: 81
Interval: 3856.00 ft (KB) To 3878.00 ft (KB) (TVD) Reference Elevations: 2768.00 ft (KB)
Total Depth: 3878.00 ft (KB) (TVD) 2761.00 ft (CF)
Hole Diameter: 7.88 inches Hole Condition: Good KB to GR/CF: 7.00 ft

Serial #: 8734 Outside

Press@RunDepth: 52.80 psig @ 3857.00 ft (KB) Capacity: 8000.00 psig
Start Date: 2022.07.05 End Date: 2022.07.06 Last Calib.: 2022.07.06
Start Time: 20:11:01 End Time: 03:05:00 Time On Btm: 2022.07.05 @ 21:47:40
Time Off Btm: 2022.07.06 @ 00:53:09

TEST COMMENT: 30-IF-Blow built to 1/2"
45-ISI-No return
45-FF-Blow built to 1/4"
60-FSI-No return



PRESSURE SUMMARY

Time (Min.)	Pressure (psig)	Temp (deg F)	Annotation
0	1887.16	108.53	Initial Hydro-static
1	29.90	107.55	Open To Flow (1)
33	42.29	109.93	Shut-In(1)
76	245.43	110.42	End Shut-In(1)
77	42.62	110.33	Open To Flow (2)
121	52.80	112.15	Shut-In(2)
183	233.57	112.44	End Shut-In(2)
186	1880.11	112.65	Final Hydro-static

Recovery

Length (ft)	Description	Volume (bbl)
45.00	OCM 15%O, 85%M	0.22

* Recovery from multiple tests

Gas Rates

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



**TRILOBITE
TESTING, INC**

DRILL STEM TEST REPORT

Ritchie Exploration Inc

23-14-32 Logan,KS

PO Box 783188
Wichita, KS 67278

Ellis 23 D #4

Job Ticket: 69201

DST#: 2

ATTN: Kent Matson

Test Start: 2022.07.05 @ 20:11:00

GENERAL INFORMATION:

Formation: **LKC " E "**

Deviated: No Whipstock: ft (KB)

Time Tool Opened: 21:47:50

Time Test Ended: 03:05:00

Test Type: Conventional Bottom Hole (Reset)

Tester: Martine Salinas

Unit No: 81

Interval: 3856.00 ft (KB) To 3878.00 ft (KB) (TVD)

Reference Elevations: 2768.00 ft (KB)

Total Depth: 3878.00 ft (KB) (TVD)

2761.00 ft (CF)

Hole Diameter: 7.88 inches Hole Condition: Good

KB to GR/CF: 7.00 ft

Serial #: 8959 Inside

Press@RunDepth: psig @ 3857.00 ft (KB)

Capacity: 8000.00 psig

Start Date: 2022.07.05

End Date:

2022.07.06

Last Calib.:

2022.07.06

Start Time: 20:11:01

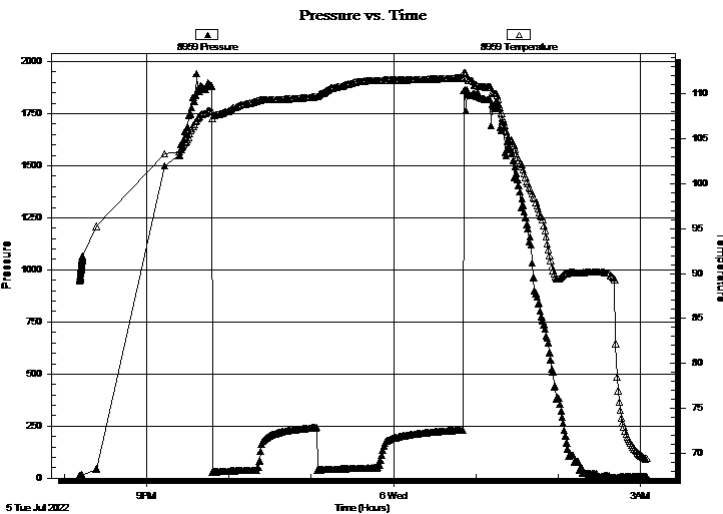
End Time:

03:04:50

Time On Btm:

Time Off Btm:

TEST COMMENT: 30-IF-Blow built to 1/2"
45-ISI-No return
45-FF-Blow built to 1/4"
60-FSI-No return



PRESSURE SUMMARY

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

Recovery

Length (ft)	Description	Volume (bbl)
45.00	OCM 15%O, 85%M	0.22

Gas Rates

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

* Recovery from multiple tests



**TRILOBITE
TESTING, INC**

DRILL STEM TEST REPORT

TOOL DIAGRAM

Ritchie Exploration Inc

23-14-32 Logan,KS

PO Box 783188
Wichita, KS 67278

Ellis 23 D #4

Job Ticket: 69201

DST#: 2

ATTN: Kent Matson

Test Start: 2022.07.05 @ 20:11:00

Tool Information

Drill Pipe:	Length: 3725.00 ft	Diameter: 3.80 inches	Volume: 52.25 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: 121.00 ft	Diameter: 2.25 inches	Volume: 0.60 bbl	Weight to Pull Loose:	85000.00 lb
			<u>Total Volume: 52.85 bbl</u>	Tool Chased	0.00 ft
Drill Pipe Above KB:	23.00 ft			String Weight: Initial	56000.00 lb
Depth to Top Packer:	3856.00 ft			Final	56000.00 lb
Depth to Bottom Packer:	ft				
Interval between Packers:	22.00 ft				
Tool Length:	55.00 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			3824.00	
Shut In Tool	5.00			3829.00	
Hydraulic tool	5.00	1113		3834.00	
Jars	5.00	01-07		3839.00	
EM Tool	5.00			3844.00	
Safety Joint	3.00	-001		3847.00	
Packer	5.00			3852.00	33.00 Bottom Of Top Packer
Packer	4.00			3856.00	
Stubb	1.00			3857.00	
Recorder	0.00	8959	Inside	3857.00	
Recorder	0.00	8734	Outside	3857.00	
Perforations	16.00			3873.00	
Bullnose	5.00			3878.00	22.00 Bottom Packers & Anchor

Total Tool Length: 55.00



**TRILOBITE
TESTING, INC**

DRILL STEM TEST REPORT

FLUID SUMMARY

Ritchie Exploration Inc

23-14-32 Logan,KS

PO Box 783188
Wichita, KS 67278

Ellis 23 D #4

Job Ticket: 69201

DST#: 2

ATTN: Kent Matson

Test Start: 2022.07.05 @ 20:11:00

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: 53.00 sec/qt

Cushion Volume:

bbbl

Water Loss: 7.17 in³

Gas Cushion Type:

Resistivity: ohm.m

Gas Cushion Pressure:

psig

Salinity: 3000.00 ppm

Filter Cake: 1.00 inches

Recovery Information

Recovery Table

Length ft	Description	Volume bbl
45.00	OCM 15%O, 85%M	0.221

Total Length: 45.00 ft Total Volume: 0.221 bbl

Num Fluid Samples: 0

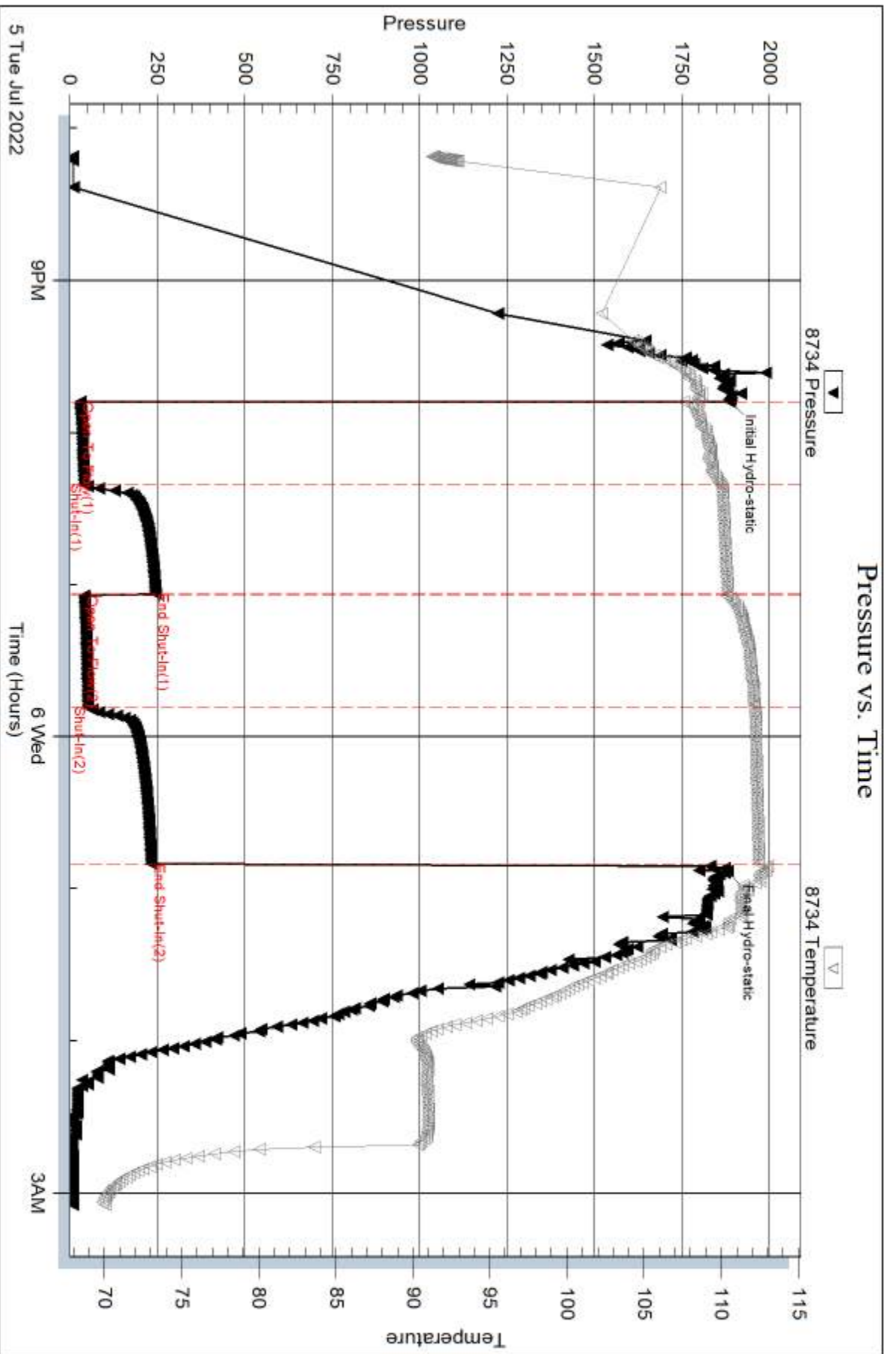
Num Gas Bombs: 0

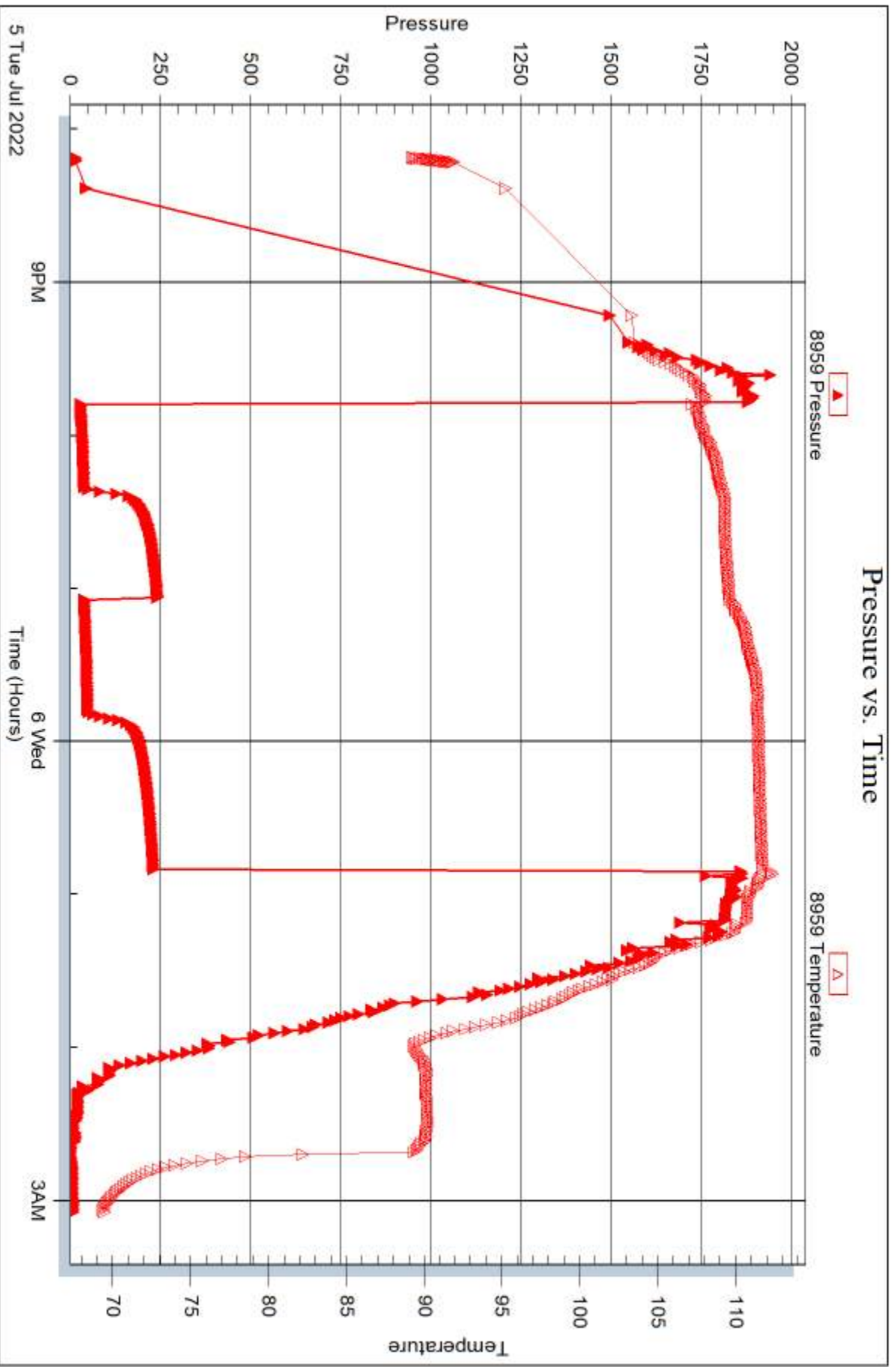
Serial #:

Laboratory Name:

Laboratory Location:

Recovery Comments:







DRILL STEM TEST REPORT

Prepared For: **Ritchie Exploration Inc**

PO Box 783188
Wichita, KS 67278

ATTN: Kent Matson

Ellis 23 D #4

23-14-32 Logan,KS

Start Date: 2022.07.06 @ 22:10:00

End Date: 2022.07.07 @ 04:59:30

Job Ticket #: 69202 DST #: 3

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

Printed: 2022.07.14 @ 09:57:03



**TRILOBITE
TESTING, INC**

DRILL STEM TEST REPORT

Ritchie Exploration Inc
PO Box 783188
Wichita, KS 67278
ATTN: Kent Matson

23-14-32 Logan,KS

Ellis 23 D #4

Job Ticket: 69202

DST#: 3

Test Start: 2022.07.06 @ 22:10:00

GENERAL INFORMATION:

Formation: **LKC " H "**
 Deviated: No Whipstock: ft (KB)
 Time Tool Opened: 00:57:10
 Time Test Ended: 04:59:30
 Interval: **3938.00 ft (KB) To 3978.00 ft (KB) (TVD)**
 Total Depth: 3978.00 ft (KB) (TVD)
 Hole Diameter: 7.88 inches Hole Condition: Good
 Test Type: Conventional Bottom Hole (Reset)
 Tester: Martine Salinas
 Unit No: 81
 Reference Elevations: 2768.00 ft (KB)
 2761.00 ft (CF)
 KB to GR/CF: 7.00 ft

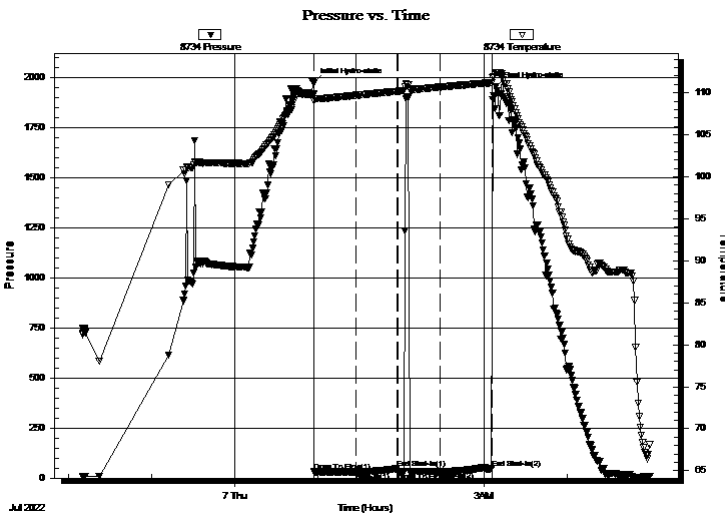
Serial #: 8734

Outside

Press@RunDepth: 32.05 psig @ 3939.00 ft (KB) Capacity: 8000.00 psig
 Start Date: 2022.07.06 End Date: 2022.07.07 Last Calib.: 2022.07.07
 Start Time: 22:10:01 End Time: 04:59:30 Time On Btm: 2022.07.07 @ 00:57:00
 Time Off Btm: 2022.07.07 @ 03:08:30

TEST COMMENT: 30-IF- Blow built to 1/8" & decreased to surface blow
 30-ISI-No return
 30-FF-No blow @ 5 mins, Flushed tool, No blow
 30-FSI-No return

PRESSURE SUMMARY



Time (Min.)	Pressure (psig)	Temp (deg F)	Annotation
0	1972.27	109.84	Initial Hydro-static
1	31.74	109.04	Open To Flow (1)
31	30.62	109.69	Shut-In(1)
60	47.54	110.18	End Shut-In(1)
61	31.29	110.18	Open To Flow (2)
91	32.05	110.69	Shut-In(2)
129	48.50	111.19	End Shut-In(2)
132	1952.57	112.42	Final Hydro-static

Recovery

Length (ft)	Description	Volume (bbl)
3.00	100% Mud	0.01

* Recovery from multiple tests

Gas Rates

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



**TRILOBITE
TESTING, INC**

DRILL STEM TEST REPORT

Ritchie Exploration Inc

23-14-32 Logan,KS

PO Box 783188
Wichita, KS 67278

Ellis 23 D #4

Job Ticket: 69202

DST#: 3

ATTN: Kent Matson

Test Start: 2022.07.06 @ 22:10:00

GENERAL INFORMATION:

Formation: **LKC "H"**

Deviated: No Whipstock: ft (KB)

Time Tool Opened: 00:57:10

Time Test Ended: 04:59:30

Test Type: Conventional Bottom Hole (Reset)

Tester: Martine Salinas

Unit No: 81

Interval: 3938.00 ft (KB) To 3978.00 ft (KB) (TVD)

Total Depth: 3978.00 ft (KB) (TVD)

Hole Diameter: 7.88 inches Hole Condition: Good

Reference Elevations: 2768.00 ft (KB)

2761.00 ft (CF)

KB to GR/CF: 7.00 ft

Serial #: 8959 Inside

Press@RunDepth: psig @ 3939.00 ft (KB)

Start Date: 2022.07.06

End Date:

2022.07.07

Start Time: 22:10:01

End Time:

04:59:30

Capacity: 8000.00 psig

Last Calib.:

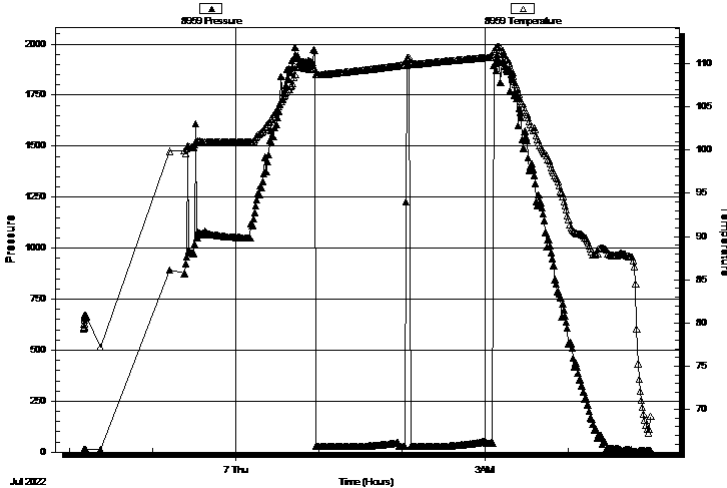
2022.07.07

Time On Btm:

Time Off Btm:

TEST COMMENT: 30-IF- Blow built to 1/8" & decreased to surface blow
30-ISI-No return
30-FF-No blow @ 5 mins, Flushed tool, No blow
30-FSI-No return

Pressure vs. Time



PRESSURE SUMMARY

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

Recovery

Length (ft)	Description	Volume (bbl)
3.00	100% Mud	0.01

Gas Rates

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

* Recovery from multiple tests



**TRILOBITE
TESTING, INC**

DRILL STEM TEST REPORT

TOOL DIAGRAM

Ritchie Exploration Inc

23-14-32 Logan,KS

PO Box 783188
Wichita, KS 67278

Ellis 23 D #4

Job Ticket: 69202

DST#: 3

ATTN: Kent Matson

Test Start: 2022.07.06 @ 22:10:00

Tool Information

Drill Pipe:	Length: 3819.00 ft	Diameter: 3.80 inches	Volume: 53.57 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: 121.00 ft	Diameter: 2.25 inches	Volume: 0.60 bbl	Weight to Pull Loose: 85000.00 lb
			<u>Total Volume: 54.17 bbl</u>	Tool Chased 0.00 ft
Drill Pipe Above KB:	35.00 ft			String Weight: Initial 55000.00 lb
Depth to Top Packer:	3938.00 ft			Final 55000.00 lb
Depth to Bottom Packer:	ft			
Interval between Packers:	40.00 ft			
Tool Length:	73.00 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			3906.00	
Shut In Tool	5.00			3911.00	
Hydraulic tool	5.00	1113		3916.00	
Jars	5.00	01-07		3921.00	
EM Tool	5.00			3926.00	
Safety Joint	3.00	-001		3929.00	
Packer	5.00			3934.00	33.00 Bottom Of Top Packer
Packer	4.00			3938.00	
Stubb	1.00			3939.00	
Recorder	0.00	8959	Inside	3939.00	
Recorder	0.00	8734	Outside	3939.00	
Perforations	34.00			3973.00	
Bullnose	5.00			3978.00	40.00 Bottom Packers & Anchor

Total Tool Length: 73.00



**TRILOBITE
TESTING, INC**

DRILL STEM TEST REPORT

FLUID SUMMARY

Ritchie Exploration Inc

23-14-32 Logan,KS

PO Box 783188
Wichita, KS 67278

Ellis 23 D #4

Job Ticket: 69202

DST#: 3

ATTN: Kent Matson

Test Start: 2022.07.06 @ 22:10:00

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: 54.00 sec/qt

Cushion Volume:

bbbl

Water Loss: 7.97 in³

Gas Cushion Type:

Resistivity: ohm.m

Gas Cushion Pressure:

psig

Salinity: 3300.00 ppm

Filter Cake: 1.00 inches

Recovery Information

Recovery Table

Length ft	Description	Volume bbl
3.00	100% Mud	0.015

Total Length: 3.00 ft Total Volume: 0.015 bbl

Num Fluid Samples: 0

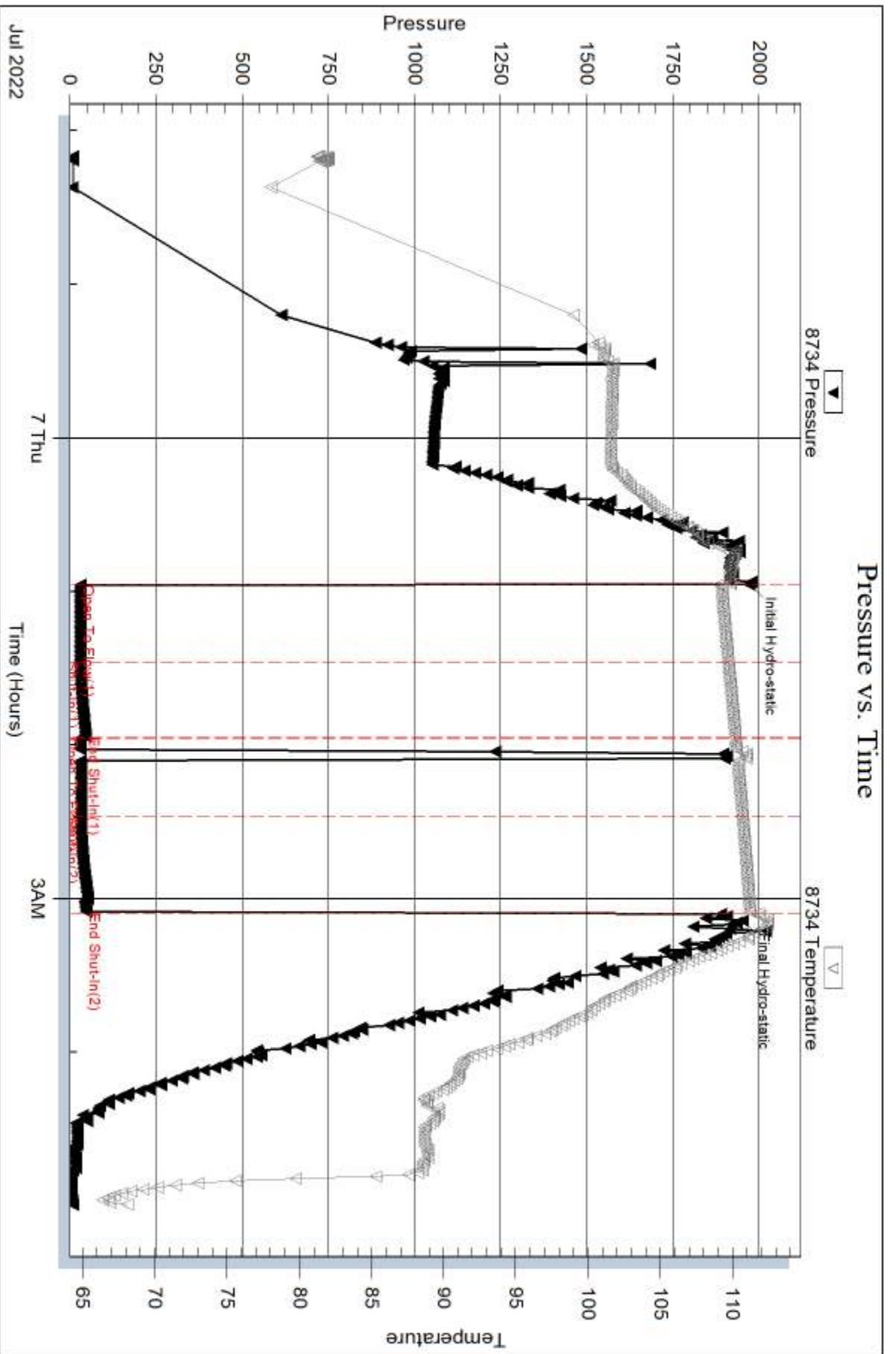
Num Gas Bombs: 0

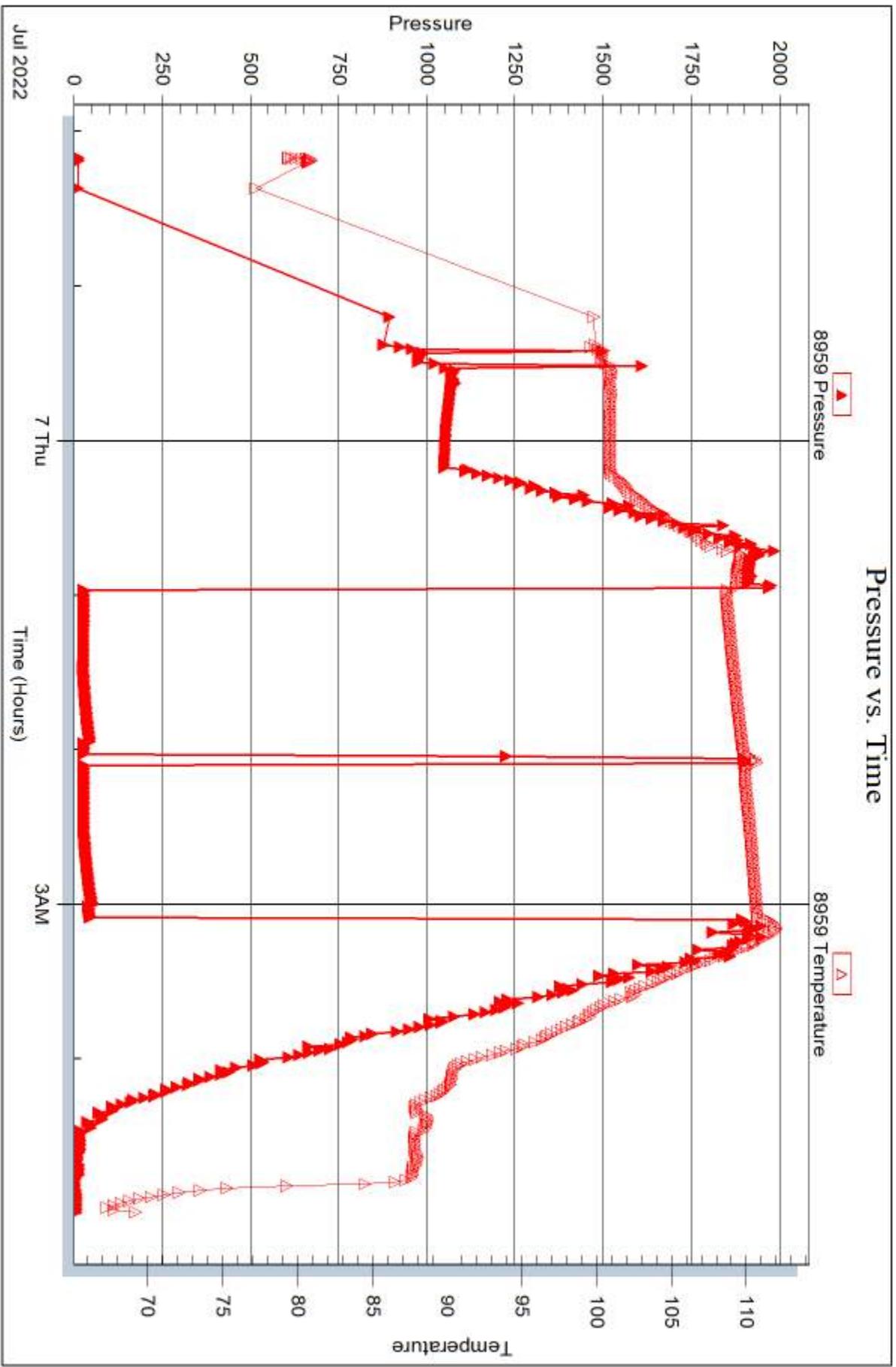
Serial #:

Laboratory Name:

Laboratory Location:

Recovery Comments:







DRILL STEM TEST REPORT

Prepared For: **Ritchie Exploration Inc**

PO Box 783188
Wichita, KS 67278

ATTN: Kent Matson

Ellis 23 D #4

23-14-32 Logan,KS

Start Date: 2022.07.07 @ 16:15:00

End Date: 2022.07.07 @ 22:19:30

Job Ticket #: 69203 DST #: 4

Trilobite Testing, Inc

PO Box 362 Hays, KS 67601

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

Printed: 2022.07.14 @ 09:56:33



TRILOBITE TESTING, INC

DRILL STEM TEST REPORT

Ritchie Exploration Inc
 PO Box 783188
 Wichita, KS 67278
 ATTN: Kent Matson

23-14-32 Logan,KS

Ellis 23 D #4

Job Ticket: 69203

DST#: 4

Test Start: 2022.07.07 @ 16:15:00

GENERAL INFORMATION:

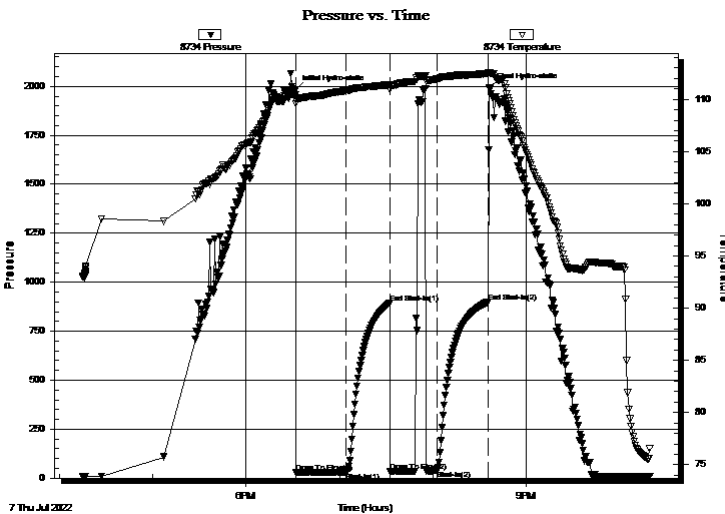
Formation: **LKC "I & J"**
 Deviated: No Whipstock: ft (KB)
 Time Tool Opened: 18:31:50
 Time Test Ended: 22:19:30
 Interval: **3981.00 ft (KB) To 4030.00 ft (KB) (TVD)**
 Total Depth: 4030.00 ft (KB) (TVD)
 Hole Diameter: 7.88 inches Hole Condition: Good
 Test Type: Conventional Bottom Hole (Reset)
 Tester: Martine Salinas
 Unit No: 81
 Reference Elevations: 2768.00 ft (KB)
 2761.00 ft (CF)
 KB to GR/CF: 7.00 ft

Serial #: 8734 Outside

Press@RunDepth: 38.32 psig @ 3982.00 ft (KB) Capacity: 8000.00 psig
 Start Date: 2022.07.07 End Date: 2022.07.07 Last Calib.: 2022.07.07
 Start Time: 16:15:01 End Time: 22:19:30 Time On Btm: 2022.07.07 @ 18:31:40
 Time Off Btm: 2022.07.07 @ 20:36:30

TEST COMMENT: 30-IF-Weak surface bubbles dead @ 13 mins
 30-ISI-No return
 30-FF-No blow @ 5 mins, Flushed tool, No blow
 30-FSI-No return

PRESSURE SUMMARY



Time (Min.)	Pressure (psig)	Temp (deg F)	Annotation
0	1984.27	110.44	Initial Hydro-static
1	27.92	109.60	Open To Flow (1)
33	31.62	110.82	Shut-In(1)
61	894.72	111.41	End Shut-In(1)
61	32.57	110.93	Open To Flow (2)
91	38.32	111.94	Shut-In(2)
124	899.65	112.45	End Shut-In(2)
125	1992.82	112.56	Final Hydro-static

Recovery

Length (ft)	Description	Volume (bbl)
10.00	100% Mud	0.05

* Recovery from multiple tests

Gas Rates

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



**TRILOBITE
TESTING, INC**

DRILL STEM TEST REPORT

TOOL DIAGRAM

Ritchie Exploration Inc

23-14-32 Logan,KS

PO Box 783188
Wichita, KS 67278

Ellis 23 D #4

Job Ticket: 69203

DST#: 4

ATTN: Kent Matson

Test Start: 2022.07.07 @ 16:15:00

Tool Information

Drill Pipe:	Length: 3850.00 ft	Diameter: 3.80 inches	Volume: 54.01 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: 121.00 ft	Diameter: 2.25 inches	Volume: 0.60 bbl	Weight to Pull Loose: 85000.00 lb
			<u>Total Volume: 54.61 bbl</u>	Tool Chased 0.00 ft
Drill Pipe Above KB:	23.00 ft			String Weight: Initial 58000.00 lb
Depth to Top Packer:	3981.00 ft			Final 58000.00 lb
Depth to Bottom Packer:	ft			
Interval between Packers:	49.00 ft			
Tool Length:	82.00 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			3949.00	
Shut In Tool	5.00			3954.00	
Hydraulic tool	5.00	1113		3959.00	
Jars	5.00	01-07		3964.00	
EM Tool	5.00			3969.00	
Safety Joint	3.00	-001		3972.00	
Packer	5.00			3977.00	33.00 Bottom Of Top Packer
Packer	4.00			3981.00	
Stubb	1.00			3982.00	
Recorder	0.00	8959	Inside	3982.00	
Recorder	0.00	8734	Outside	3982.00	
Perforations	9.00			3991.00	
Change Over Sub	1.00			3992.00	
Drill Pipe	32.00			4024.00	
Change Over Sub	1.00			4025.00	
Bullnose	5.00			4030.00	49.00 Bottom Packers & Anchor
Total Tool Length:	82.00				



**TRILOBITE
TESTING, INC**

DRILL STEM TEST REPORT

FLUID SUMMARY

Ritchie Exploration Inc

23-14-32 Logan,KS

PO Box 783188
Wichita, KS 67278

Ellis 23 D #4

Job Ticket: 69203

DST#: 4

ATTN: Kent Matson

Test Start: 2022.07.07 @ 16:15:00

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:

bbbl

Water Loss: 9.57 in³

Gas Cushion Type:

Resistivity: ohm.m

Gas Cushion Pressure:

psig

Salinity: 3000.00 ppm

Filter Cake: 1.00 inches

Recovery Information

Recovery Table

Length ft	Description	Volume bbl
10.00	100% Mud	0.049

Total Length: 10.00 ft Total Volume: 0.049 bbl

Num Fluid Samples: 0

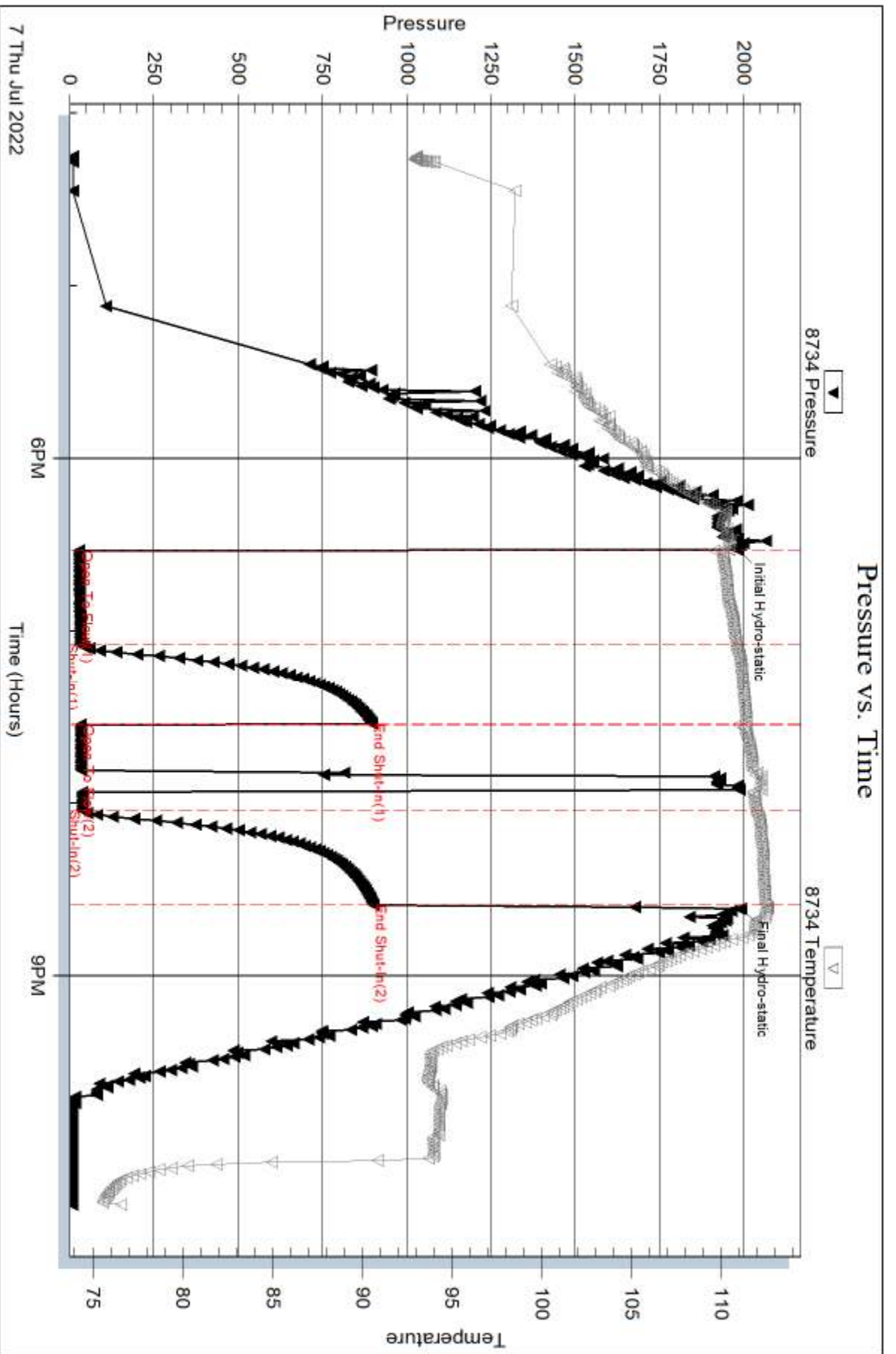
Num Gas Bombs: 0

Serial #:

Laboratory Name:

Laboratory Location:

Recovery Comments:



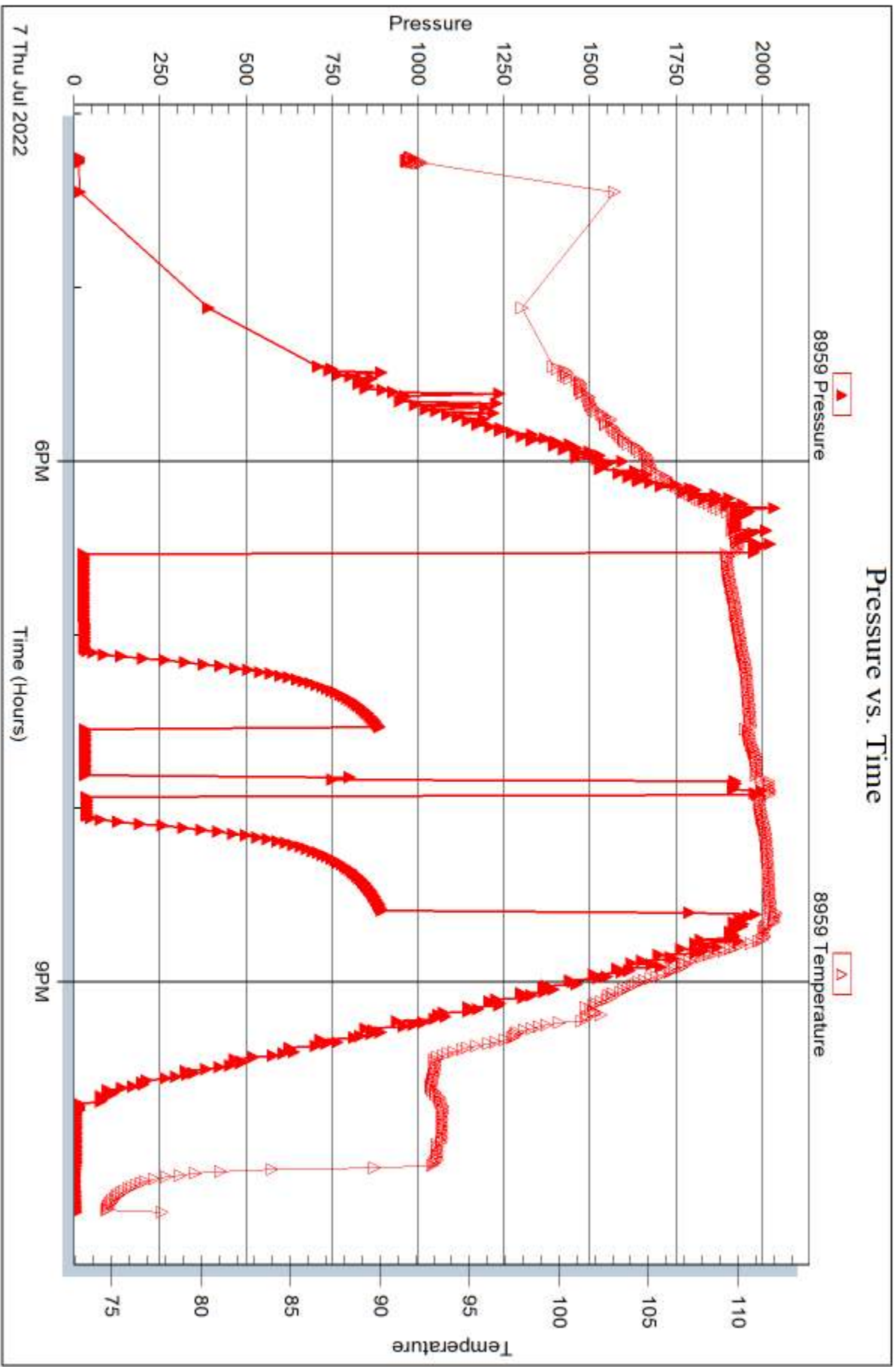
Serial #: 8959

Inside

Ritchie Exploration Inc

Ellis 23 D #4

DST Test Number: 4



Tribble Testing, Inc

Ref. No: 69203

Printed: 2022.07.14 @ 09:56:36



DRILL STEM TEST REPORT

Prepared For: **Ritchie Exploration Inc**

PO Box 783188
Wichita, KS 67278

ATTN: Kent Matson

Ellis 23 D #4

23-14-32 Logan,KS

Start Date: 2022.07.09 @ 07:59:00

End Date: 2022.07.09 @ 13:59:50

Job Ticket #: 69204 DST #: 5

Trilobite Testing, Inc

PO Box 362 Hays, KS 67601

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

Printed: 2022.07.14 @ 09:48:47



**TRILOBITE
TESTING, INC**

DRILL STEM TEST REPORT

Ritchie Exploration Inc

23-14-32 Logan,KS

PO Box 783188
Wichita, KS 67278

Ellis 23 D #4

Job Ticket: 69204

DST#: 5

ATTN: Kent Matson

Test Start: 2022.07.09 @ 07:59:00

GENERAL INFORMATION:

Formation: **Pawnee**

Deviated: No Whipstock: ft (KB)

Time Tool Opened: 10:03:00

Time Test Ended: 13:59:50

Test Type: Conventional Bottom Hole (Reset)

Tester: Martine Salinas

Unit No: 81

Interval: 4220.00 ft (KB) To 4260.00 ft (KB) (TVD)

Reference Elevations: 2768.00 ft (KB)

Total Depth: 4260.00 ft (KB) (TVD)

2761.00 ft (CF)

Hole Diameter: 7.88 inches Hole Condition: Good

KB to GR/CF: 7.00 ft

Serial #: 8734 Outside

Press@RunDepth: 36.35 psig @ 4221.00 ft (KB)

Capacity: 8000.00 psig

Start Date: 2022.07.09

End Date:

2022.07.09

Last Calib.:

2022.07.09

Start Time: 07:59:01

End Time:

13:59:50

Time On Btm:

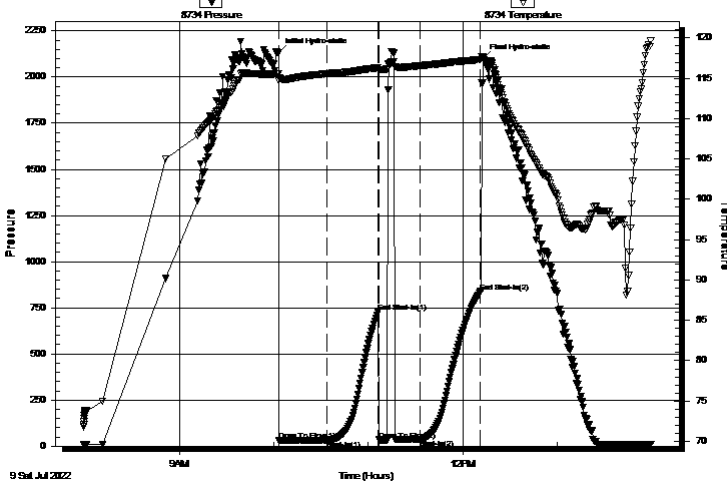
2022.07.09 @ 10:02:50

Time Off Btm:

2022.07.09 @ 12:13:00

TEST COMMENT: 30-IF-Weak surface bubbles dead @ 13 mins
30-ISI-No return
30-FF-No blow @ 5 mins, Flushd tool, Weak blow dead @ 20 mins
30-FSI-No return

Pressure vs. Time



PRESSURE SUMMARY

Time (Min.)	Pressure (psig)	Temp (deg F)	Annotation
0	2133.65	115.59	Initial Hydro-static
1	30.35	114.72	Open To Flow (1)
31	32.41	115.58	Shut-In(1)
64	726.64	116.29	End Shut-In(1)
64	33.80	116.04	Open To Flow (2)
90	36.35	116.55	Shut-In(2)
129	836.66	117.31	End Shut-In(2)
131	2100.73	117.48	Final Hydro-static

Recovery

Length (ft)	Description	Volume (bbl)
5.00	OSM 2%O, 98% M	0.02

Gas Rates

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

* Recovery from multiple tests



DRILL STEM TEST REPORT

Ritchie Exploration Inc
 PO Box 783188
 Wichita, KS 67278
 ATTN: Kent Matson

23-14-32 Logan,KS
Ellis 23 D #4
 Job Ticket: 69204 **DST#: 5**
 Test Start: 2022.07.09 @ 07:59:00

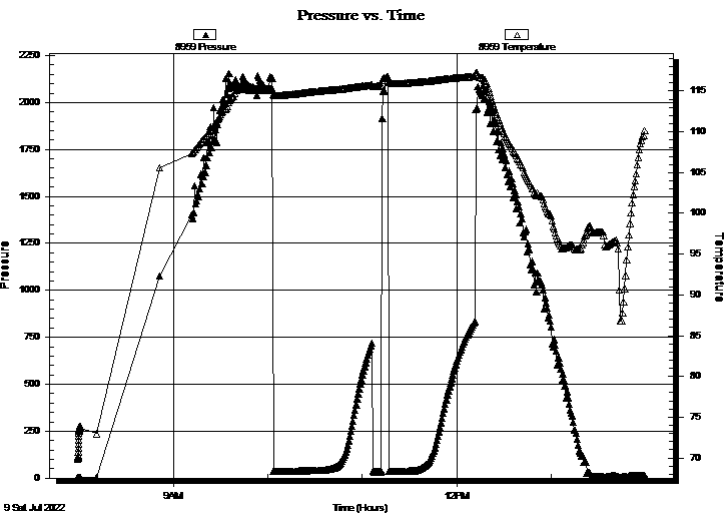
GENERAL INFORMATION:

Formation: **Pawnee**
 Deviated: No Whipstock: ft (KB)
 Time Tool Opened: 10:03:00
 Time Test Ended: 13:59:50
 Interval: **4220.00 ft (KB) To 4260.00 ft (KB) (TVD)**
 Total Depth: 4260.00 ft (KB) (TVD)
 Hole Diameter: 7.88 inches
 Hole Condition: Good
 Test Type: Conventional Bottom Hole (Reset)
 Tester: Martine Salinas
 Unit No: 81
 Reference Elevations: 2768.00 ft (KB)
 2761.00 ft (CF)
 KB to GR/CF: 7.00 ft

Serial #: 8959 Inside

Press@RunDepth: psig @ 4221.00 ft (KB) Capacity: 8000.00 psig
 Start Date: 2022.07.09 End Date: 2022.07.09 Last Calib.: 1899.12.30
 Start Time: 07:59:01 End Time: 13:59:40 Time On Btm:
 Time Off Btm:

TEST COMMENT: 30-IF-Weak surface bubbles dead @ 13 mins
 30-ISI-No return
 30-FF-No blow @ 5 mins, Flushd tool, Weak blow dead @ 20 mins
 30-FSI-No return



PRESSURE SUMMARY

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

Recovery

Length (ft)	Description	Volume (bbl)
5.00	OSM 2%O, 98% M	0.02

* Recovery from multiple tests

Gas Rates

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



**TRILOBITE
TESTING, INC**

DRILL STEM TEST REPORT

TOOL DIAGRAM

Ritchie Exploration Inc

23-14-32 Logan,KS

PO Box 783188
Wichita, KS 67278

Ellis 23 D #4

Job Ticket: 69204

DST#: 5

ATTN: Kent Matson

Test Start: 2022.07.09 @ 07:59:00

Tool Information

Drill Pipe:	Length: 4102.00 ft	Diameter: 3.80 inches	Volume: 57.54 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: 121.00 ft	Diameter: 2.25 inches	Volume: 0.60 bbl	Weight to Pull Loose: 80000.00 lb
			<u>Total Volume: 58.14 bbl</u>	Tool Chased 0.00 ft
Drill Pipe Above KB:	36.00 ft			String Weight: Initial 60000.00 lb
Depth to Top Packer:	4220.00 ft			Final 60000.00 lb
Depth to Bottom Packer:	ft			
Interval between Packers:	40.00 ft			
Tool Length:	73.00 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			4188.00	
Shut In Tool	5.00			4193.00	
Hydraulic tool	5.00	1113		4198.00	
Jars	5.00	01-07		4203.00	
EM Tool	5.00			4208.00	
Safety Joint	3.00	-001		4211.00	
Packer	5.00			4216.00	33.00 Bottom Of Top Packer
Packer	4.00			4220.00	
Stubb	1.00			4221.00	
Recorder	0.00	8959	Inside	4221.00	
Recorder	0.00	8734	Outside	4221.00	
Perforations	34.00			4255.00	
Bullnose	5.00			4260.00	40.00 Bottom Packers & Anchor

Total Tool Length: 73.00



**TRILOBITE
TESTING, INC**

DRILL STEM TEST REPORT

FLUID SUMMARY

Ritchie Exploration Inc

23-14-32 Logan,KS

PO Box 783188
Wichita, KS 67278

Ellis 23 D #4

Job Ticket: 69204

DST#: 5

ATTN: Kent Matson

Test Start: 2022.07.09 @ 07:59:00

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:

bbbl

Water Loss: 8.77 in³

Gas Cushion Type:

Resistivity: ohm.m

Gas Cushion Pressure:

psig

Salinity: 3500.00 ppm

Filter Cake: 1.00 inches

Recovery Information

Recovery Table

Length ft	Description	Volume bbl
5.00	OSM 2%O, 98% M	0.025

Total Length: 5.00 ft Total Volume: 0.025 bbl

Num Fluid Samples: 0

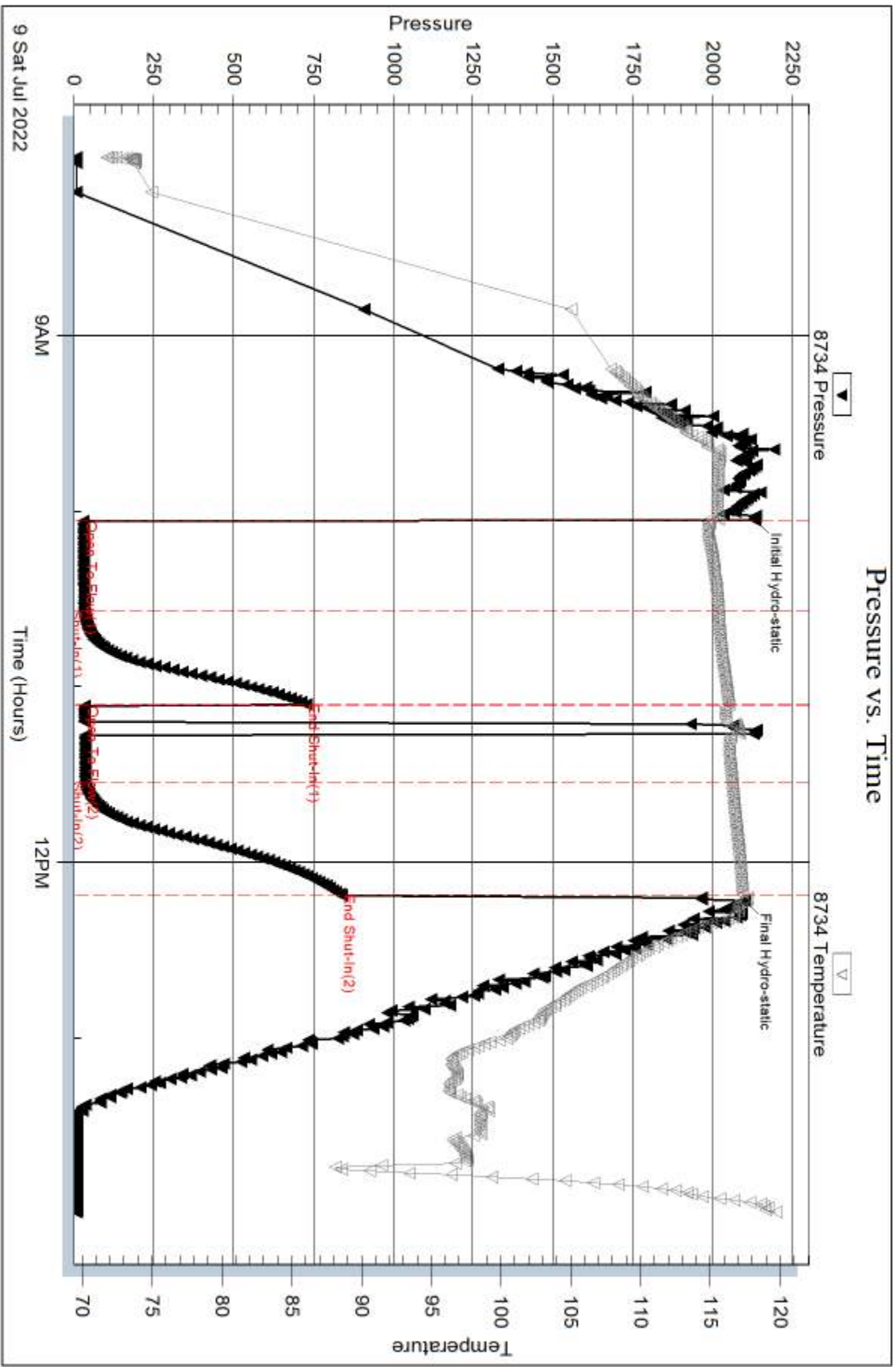
Num Gas Bombs: 0

Serial #:

Laboratory Name:

Laboratory Location:

Recovery Comments:



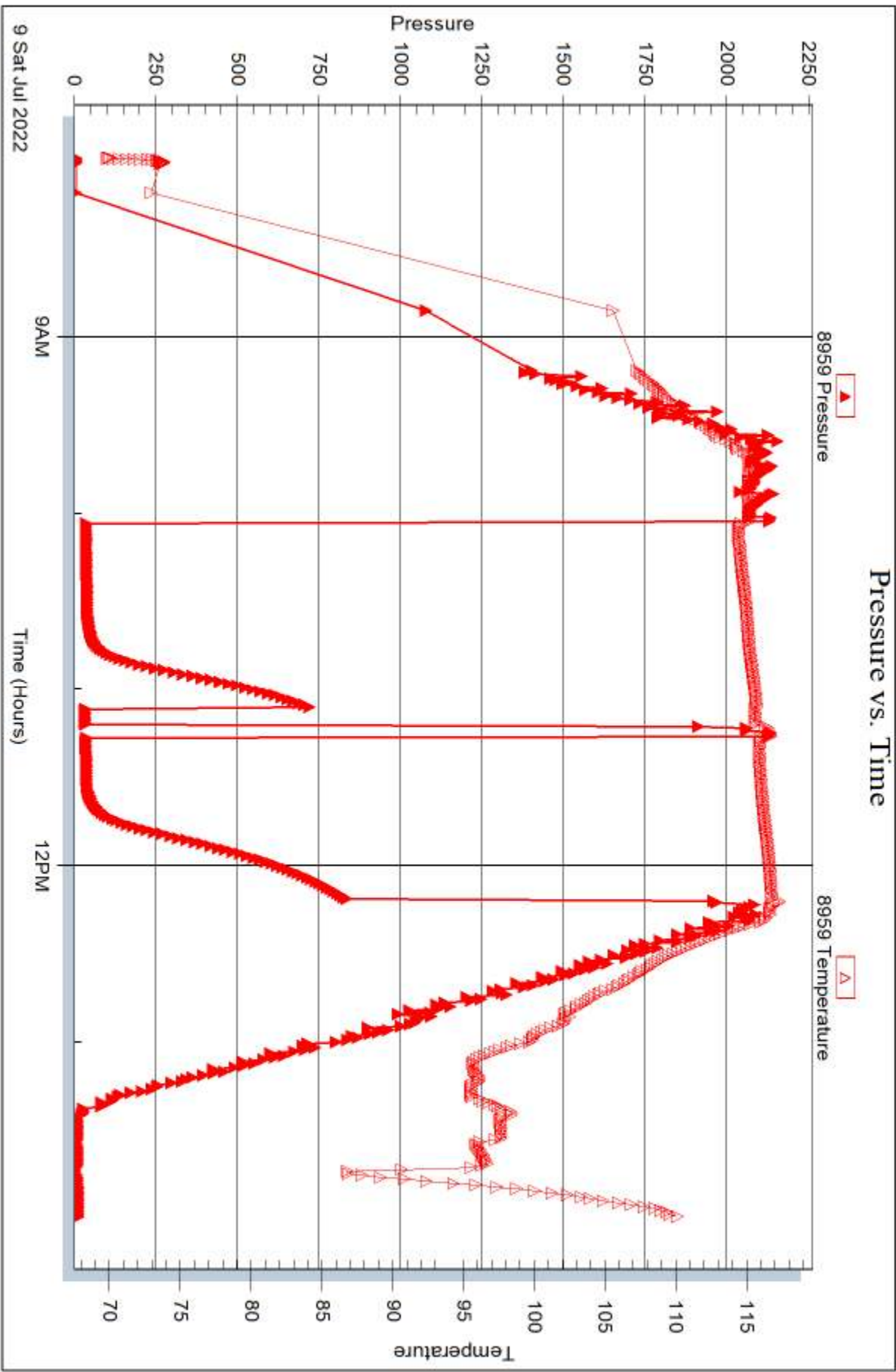
Serial #: 8959

Inside

Ritchie Exploration Inc

Ellis 23 D #4

DST Test Number: 5



Trilobite Testing, Inc

Ref. No: 69204

Printed: 2022.07.14 @ 09:48:48



DRILL STEM TEST REPORT

Prepared For: **Ritchie Exploration Inc**

PO Box 783188
Wichita, KS 67278

ATTN: Kent Matson

Ellis 23 D #4

23-14-32 Logan,KS

Start Date: 2022.07.09 @ 22:00:00

End Date: 2022.07.10 @ 04:02:39

Job Ticket #: 69205 DST #: 6

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

Printed: 2022.07.14 @ 09:47:08



**TRILOBITE
TESTING, INC**

DRILL STEM TEST REPORT

Ritchie Exploration Inc

23-14-32 Logan,KS

PO Box 783188
Wichita, KS 67278

Ellis 23 D #4

Job Ticket: 69205

DST#: 6

ATTN: Kent Matson

Test Start: 2022.07.09 @ 22:00:00

GENERAL INFORMATION:

Formation: **Myrick Station**

Deviated: No Whipstock: ft (KB)

Time Tool Opened: 00:04:20

Time Test Ended: 04:02:39

Test Type: Conventional Bottom Hole (Reset)

Tester: Martine Salinas

Unit No: 81

Interval: 4258.00 ft (KB) To 4282.00 ft (KB) (TVD)

Reference Elevations: 2768.00 ft (KB)

Total Depth: 4282.00 ft (KB) (TVD)

2761.00 ft (CF)

Hole Diameter: 7.88 inches Hole Condition: Good

KB to GR/CF: 7.00 ft

Serial #: 8734 Outside

Press@RunDepth: 30.45 psig @ 4259.00 ft (KB)

Capacity: 8000.00 psig

Start Date: 2022.07.09

End Date:

2022.07.10

Last Calib.:

2022.07.10

Start Time: 22:00:01

End Time:

04:02:40

Time On Btm:

2022.07.10 @ 00:04:00

Time Off Btm:

2022.07.10 @ 02:10:00

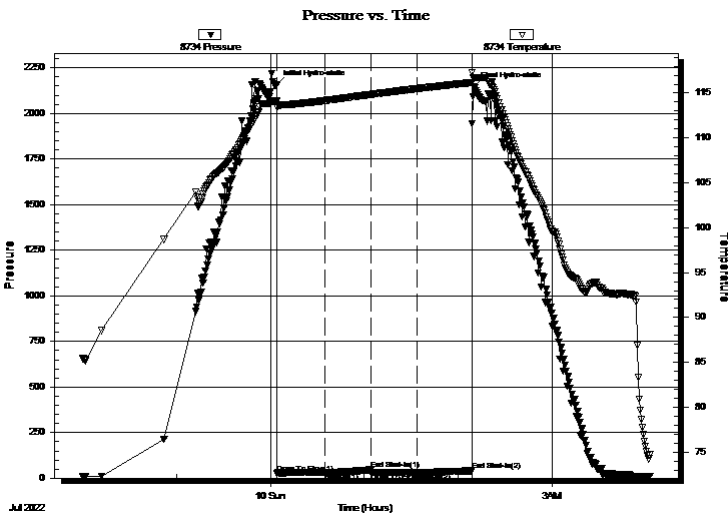
TEST COMMENT: 30-IF-Strong surface blow dead @ 18 mins

30-ISI-No return

30-FF-No blow

30-FSI-No return

PRESSURE SUMMARY



Time (Min.)	Pressure (psig)	Temp (deg F)	Annotation
0	2157.03	114.10	Initial Hydro-static
1	28.02	113.42	Open To Flow (1)
31	30.67	114.16	Shut-In(1)
61	46.40	114.85	End Shut-In(1)
61	29.81	114.85	Open To Flow (2)
90	30.45	115.49	Shut-In(2)
125	40.94	116.17	End Shut-In(2)
126	2146.55	116.74	Final Hydro-static

Recovery

Length (ft)	Description	Volume (bbl)
1.00	100% Mud	0.00

* Recovery from multiple tests

Gas Rates

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



TRILOBITE TESTING, INC.

DRILL STEM TEST REPORT

Ritchie Exploration Inc

23-14-32 Logan,KS

PO Box 783188
Wichita, KS 67278

Ellis 23 D #4

Job Ticket: 69205

DST#: 6

ATTN: Kent Matson

Test Start: 2022.07.09 @ 22:00:00

GENERAL INFORMATION:

Formation: **Myrick Station**

Deviated: No Whipstock: ft (KB)

Time Tool Opened: 00:04:20

Time Test Ended: 04:02:39

Test Type: Conventional Bottom Hole (Reset)

Tester: Martine Salinas

Unit No: 81

Interval: **4258.00 ft (KB) To 4282.00 ft (KB) (TVD)**

Reference Elevations: 2768.00 ft (KB)

Total Depth: 4282.00 ft (KB) (TVD)

2761.00 ft (CF)

Hole Diameter: 7.88 inches Hole Condition: Good

KB to GR/CF: 7.00 ft

Serial #: 8959

Inside

Press@RunDepth: psig @ 4259.00 ft (KB)

Capacity: 8000.00 psig

Start Date: 2022.07.09

End Date:

2022.07.10

Last Calib.:

2022.07.10

Start Time: 22:00:01

End Time:

04:02:30

Time On Btm:

Time Off Btm:

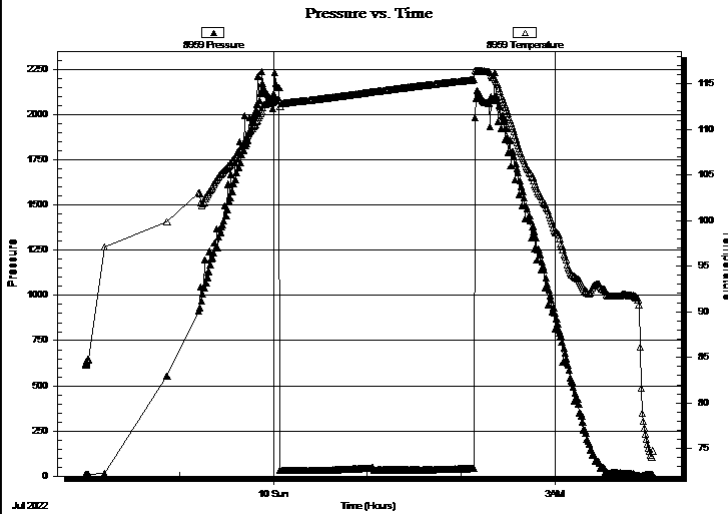
TEST COMMENT: 30-IF-Strong surface blow dead @ 18 mins

30-ISI-No return

30-FF-No blow

30-FSI-No return

PRESSURE SUMMARY



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

Recovery

Length (ft)	Description	Volume (bbl)
1.00	100% Mud	0.00

* Recovery from multiple tests

Gas Rates

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



**TRILOBITE
TESTING, INC**

DRILL STEM TEST REPORT

TOOL DIAGRAM

Ritchie Exploration Inc

23-14-32 Logan,KS

PO Box 783188
Wichita, KS 67278

Ellis 23 D #4

Job Ticket: 69205

DST#: 6

ATTN: Kent Matson

Test Start: 2022.07.09 @ 22:00:00

Tool Information

Drill Pipe:	Length: 4133.00 ft	Diameter: 3.80 inches	Volume: 57.98 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: 121.00 ft	Diameter: 2.25 inches	Volume: 0.60 bbl	Weight to Pull Loose: 85000.00 lb
			<u>Total Volume: 58.58 bbl</u>	Tool Chased 0.00 ft
Drill Pipe Above KB:	29.00 ft			String Weight: Initial 60000.00 lb
Depth to Top Packer:	4258.00 ft			Final 60000.00 lb
Depth to Bottom Packer:	ft			
Interval between Packers:	24.00 ft			
Tool Length:	57.00 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			4226.00	
Shut In Tool	5.00			4231.00	
Hydraulic tool	5.00	1113		4236.00	
Jars	5.00	01-07		4241.00	
EM Tool	5.00			4246.00	
Safety Joint	3.00	-001		4249.00	
Packer	5.00			4254.00	33.00 Bottom Of Top Packer
Packer	4.00			4258.00	
Stubb	1.00			4259.00	
Recorder	0.00	8959	Inside	4259.00	
Recorder	0.00	8734	Outside	4259.00	
Perforations	18.00			4277.00	
Bullnose	5.00			4282.00	24.00 Bottom Packers & Anchor

Total Tool Length: 57.00



**TRILOBITE
TESTING, INC**

DRILL STEM TEST REPORT

FLUID SUMMARY

Ritchie Exploration Inc

23-14-32 Logan,KS

PO Box 783188
Wichita, KS 67278

Ellis 23 D #4

Job Ticket: 69205

DST#: 6

ATTN: Kent Matson

Test Start: 2022.07.09 @ 22:00:00

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: 52.00 sec/qt

Cushion Volume:

bbbl

Water Loss: 8.78 in³

Gas Cushion Type:

Resistivity: ohm.m

Gas Cushion Pressure:

psig

Salinity: 3600.00 ppm

Filter Cake: 1.00 inches

Recovery Information

Recovery Table

Length ft	Description	Volume bbl
1.00	100% Mud	0.005

Total Length: 1.00 ft Total Volume: 0.005 bbl

Num Fluid Samples: 0

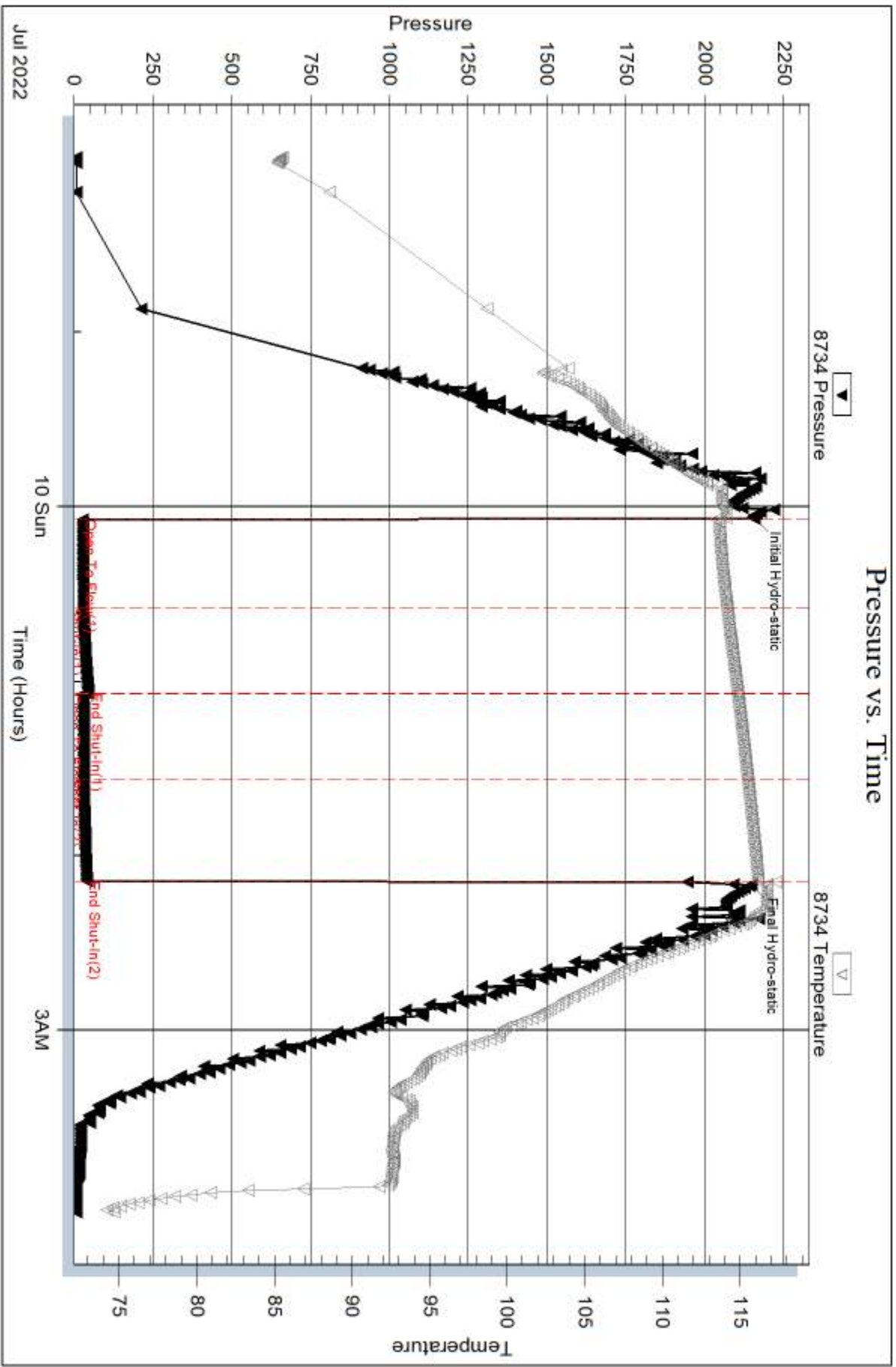
Num Gas Bombs: 0

Serial #:

Laboratory Name:

Laboratory Location:

Recovery Comments:



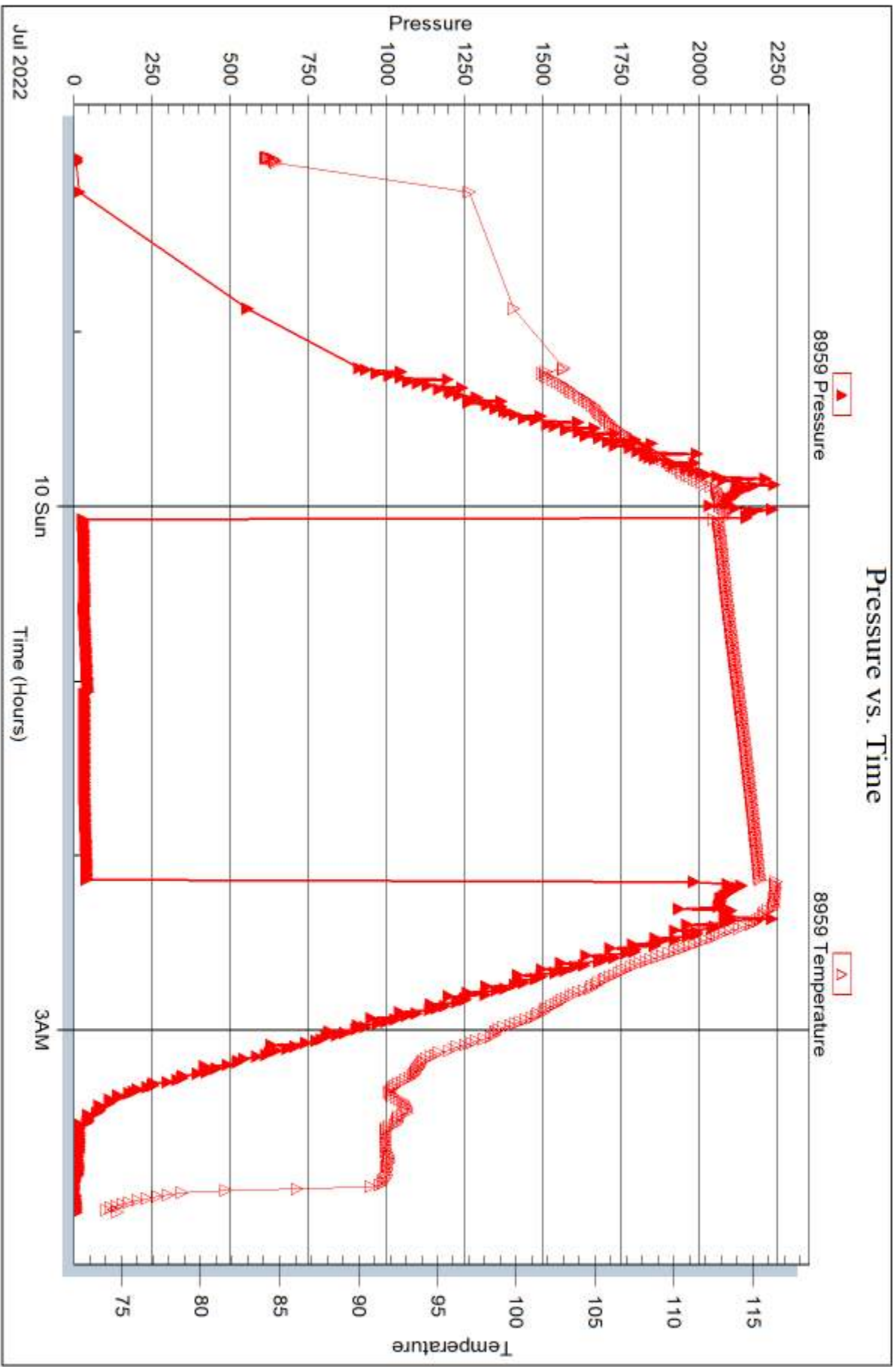
Serial #: 8959

Inside

Ritchie Exploration Inc

Ellis 23 D #4

DST Test Number: 6



Trilobite Testing, Inc

Ref. No: 69205

Printed: 2022.07.14 @ 09:47:41



DRILL STEM TEST REPORT

Prepared For: **Ritchie Exploration Inc**

PO Box 783188
Wichita, KS 67278

ATTN: Kent Matson

Ellis 23 D #4

23-14-32 Logan,KS

Start Date: 2022.07.10 @ 21:40:00

End Date: 2022.07.11 @ 05:06:30

Job Ticket #: 69206 DST #: 7

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

Printed: 2022.07.14 @ 09:43:44



**TRILOBITE
TESTING, INC**

DRILL STEM TEST REPORT

Ritchie Exploration Inc
PO Box 783188
Wichita, KS 67278
ATTN: Kent Matson

23-14-32 Logan,KS

Ellis 23 D #4

Job Ticket: 69206

DST#: 7

Test Start: 2022.07.10 @ 21:40:00

GENERAL INFORMATION:

Formation: **Ft. Scott - Johnson**

Deviated: No Whipstock: ft (KB)

Time Tool Opened: 23:39:20

Time Test Ended: 05:06:30

Test Type: Conventional Bottom Hole (Reset)

Tester: Martine Salinas

Unit No: 81

Interval: 4282.00 ft (KB) To 4390.00 ft (KB) (TVD)

Total Depth: 4390.00 ft (KB) (TVD)

Hole Diameter: 7.88 inches Hole Condition: Good

Reference Elevations: 2768.00 ft (KB)

2761.00 ft (CF)

KB to GR/CF: 7.00 ft

Serial #: 8734 Outside

Press@RunDepth: 108.04 psig @ 4283.00 ft (KB)

Start Date: 2022.07.10

End Date:

2022.07.11

Start Time: 21:40:01

End Time:

05:06:30

Capacity: 8000.00 psig

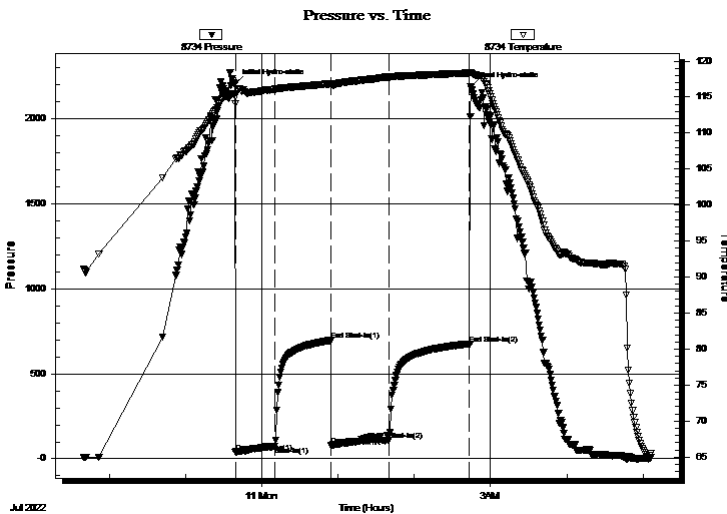
Last Calib.: 2022.07.11

Time On Btm: 2022.07.10 @ 23:39:10

Time Off Btm: 2022.07.11 @ 02:44:30

TEST COMMENT: 30-IF- Blow built to 2"
45-ISI-No return
45-FF- Blow built to 1 1/2"
60-FSI-No return

PRESSURE SUMMARY



Time (Min.)	Pressure (psig)	Temp (deg F)	Annotation
0	2210.19	115.44	Initial Hydro-static
1	38.85	114.12	Open To Flow (1)
32	73.81	116.11	Shut-In(1)
76	696.49	116.85	End Shut-In(1)
76	79.30	116.66	Open To Flow (2)
122	108.04	117.78	Shut-In(2)
185	676.25	118.35	End Shut-In(2)
186	2188.57	118.43	Final Hydro-static

Recovery

Length (ft)	Description	Volume (bbl)
150.00	100% Mud	1.00

Gas Rates

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

* Recovery from multiple tests



**TRILOBITE
TESTING, INC**

DRILL STEM TEST REPORT

Ritchie Exploration Inc

23-14-32 Logan,KS

PO Box 783188
Wichita, KS 67278

Ellis 23 D #4

Job Ticket: 69206

DST#: 7

ATTN: Kent Matson

Test Start: 2022.07.10 @ 21:40:00

GENERAL INFORMATION:

Formation: **Ft. Scott - Johnson**

Deviated: No Whipstock: ft (KB)

Time Tool Opened: 23:39:20

Time Test Ended: 05:06:30

Interval: 4282.00 ft (KB) To 4390.00 ft (KB) (TVD)

Total Depth: 4390.00 ft (KB) (TVD)

Hole Diameter: 7.88 inches Hole Condition: Good

Test Type: Conventional Bottom Hole (Reset)

Tester: Martine Salinas

Unit No: 81

Reference Elevations: 2768.00 ft (KB)

2761.00 ft (CF)

KB to GR/CF: 7.00 ft

Serial #: 8959 Inside

Press@RunDepth: psig @ 4283.00 ft (KB)

Start Date: 2022.07.10

End Date:

2022.07.11

Start Time: 21:40:01

End Time:

05:06:30

Capacity: 8000.00 psig

Last Calib.:

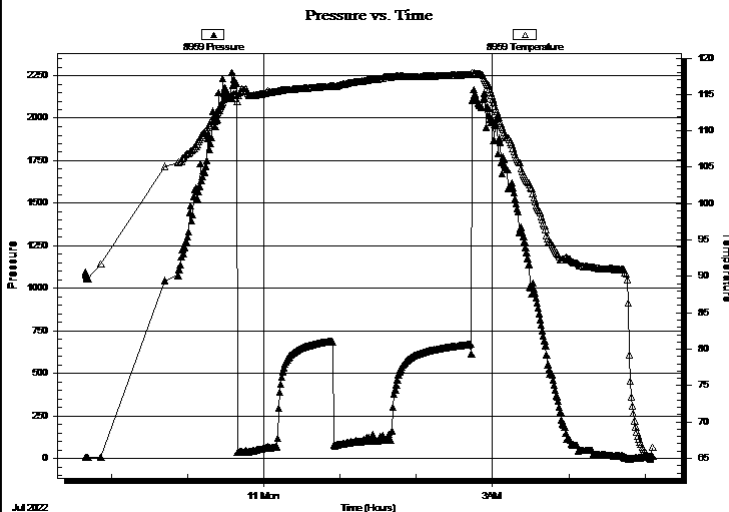
2022.07.11

Time On Btm:

Time Off Btm:

TEST COMMENT: 30-IF- Blow built to 2"
45-ISI-No return
45-FF- Blow built to 1 1/2"
60-FSI-No return

PRESSURE SUMMARY



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

Recovery

Length (ft)	Description	Volume (bbl)
150.00	100% Mud	1.00

Gas Rates

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

* Recovery from multiple tests



**TRILOBITE
TESTING, INC**

DRILL STEM TEST REPORT

TOOL DIAGRAM

Ritchie Exploration Inc

23-14-32 Logan,KS

PO Box 783188
Wichita, KS 67278

Ellis 23 D #4

Job Ticket: 69206

DST#: 7

ATTN: Kent Matson

Test Start: 2022.07.10 @ 21:40:00

Tool Information

Drill Pipe:	Length: 4133.00 ft	Diameter: 3.80 inches	Volume: 57.98 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: 121.00 ft	Diameter: 2.25 inches	Volume: 0.60 bbl	Weight to Pull Loose: 65000.00 lb
			<u>Total Volume: 58.58 bbl</u>	Tool Chased 0.00 ft
Drill Pipe Above KB:	5.00 ft			String Weight: Initial 60000.00 lb
Depth to Top Packer:	4282.00 ft			Final 60000.00 lb
Depth to Bottom Packer:	ft			
Interval between Packers:	108.00 ft			
Tool Length:	141.00 ft			
Number of Packers:	2	Diameter: 6.75 inches		

Tool Comments: Mild Plugging on FFP

Tool Description

Tool Description	Length (ft)	Serial No.	Position	Depth (ft)	Accum. Lengths
Change Over Sub	1.00			4250.00	
Shut In Tool	5.00			4255.00	
Hydraulic tool	5.00	1113		4260.00	
Jars	5.00	01-07		4265.00	
EM Tool	5.00			4270.00	
Safety Joint	3.00	-001		4273.00	
Packer	5.00			4278.00	33.00 Bottom Of Top Packer
Packer	4.00			4282.00	
Stubb	1.00			4283.00	
Recorder	0.00	8959	Inside	4283.00	
Recorder	0.00	8734	Outside	4283.00	
Perforations	6.00			4289.00	
Change Over Sub	1.00			4290.00	
Drill Pipe	94.00			4384.00	
Change Over Sub	1.00			4385.00	
Bullnose	5.00			4390.00	108.00 Bottom Packers & Anchor
Total Tool Length:	141.00				



**TRILOBITE
TESTING, INC**

DRILL STEM TEST REPORT

FLUID SUMMARY

Ritchie Exploration Inc

23-14-32 Logan,KS

PO Box 783188
Wichita, KS 67278

Ellis 23 D #4

Job Ticket: 69206

DST#: 7

ATTN: Kent Matson

Test Start: 2022.07.10 @ 21:40:00

Mud and Cushion Information

Mud Type: Gel Chem

Cushion Type:

Oil API:

deg API

Mud Weight: 10.00 lb/gal

Cushion Length:

ft

Water Salinity:

ppm

Viscosity: 59.00 sec/qt

Cushion Volume:

bbbl

Water Loss: 9.58 in³

Gas Cushion Type:

Resistivity: ohm.m

Gas Cushion Pressure:

psig

Salinity: 4500.00 ppm

Filter Cake: 1.00 inches

Recovery Information

Recovery Table

Length ft	Description	Volume bbl
150.00	100% Mud	1.002

Total Length: 150.00 ft Total Volume: 1.002 bbl

Num Fluid Samples: 0

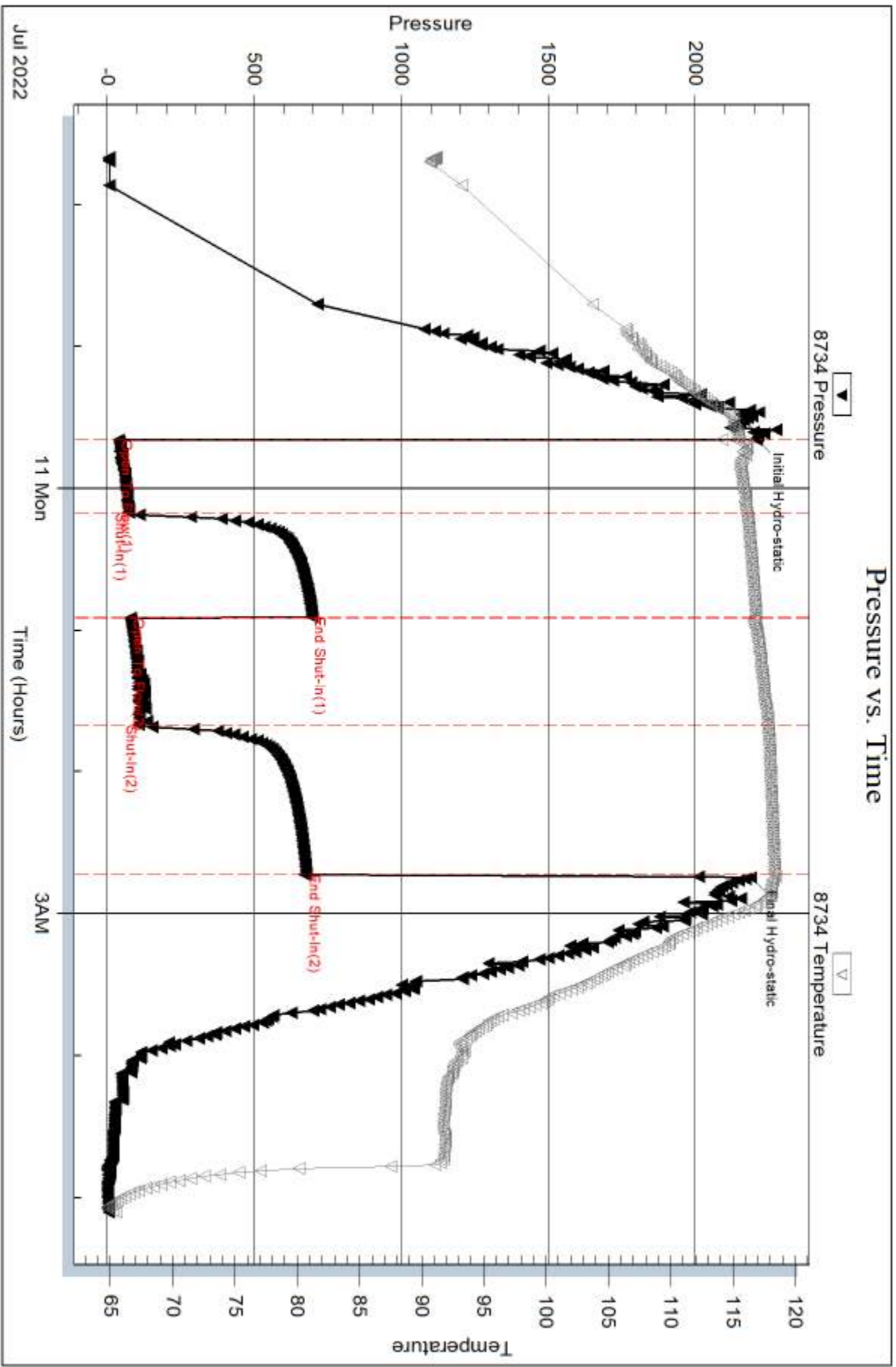
Num Gas Bombs: 0

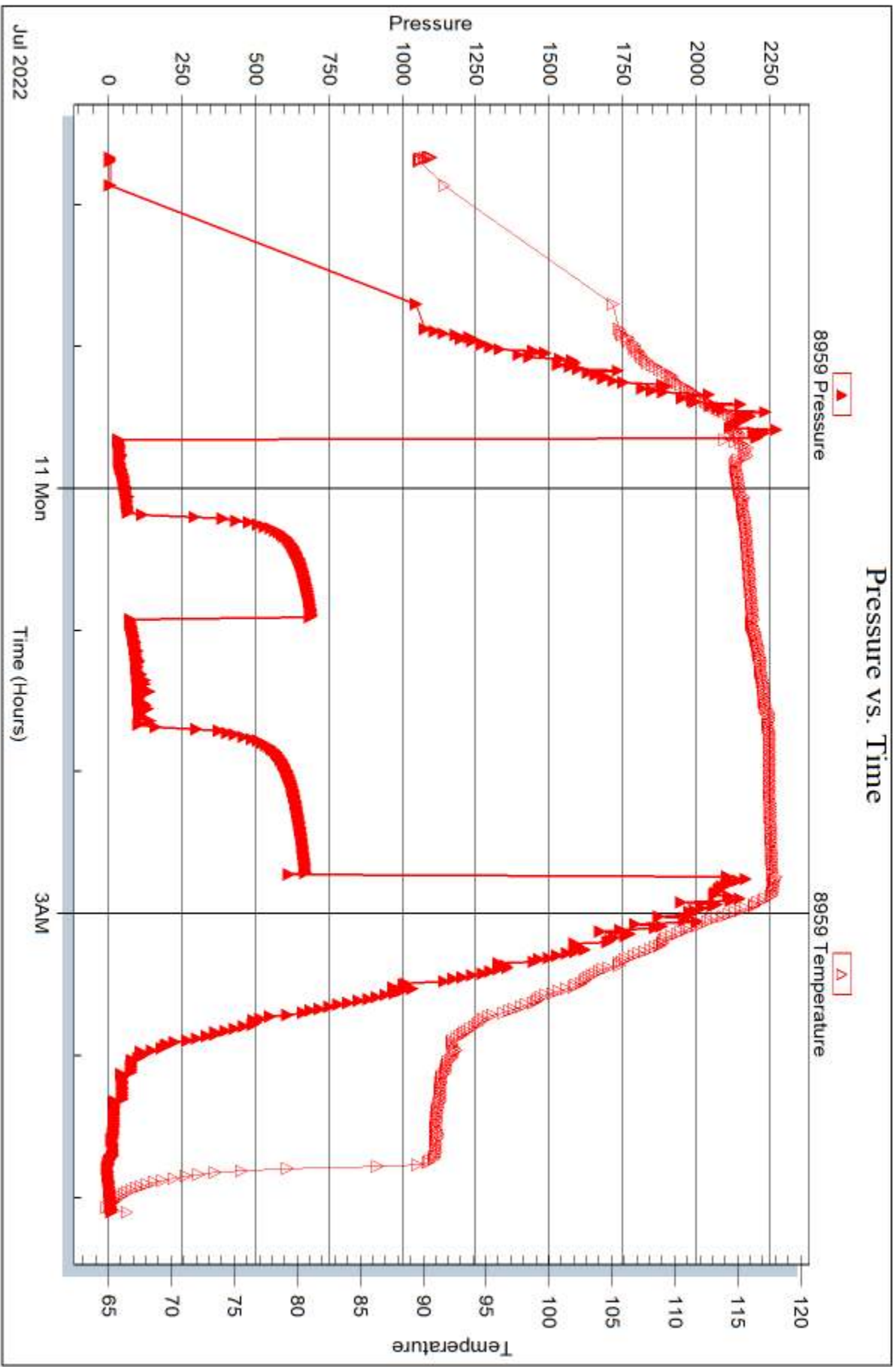
Serial #:

Laboratory Name:

Laboratory Location:

Recovery Comments:







DRILL STEM TEST REPORT

Prepared For: **Ritchie Exploration INC**

PO Box 783188
Wichita, KS 67278

ATTN: Kent Matson

Ellis 23 D #4

23-14-32 Logan,KS

Start Date: 2022.07.11 @ 14:10:00

End Date: 2022.07.11 @ 19:44:50

Job Ticket #: 69207 DST #: 8

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

Printed: 2022.07.14 @ 09:39:28



**TRILOBITE
TESTING, INC**

DRILL STEM TEST REPORT

Ritchie Exploration INC

23-14-32 Logan,KS

PO Box 783188
Wichita, KS 67278

Ellis 23 D #4

Job Ticket: 69207

DST#: 8

ATTN: Kent Matson

Test Start: 2022.07.11 @ 14:10:00

GENERAL INFORMATION:

Formation: **Morrow**

Deviated: No Whipstock: ft (KB)

Time Tool Opened: 15:56:20

Time Test Ended: 19:44:50

Test Type: Conventional Bottom Hole (Reset)

Tester: Martine Salinas

Unit No: 81

Interval: 4390.00 ft (KB) To 4412.00 ft (KB) (TVD)

Reference Elevations: 2768.00 ft (KB)

Total Depth: 4412.00 ft (KB) (TVD)

2761.00 ft (CF)

Hole Diameter: 7.88 inches Hole Condition: Good

KB to GR/CF: 7.00 ft

Serial #: 8734 Outside

Press@RunDepth: 35.09 psig @ 4391.00 ft (KB)

Capacity: 8000.00 psig

Start Date: 2022.07.11 End Date: 2022.07.11

Last Calib.: 2022.07.11

Start Time: 14:10:01 End Time: 19:44:50

Time On Btm: 2022.07.11 @ 15:56:10

Time Off Btm: 2022.07.11 @ 18:01:20

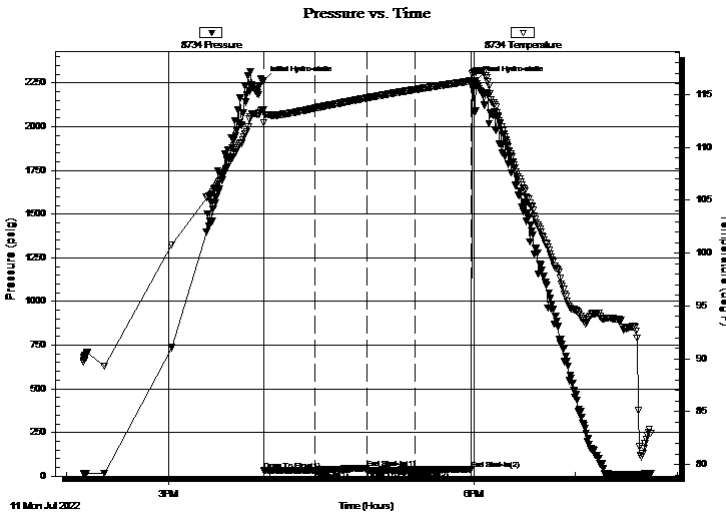
TEST COMMENT: 30-IF-Surface blow dead @ 15 mins

30-ISI-No return

30-FF-No blow

30-FSI-No return

PRESSURE SUMMARY



Time (Min.)	Pressure (psig)	Temp (deg F)	Annotation
0	2266.07	113.60	Initial Hydro-static
1	31.16	112.34	Open To Flow (1)
31	34.79	113.71	Shut-In(1)
61	46.02	114.68	End Shut-In(1)
62	34.58	114.69	Open To Flow (2)
90	35.09	115.48	Shut-In(2)
123	40.08	116.29	End Shut-In(2)
126	2262.31	117.14	Final Hydro-static

Recovery

Length (ft)	Description	Volume (bbl)
3.00	100% Mud	0.01

* Recovery from multiple tests

Gas Rates

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



TRILOBITE TESTING, INC

DRILL STEM TEST REPORT

Ritchie Exploration INC

23-14-32 Logan,KS

PO Box 783188
Wichita, KS 67278

Ellis 23 D #4

Job Ticket: 69207

DST#: 8

ATTN: Kent Matson

Test Start: 2022.07.11 @ 14:10:00

GENERAL INFORMATION:

Formation: **Morrow**

Deviated: No Whipstock: ft (KB)

Time Tool Opened: 15:56:20

Time Test Ended: 19:44:50

Test Type: Conventional Bottom Hole (Reset)

Tester: Martine Salinas

Unit No: 81

Interval: 4390.00 ft (KB) To 4412.00 ft (KB) (TVD)

Reference Elevations: 2768.00 ft (KB)

Total Depth: 4412.00 ft (KB) (TVD)

2761.00 ft (CF)

Hole Diameter: 7.88 inches Hole Condition: Good

KB to GR/CF: 7.00 ft

Serial #: 8959 Inside

Press@RunDepth: psig @ 4391.00 ft (KB)

Capacity: 8000.00 psig

Start Date: 2022.07.11

End Date:

2022.07.11

Last Calib.:

2022.07.11

Start Time: 14:10:01

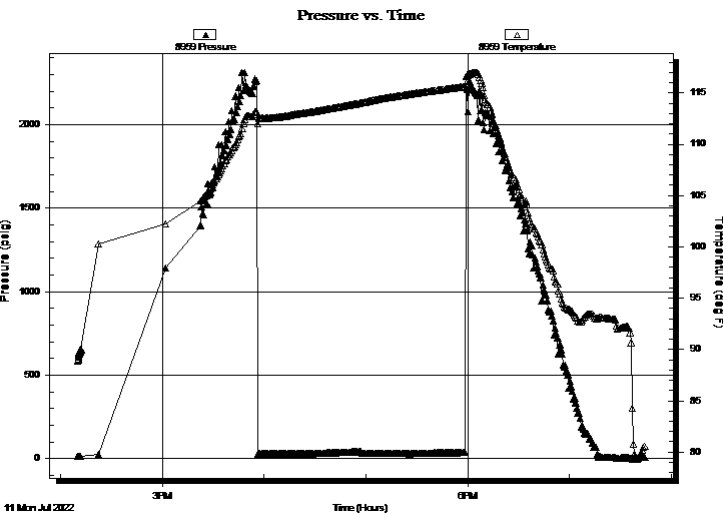
End Time:

19:44:50

Time On Btm:

Time Off Btm:

TEST COMMENT: 30-IF-Surface blow dead @ 15 mins
30-ISI-No return
30-FF-No blow
30-FSI-No return



PRESSURE SUMMARY

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

Recovery

Gas Rates

Length (ft)	Description	Volume (bbl)
3.00	100% Mud	0.01

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

* Recovery from multiple tests



**TRILOBITE
TESTING, INC**

DRILL STEM TEST REPORT

TOOL DIAGRAM

Ritchie Exploration INC

23-14-32 Logan,KS

PO Box 783188
Wichita, KS 67278

Ellis 23 D #4

Job Ticket: 69207

DST#: 8

ATTN: Kent Matson

Test Start: 2022.07.11 @ 14:10:00

Tool Information

Drill Pipe:	Length: 4259.00 ft	Diameter: 3.80 inches	Volume: 59.74 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: 121.00 ft	Diameter: 2.25 inches	Volume: 0.60 bbl	Weight to Pull Loose: 85000.00 lb
			<u>Total Volume: 60.34 bbl</u>	Tool Chased 0.00 ft
Drill Pipe Above KB:	23.00 ft			String Weight: Initial 60000.00 lb
Depth to Top Packer:	4390.00 ft			Final 60000.00 lb
Depth to Bottom Packer:	ft			
Interval between Packers:	22.00 ft			
Tool Length:	55.00 ft			
Number of Packers:	2	Diameter: 6.75 inches		

Tool Comments:

Tool Description	Length (ft)	Serial No.	Position	Depth (ft)	Accum. Lengths
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Change Over Sub	1.00			4358.00	
Shut In Tool	5.00			4363.00	
Hydraulic tool	5.00	1113		4368.00	
Jars	5.00	01-07		4373.00	
EM Tool	5.00			4378.00	
Safety Joint	3.00	-001		4381.00	
Packer	5.00			4386.00	33.00 Bottom Of Top Packer
Packer	4.00			4390.00	
Stubb	1.00			4391.00	
Recorder	0.00	8959	Inside	4391.00	
Recorder	0.00	8734	Outside	4391.00	
Perforations	16.00			4407.00	
Bullnose	5.00			4412.00	22.00 Bottom Packers & Anchor

Total Tool Length: 55.00



**TRILOBITE
TESTING, INC**

DRILL STEM TEST REPORT

FLUID SUMMARY

Ritchie Exploration INC

23-14-32 Logan,KS

PO Box 783188
Wichita, KS 67278

Ellis 23 D #4

Job Ticket: 69207

DST#: 8

ATTN: Kent Matson

Test Start: 2022.07.11 @ 14:10:00

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: 61.00 sec/qt

Cushion Volume:

bbbl

Water Loss: 8.79 in³

Gas Cushion Type:

Resistivity: ohm.m

Gas Cushion Pressure:

psig

Salinity: 4800.00 ppm

Filter Cake: 1.00 inches

Recovery Information

Recovery Table

Length ft	Description	Volume bbl
3.00	100% Mud	0.015

Total Length: 3.00 ft Total Volume: 0.015 bbl

Num Fluid Samples: 0

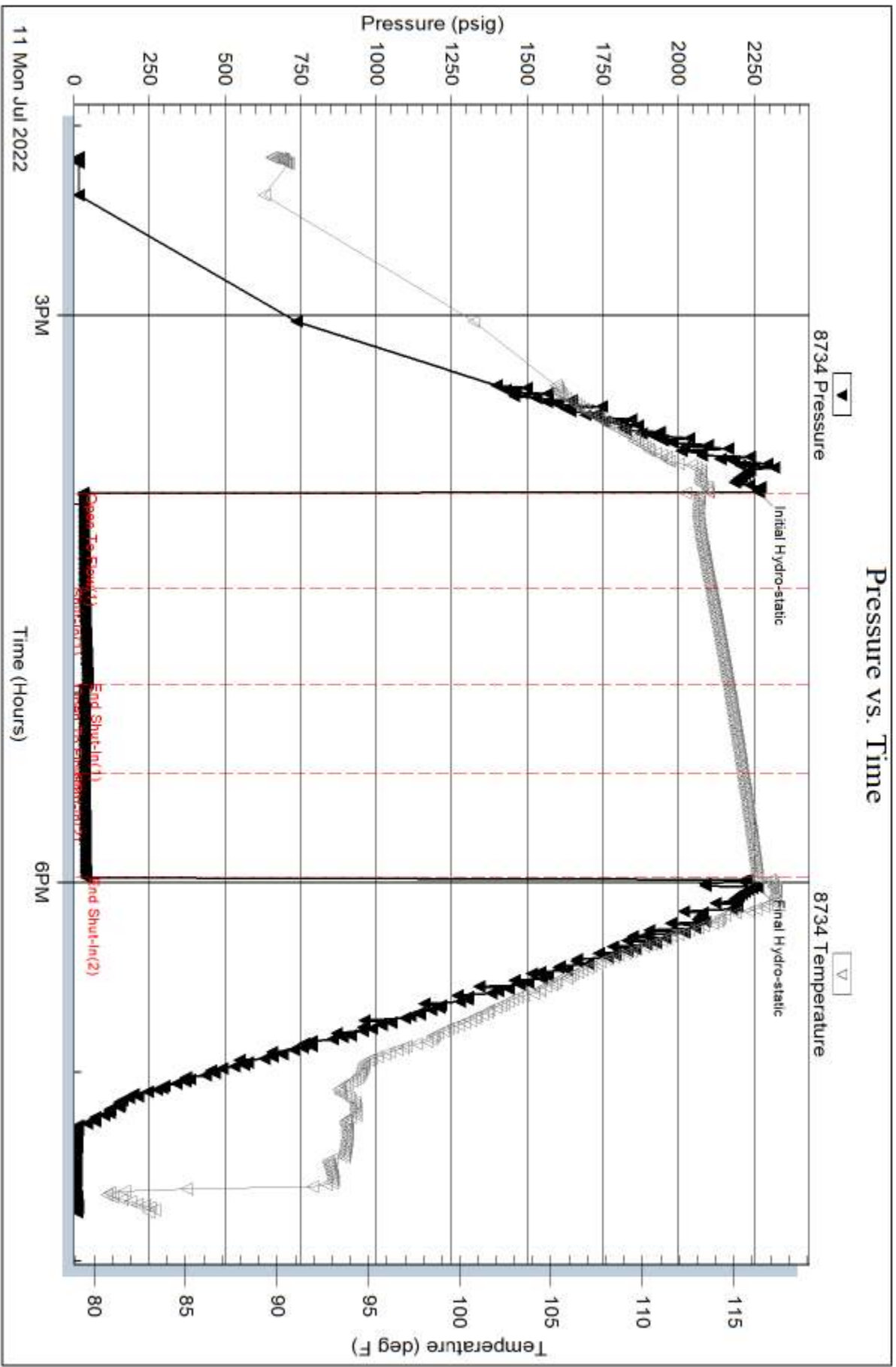
Num Gas Bombs: 0

Serial #:

Laboratory Name:

Laboratory Location:

Recovery Comments:



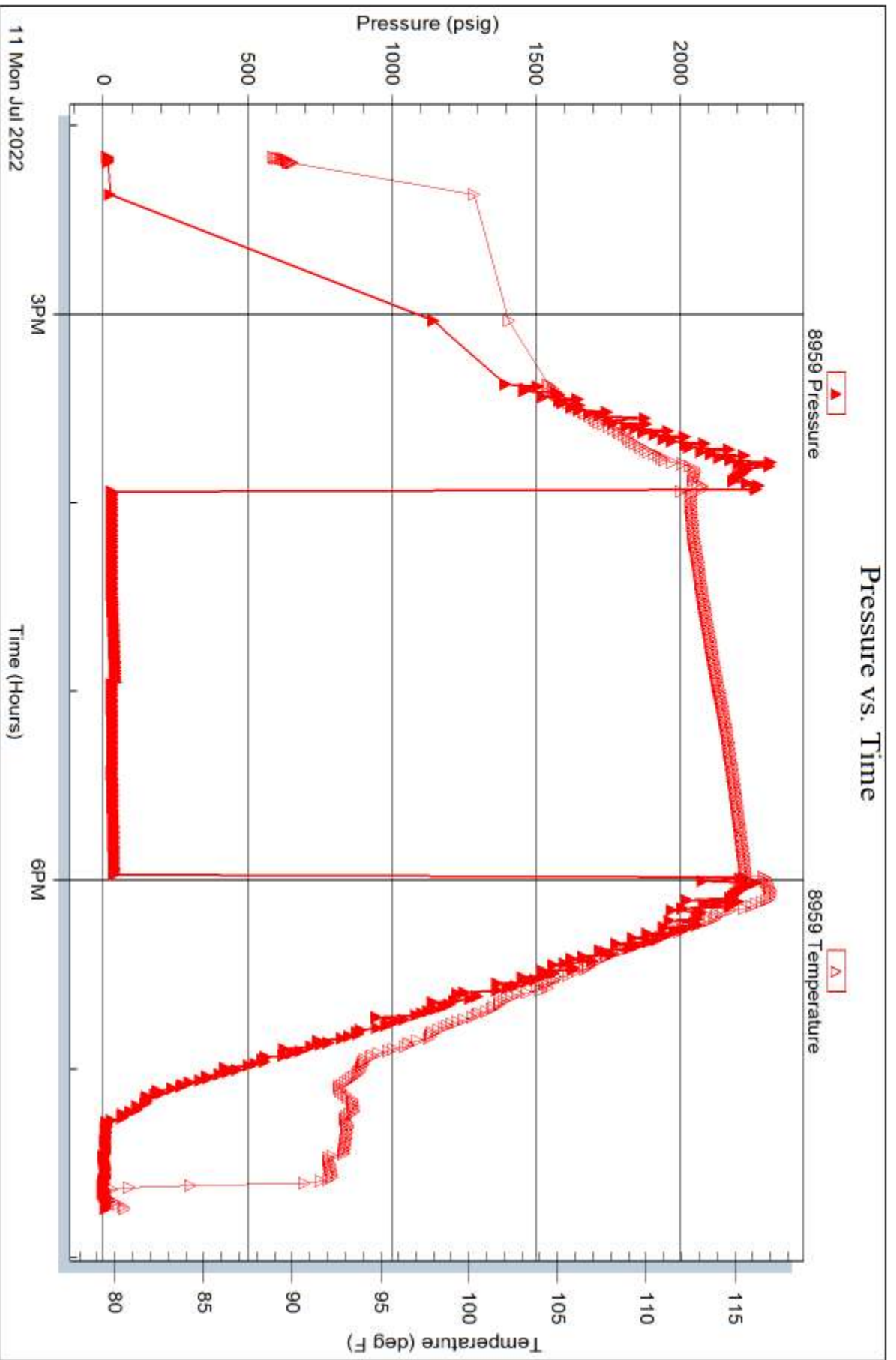
Serial #: 8959

Inside

Ritchie Exploration INC

Ellis 23 D #4

DST Test Number: 8



Tribble Testing, Inc

Ref. No: 69207

Printed: 2022.07.14 @ 09:39:29



TRILOBITE TESTING INC.

1515 Commerce Parkway • Hays, Kansas 67601

Test Ticket

NO. **67950**

Well Name & No. Ellis 23D #4 Test No. 1 Date 7-5-22
 Company Ritchie Exploration Inc. Elevation 2768 KB 2761 GL
 Address P.O. Box 783188 Wichita, KS 67278
 Co. Rep / Geo. Kent Matson Rig STP#1
 Location: Sec. 23 Twp 14 Rge. 32 Co. Logan State KS

Interval Tested 3806-3850 Zone Tested Lansing "C+D"
 Anchor Length 44' Drill Pipe Run 3661 Mud Wt. 9.1
 Top Packer Depth 3801 Drill Collars Run 121 Vis 50
 Bottom Packer Depth 3806 Wt. Pipe Run --- WL 7.2
 Total Depth 3950 Chlorides 2200 ppm System LCM 2#
 Blow Description IF: 1/4" blow dead @ 30 mins
ISI: No return.
FF: No blow
FSI: No return.

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

Rec Total 10 BHT 112 Gravity --- API RW --- @ --- F Chlorides --- ppm

(A) Initial Hydrostatic <u>1846</u>	<input checked="" type="checkbox"/> Test <u>1800</u>	T-On Location <u>03:45</u>
(B) First Initial Flow <u>31</u>	<input checked="" type="checkbox"/> Jars <u>300</u>	T-Started <u>04:42</u>
(C) First Final Flow <u>37</u>	<input checked="" type="checkbox"/> Safety Joint <u>---</u>	T-Open <u>06:54</u>
(D) Initial Shut-In <u>386</u>	<input type="checkbox"/> Circ Sub <u>---</u>	T-Pulled <u>09:24</u>
(E) Second Initial Flow <u>38</u>	<input type="checkbox"/> Hourly Standby <u>---</u>	T-Out <u>11:05</u>
(F) Second Final Flow <u>41</u>	<input checked="" type="checkbox"/> Mileage <u>59RT</u> 88.50	Comments <u>---</u>
(G) Final Shut-In <u>381</u>	<input type="checkbox"/> Sampler <u>---</u>	
(H) Final Hydrostatic <u>1812</u>	<input type="checkbox"/> Straddle <u>---</u>	<input checked="" type="checkbox"/> EM Tool <u>---</u>
Initial Open <u>30</u>	<input type="checkbox"/> Shale Packer <u>---</u>	<input type="checkbox"/> Ruined Shale Packer <u>---</u>
Initial Shut-In <u>45</u>	<input type="checkbox"/> Extra Packer <u>---</u>	<input type="checkbox"/> Ruined Packer <u>---</u>
Final Flow <u>30</u>	<input type="checkbox"/> Extra Recorder <u>---</u>	<input type="checkbox"/> Extra Copies <u>---</u>
Final Shut-In <u>45</u>	<input type="checkbox"/> Day Standby <u>---</u>	Sub Total <u>0</u>
	<input type="checkbox"/> Accessibility <u>---</u>	Total <u>2188.50</u>
	Sub Total <u>2188.50</u>	MP/DST Disc't <u>---</u>

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. 69201

Well Name & No. Ellis 23D #4 Test No. 2 Date 7-5-22
 Company Ritchie Exploration, INC Elevation 2768 KB 2761 GL
 Address P.O. Box 783188 Wichita, KS 67278
 Co. Rep / Geo. Kent Matson Rig STP #1
 Location: Sec. 23 Twp 14 Rge. 32 Co. Logan State KS

Interval Tested 3856-3878 Zone Tested Causing "E"
 Anchor Length 22' Drill Pipe Run 3725 Mud Wt. 9.1
 Top Packer Depth 3851 Drill Collars Run 121 Vis 53
 Bottom Packer Depth 3856 Wt. Pipe Run — WL 7.2
 Total Depth 3878 Chlorides 3660 ppm System LCM 1#
 Blow Description IF - Blow built to 1/2"
ISE - No return.
FF - Blow built to 1/4"
FSI - No return.

Rec	Feet of	%gas	%oil	%water	%mud
<u>45</u>	<u>OCM</u>	<u>15</u>		<u>85</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 45 BHT 113 Gravity — API RW — @ — °F Chlorides — ppm

(A) Initial Hydrostatic <u>1887</u>	<input checked="" type="checkbox"/> Test <u>1800</u>	T-On Location <u>20:00</u>
(B) First Initial Flow <u>30</u>	<input checked="" type="checkbox"/> Jars <u>300</u>	T-Started <u>20:11</u>
(C) First Final Flow <u>42</u>	<input checked="" type="checkbox"/> Safety Joint	T-Open <u>21:48</u>
(D) Initial Shut-In <u>245</u>	<input type="checkbox"/> Circ Sub	T-Pulled <u>00:48</u>
(E) Second Initial Flow <u>43</u>	<input type="checkbox"/> Hourly Standby	T-Out <u>03:05</u>
(F) Second Final Flow <u>53</u>	<input checked="" type="checkbox"/> Mileage <u>59RT</u> 88.50	Comments
(G) Final Shut-In <u>234</u>	<input type="checkbox"/> Sampler	
(H) Final Hydrostatic <u>1880</u>	<input type="checkbox"/> Straddle	<input checked="" 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>45</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>2188.50</u>
	Sub Total <u>2188.50</u>	MP/DST Disc't

Approved By _____ Our Representative Kent Matson

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. 69202

Well Name & No. Ellis 230 #4 Test No. 3 Date 7-6-22
 Company Ritchie Exploration INC Elevation 2768 KB 2761 GL
 Address P.O. Box 783188 Wichita, KS 67278
 Co. Rep / Geo. Kent Matson Rig STP #1
 Location: Sec. 23 Twp 14 Rge. 32 Co. Logan State KS

Interval Tested 3938 - 3978 Zone Tested Lansing "H"
 Anchor Length 40' Drill Pipe Run 3819 Mud Wt. 9.1
 Top Packer Depth ~~3933~~ 3933 Drill Collars Run 121 Vis 54
 Bottom Packer Depth 3938 Wt. Pipe Run — WL 8.0
 Total Depth 3978 Chlorides 3300 ppm System LCM 2H

Blow Description IF - Blow built to 1/8" & decreased to surface blow
ISI - No return.

FF - No blow @ 5 mins, flushed tool, No blow

FSI - No blow

Rec	Feet of	%gas	%oil	%water	%mud
<u>3</u>	<u>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	Feet of	%gas	%oil	%water	%mud

Rec Total 3 BHT 112 Gravity — API RW — @ — °F Chlorides — ppm

(A) Initial Hydrostatic 1972 Test 1800 T-On Location 21:45
 (B) First Initial Flow 32 Jars 300 T-Started 22:10
 (C) First Final Flow 31 Safety Joint — T-Open 21:57
 (D) Initial Shut-In 48 Circ Sub — T-Pulled 02:57
 (E) Second Initial Flow 31 Hourly Standby — T-Out 05:00
 (F) Second Final Flow 32 Mileage S9RT 88.50 Comments —
 (G) Final Shut-In 49 Sampler —
 (H) Final Hydrostatic 1953 Straddle — EM Tool —
 Shale Packer — Ruined Shale Packer —
 Extra Packer — Ruined Packer —
 Extra Recorder — Extra Copies —
 Day Standby — Sub Total 0
 Accessibility — Total 2188.50
 Sub Total 2188.50 MP/DST Disc't —

Initial Open 30
 Initial Shut-In 30
 Final Flow 30
 Final Shut-In 30

Approved By _____ Our Representative [Signature]

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TRILOBITE TESTING INC.

1515 Commerce Parkway • Hays, Kansas 67601

Test Ticket

NO. 69203

Well Name & No. Ellis 23D #4 Test No. 4 Date 7-7-20
 Company Ritchie Exploration INC Elevation 2768 KB 2761 GL
 Address P.O. Box 783188 Wichita, KS 67278
 Co. Rep / Geo. Kent Matson Rig STP #1
 Location: Sec. 23 Twp 14 Rge. 32 Co. Logan State KO

Interval Tested 3981-4030 Zone Tested Lansing "I+J"
 Anchor Length 49' Drill Pipe Run 3850 Mud Wt. 9.4
 Top Packer Depth 3976 Drill Collars Run 121 Vis 56
 Bottom Packer Depth 3981 Wt. Pipe Run — WL 9.6
 Total Depth 4030 Chlorides 3000 ppm System LCM 1#

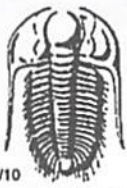
Blow Description IF - Weak surface bubbles dead @ 13 mins.
ISI - No return.
FF - No blow @ 5 mins, flushed tool, No blow
FSI - No return.

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

Rec Total 10 BHT 113 Gravity — API RW — @ — °F Chlorides — ppm

(A) Initial Hydrostatic 1984 Test 1950 T-On Location 15:45
 (B) First Initial Flow 28 Jars 300 T-Started 16:15
 (C) First Final Flow 32 Safety Joint — T-Open 18:39
 (D) Initial Shut-In 895 Circ Sub — T-Pulled 20:32
 (E) Second Initial Flow 33 Hourly Standby — T-Out 22:20
 (F) Second Final Flow 38 Mileage 59RT 88.50 Comments —
 (G) Final Shut-In 900 Sampler —
 (H) Final Hydrostatic 1993 Straddle — EM Tool —
 Shale Packer — Ruined Shale Packer —
 Extra Packer — Ruined Packer —
 Extra Recorder — Extra Copies —
 Day Standby — Sub Total 0
 Accessibility — Total 2338.50
 Sub Total 2338.50 MP/DST Disc't —

Approved By _____ Our Representative [Signature]
 Tritobite 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. 69204

Well Name & No. Ellis 23D #4 Test No. 5 Date 7-9-22
 Company Ritchie Exploration, Inc Elevation 2768 KB 2761 GL
 Address P.O. Box 783188 Wichita, KS 67278
 Co. Rep / Geo. Kent Matson Rig STP#1
 Location: Sec. 23 Twp 14 Rge. 32 Co. Logan State KS

Interval Tested 4220-4260 Zone Tested Pawnee
 Anchor Length 40' Drill Pipe Run 4102 Mud Wt. 9.3
 Top Packer Depth 4215 Drill Collars Run 121 Vis 56
 Bottom Packer Depth 4220 Wt. Pipe Run — WL 8.8
 Total Depth 4260 Chlorides 3500 ppm System LCM L#

Blow Description IF: Weak surface bubbles dead @ 13 mins.
ISI: No return.
EF: No blow, flushed tool, weak surface blow dead @ 20 mins
FST: No return.

Rec	Feet of	%gas	%oil	%water	%mud
<u>5</u>	<u>0.5M</u>	<u>2</u>		<u>98</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 5 BHT 118 Gravity — API RW — @ — °F Chlorides — ppm

(A) Initial Hydrostatic <u>2134</u>	<input checked="" type="checkbox"/> Test <u>1950</u>	T-On Location <u>07:36</u>
(B) First Initial Flow <u>30</u>	<input checked="" type="checkbox"/> Jars <u>300</u>	T-Started <u>07:59</u>
(C) First Final Flow <u>32</u>	<input checked="" type="checkbox"/> Safety Joint	T-Open <u>10:03</u>
(D) Initial Shut-In <u>727</u>	<input type="checkbox"/> Circ Sub	T-Pulled <u>12:03</u>
(E) Second Initial Flow <u>34</u>	<input type="checkbox"/> Hourly Standby	T-Out <u>14:00</u>
(F) Second Final Flow <u>36</u>	<input checked="" type="checkbox"/> Mileage <u>59 RT</u> 88.50	Comments
(G) Final Shut-In <u>837</u>	<input type="checkbox"/> Sampler	
(H) Final Hydrostatic <u>2101</u>	<input type="checkbox"/> Straddle	<input checked="" type="checkbox"/> EM Tool
Initial Open <u>30</u>	<input type="checkbox"/> Shale Packer	<input type="checkbox"/> Ruined Shale Packer
Initial Shut-In <u>30</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>30</u>	<input checked="" type="checkbox"/> Day Standby <u>1d 9.25h</u>	Sub Total <u>308.33</u>
	<input type="checkbox"/> Accessibility	Total <u>2646.83</u>
	Sub Total <u>2338.50</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. 69205

Well Name & No. Ellis 230 #4 Test No. 6 Date 7-9-22
 Company Ritchie Exploration Inc. Elevation 2768 KB 2761 GL
 Address P.O. Box 783188 Wichita, KS 67278
 Co. Rep / Geo. Kent Matson Rig STP#1
 Location: Sec. 23 Twp 14 Rge. 32 Co. Logan State KS

Interval Tested 4258-4282 Zone Tested Myrick Station
 Anchor Length 24' Drill Pipe Run 4133 Mud Wt. 9.2
 Top Packer Depth 4253 Drill Collars Run 121 Vis 52
 Bottom Packer Depth 4258 Wt. Pipe Run — WL 8.8
 Total Depth 4282 Chlorides 3600 ppm System LCM LH

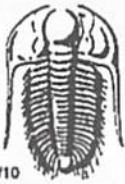
Blow Description IF - Strong surface blow dead @ 18 min
ISI - No return
FF - No blow
FSI - No return

Rec	Feet of	%gas	%oil	%water	%mud
<u>1</u>	<u>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	Feet of	%gas	%oil	%water	%mud

Rec Total 1 BHT 117 Gravity — API RW — @ — °F Chlorides — ppm

(A) Initial Hydrostatic 2157 Test 1950 T-On Location 21:30
 (B) First Initial Flow 28 Jars 300 T-Started 22:40
 (C) First Final Flow 31 Safety Joint — T-Open 00:04
 (D) Initial Shut-In 46 Circ Sub — T-Pulled 02:04
 (E) Second Initial Flow 30 Hourly Standby — T-Out 04:02
 (F) Second Final Flow 30 Mileage 59 RT 88.50 Comments —
 (G) Final Shut-In 41 Sampler —
 (H) Final Hydrostatic 2147 Straddle — EM Tool —
 Shale Packer — Ruined Shale Packer —
 Extra Packer — Ruined Packer —
 Extra Recorder — Extra Copies —
 Day Standby — Sub Total 0
 Accessibility — Total 2338.50
 Sub Total 2338.50 MP/DST Disc't —

Approved By — Our Representative *Kent Matson*
 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. 69206

Well Name & No. Ellis 23D #4 Test No. 7 Date 7-10-22
 Company Ritchie Exploration Inc Elevation 2763 KB 2761 GL
 Address P.O. Box 733138 Wichita, KS 67278
 Co. Rep / Geo. Kent Matson Rig STP #1
 Location: Sec. 23 Twp 14 Rge. 32 Co. Logan State KS

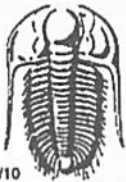
Interval Tested 4282 - 4390 Zone Tested Ft. Scott, Cherokee, Johnson
 Anchor Length 108 Drill Pipe Run 4133 Mud Wt. 9.5
 Top Packer Depth 4277 Drill Collars Run 121 Vis 59
 Bottom Packer Depth 4282 Wt. Pipe Run — WL 9.6
 Total Depth 4390 Chlorides 4500 ppm System LCM 1/2#
 Blow Description JE Blow built to 2"
ISE - No returns
FE - Blow built to 1 1/2"
FSI - No returns

Rec	Feet of	%gas	%oil	%water	%mud
<u>150</u>	<u>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	Feet of	%gas	%oil	%water	%mud

Rec Total 150 BHT 118 Gravity — API RW — @ — °F Chlorides — ppm

(A) Initial Hydrostatic 2210 Test 1950 T-On Location 21:00
 (B) First Initial Flow 39 Jars 300 T-Started 21:40
 (C) First Final Flow 74 Safety Joint — T-Open 23:39
 (D) Initial Shut-In 696 Circ Sub — T-Pulled 02:39
 (E) Second Initial Flow 79 Hourly Standby — T-Out 05:06
 (F) Second Final Flow 108 Mileage 59RT 88.50 Comments Mild plugging on FFP
 (G) Final Shut-In 676 Sampler —
 (H) Final Hydrostatic 2189 Straddle — EM Tool —
 Shale Packer — Ruined Shale Packer —
 Extra Packer — Ruined Packer —
 Extra Recorder — Extra Copies —
 Day Standby — Sub Total 0
 Accessibility — Total 2338.50
 Sub Total 2338.50 MP/DST Disc't —

Approved By _____ Our Representative Mattie Jones
 Trilobite Testing Inc. shall not be liable for damaged or 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. **69207**

Well Name & No. Ellis 23D #4 Test No. 8 Date 7-11-22
 Company Ritchie Exploration, Inc Elevation 2768 KB 2761 GL
 Address P.O. Box 783183 Wichita, KS 67278
 Co. Rep / Geo. Kent Matson Rig STP #1
 Location: Sec. 23 Twp 14 Rge. 32 Co. Logan State KS

Interval Tested 4390 - 4412 Zone Tested Morrow
 Anchor Length 22' Drill Pipe Run 4259 Mud Wt. 9.4
 Top Packer Depth 4385 Drill Collars Run 121 Vis 61
 Bottom Packer Depth 4390 Wt. Pipe Run — WL 8.8
 Total Depth 4412 Chlorides 4800 ppm System LCM 1/2#

Blow Description IF - Surface blow dead @ 15 min

ISI - No return -

FF - No blow

FSI - No return

Rec	Feet of	%gas	%oil	%water	%mud
<u>3</u>	<u>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	Feet of	%gas	%oil	%water	%mud

Rec Total 3 BHT 117 Gravity — API RW — @ — °F Chlorides — ppm

(A) Initial Hydrostatic 2266
 (B) First Initial Flow 31
 (C) First Final Flow 35
 (D) Initial Shut-In 46
 (E) Second Initial Flow 35
 (F) Second Final Flow 35
 (G) Final Shut-In 40
 (H) Final Hydrostatic 2261

Initial Open 30
 Initial Shut-In 30
 Final Flow 30
 Final Shut-In 30

Test 1950
 Jars 300
 Safety Joint —
 Circ Sub —
 Hourly Standby —
 Mileage 59RT x 2 88.50 + 88.50
 Sampler —
 Straddle —
 Shale Packer —
 Extra Packer —
 Extra Recorder —
 Day Standby —
 Accessibility —
 Sub Total 2427

T-On Location 13:45
 T-Started 14:10
 T-Open 15:56
 T-Pulled 17:56
 T-Out 19:45
 Comments Tools loaded @ 15:00
 EM Tool —
 Ruined Shale Packer —
 Ruined Packer Bottom 460
 Extra Copies —
 Sub Total 460
 Total 2887
 MP/DST Disc't —

Approved By _____

Our Representative Kent Matson

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**Scale 1:240 (5"=100') Imperial
Measured Depth Log**

Well Name: ELLIS 23D
Well Id: #4
Location: 335' FSL, 1439' FEL, SE/4 Sec 23-T14S-R32W, Logan County, Kansas
License Number: API: 15-109-21639 **Region:** Logan County
Spud Date: 06/30/2022 **Drilling Completed:** 07/12/2022
Surface Coordinates: NAD83
Lat: 38.8161155, **Long:** -100.8411701
Bottom Hole Vertical hole
Coordinates:
Ground Elevation (ft): 2761' **K.B. Elevation (ft):** 2768'
Logged Interval (ft): 3500' **To:** RTD **Total Depth (ft):** 4490'
Formation: Mississippian at RTD
Type of Drilling Fluid: Chemical

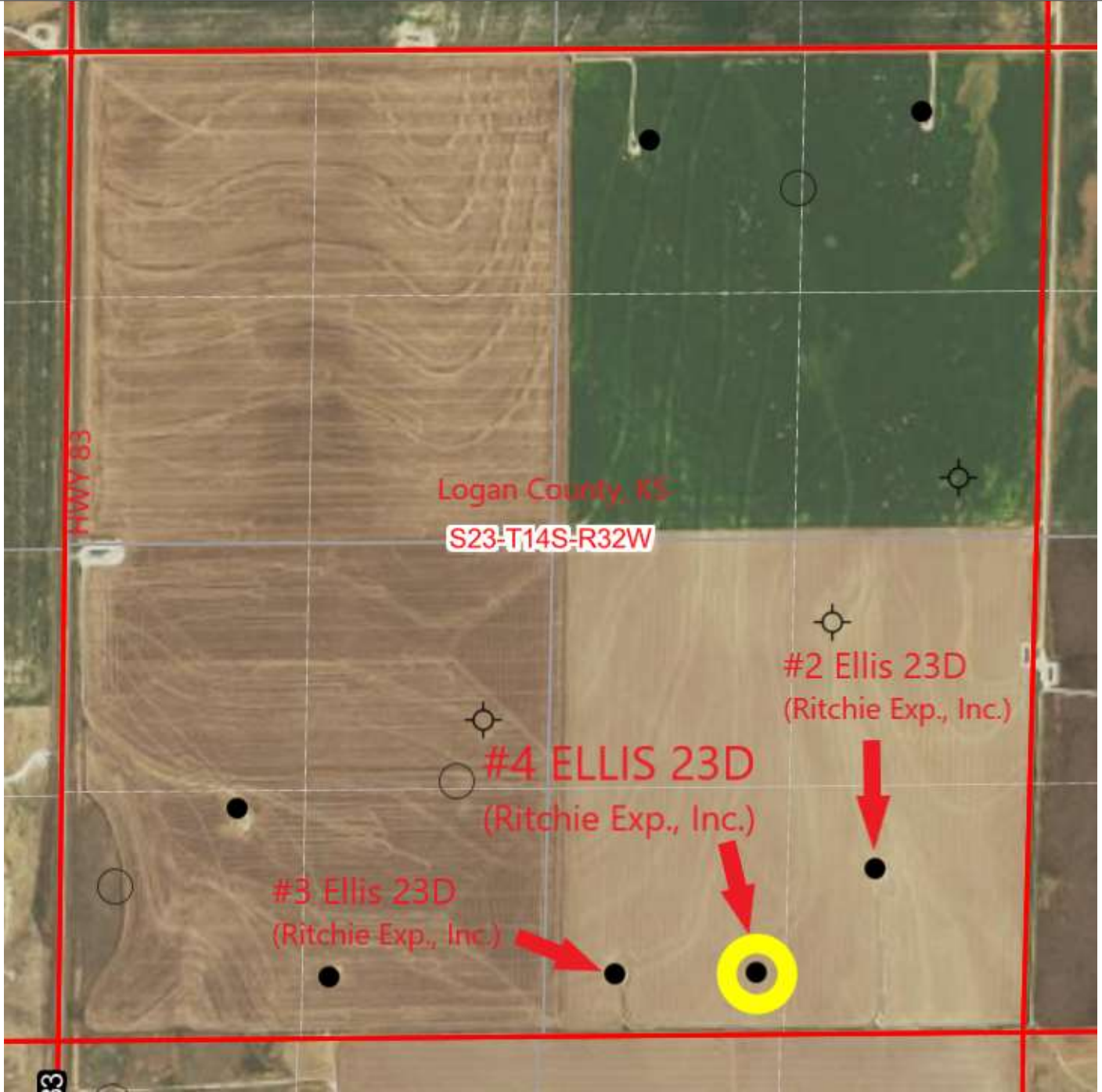
Printed by MudLog from WellSight Systems 1-800-447-1534 www.WellSight.com

OPERATOR

Company: RITCHIE EXPLORATION, INC.
Address: 8100 E. 22nd Street N., Bldg 700
Wichita, KS 67226
316-691-9500

WELLSITE GEOLOGIST

Name: Kent R. Matson
Company: Matson Geological Services, LLC
Address: 33300 W. 15th Street S.
Garden Plain, Kansas 67050
316-644-1975; kent4m@hotmail.com



COMMENTS

Ritchie Exploration Company Geologist: John Goldsmith, 316-640-0236 (cell).

Contractor: STP Drilling Company, LLC.: Rig #1.

Tool Pusher: Lonnie Lang, 785-769-4153 (cell).

Surface Casing: 8 5/8" set at 220' (KB) w/225sx cement.

Production Casing: Based on field observations of drill cuttings, DST results and electric log evaluation, production casing was not installed and the hole was plugged and abandoned.

Mud by: Mud-Co/Service Mud, Inc., Reid Atkins, 785-694-3741 (cell), Tony Maestas, 316-772-6679.

DST's by: Trilobite Testing, Martine Salinas, 785-639-2040 (cell).

Logs by: ELI Wireline (DI w/GR, CND, Micro, Sonic), Cole Robben, 785-735-7112 (office).

RTD= 4490'

LTD= 4490'

FORMATION TOPS

FORMATION	SAMPLE TOPS		LOG TOPS	
	Depth	Datum	Depth	Datum
Stotler	3380'	-612	3377'	-609
Heebner Shale	3746'	-978	3742'	-974
Lansing	3785'	-1017	3780'	-1012
Muncie Creek Shale	3942'	-1174	3939'	-1171
Stark Shale	4034'	-1266	4030'	-1262
Hushpuckney Shale	4069'	-1301	4065'	-1297
Base of KC	4102'	-1334	4098'	-1330
Marmaton	4137'	-1369	4134'	-1366
Pawnee	4238'	-1470	4234'	-1466
Myrick Station	4276'	-1508	4272'	-1504
Fort Scott	4292'	-1524	4288'	-1520
Cherokee Shale	4320'	-1552	4316'	-1548
Johnson	4360'	-1592	4358'	-1590
Mississippian	4408'	-1640	4406'	-1638
RTD	4490'	-1722		
LTD			4490'	-1722

ROCK TYPES

LITHOLOGY

	Anhy
	Cht
	Coal
	Congl
	Dol
	Gyp
	Lmst
	Salt
	Shale
	Shcol
	Shgy
	Sltst
	Ss
	Carb sh
	Dol
	Dtd
	Gry sh
	Sandy lms
	Shale
	Sltstn
	Shlyslts

	Sitysh
	Sdy dolo
	Silty dolo
	Shy dolo
	Shaly ls

FOSSIL

	Algae
	Amph
	Belm
	Bioclst
	Brach
	Bryozoa
	Cephal
	Coral
	Crin
	Echin
	Fish
	Foram
	Fossil
	Gastro
	Oolite

MINERAL

	Ostra
	Pelec
	Pellet
	Pisolite
	Plant
	Strom
	Fuss
	Oomold
	Anhy
	Arggrn
	Arg
	Bent
	Bit
	Brecfrag
	Calc
	Carb
	Chtdk
	Chtlit
	Dol
	Feldspar

	Ferrpel
	Ferr
	Glau
	Gyp
	Hvymn
	Kaol
	Marl
	Minxl
	Nodule
	Phos
	Pyr
	Salt
	Sandy
	Silt
	Sil
	Sulphur
	Tuff
	Chlorite
	Dol
	Sand
	Sly

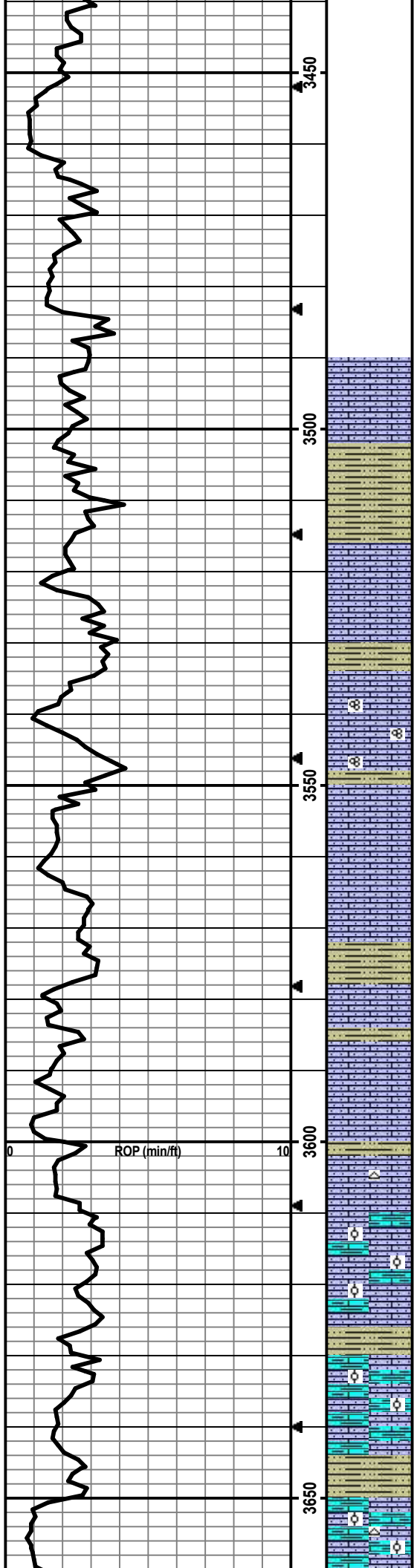
Rate of Penetration (ROP) ROP (min/ft)	DEPTH	Lithology	CFS Point	Oil Shows	Geological Descriptions	Remarks
	<p>32</p> <p>3300</p> <p>3350</p> <p>3400</p>				<p>Morning Report Depth/Activity (7:00 am) 06/29/2022: MIRU. 06/30: Spud, set surface casing @ 220' KB. 07/01: Drilling @ 300'. 07/02: Drilling @ 2227'. 07/03: Drilling @ 3074'. 07/04: Drilling @ 3620'. 07/05: DST #1 @ 3850'. 07/06: CTCH after DST #2 @ 3878'. 07/07: CTCH after DST #3 @ 3978'. 07/08: CFS @ 4095'. 07/09: TIH w/tool for DST #5 @ 4260'. 07/10: CTCH after DST #6 @ 4282'. 07/11: TIH w/bit after DST #7 @ 4390'. 07/12: CFS/CTCH @ TD @ 4490'. Electric logged.</p> <p>Anhydrite: Top @ 2219' (+549), Base @ 2244' (+524), (based on drill time). E-Log Top @ 2218' (+550), Base @ 2238' (+530).</p> <p>ROP Data begins @ 3300' on 07/03/2022. Recorded from drillers geolograph record, and geologist's auto-reader switch on geolograph.</p> <p>Drilling was conducted with a 7 7/8" tri-cone button bit.</p> <p>Geologist on location @ 3289', 07/03/2022.</p> <p>Formation tops and lithologies have been adjusted to</p>	<p>Mud-Co/Service Mud Inc. Check #1 @ 0' 06/27/22, predrilling instructions.</p> <p>Mud-Co/Service Mud Inc. Check #2 @ 2348' 07/02/22 09:30am wt vis pH chl 8.9 28 7.5 150 Filt LCM n/c tr</p> <p>Mud-Co/Service Mud Inc. Check #3 @ 3105' 07/03/22 07:40am wt vis pH chl 9.2 32 7 28000 Filt LCM n/c 2</p> <p>Displaced drilling mud @ 3420'-3433'.</p> <p>Mud-Co/Service Mud Inc. Check #4 @ 3694' 07/04/22 10:10am wt vis pH chl 9.1 50 11.5 2200 Filt LCM 7.2 2</p> <p>Mud-Co/Service Mud Inc. Check #5 @ 3850' 07/05/22 09:40am wt vis pH chl 9.1 53 11.0 3000 Filt LCM 7.2 2</p> <p>Mud-Co/Service Mud Inc. Check #6 @ 3898' 07/06/22 09:30am wt vis pH chl 9.1 58 10.5 3300 Filt LCM 8.0 1</p> <p>Mud-Co/Service Mud Inc. Check #7 @ 3978' 07/07/22 05:15am wt vis pH chl 9.4 56 9.5 3000 Filt LCM 9.6 1</p> <p>Mud-Co/Service Mud Inc. Check #8 @ 4120' 07/08/22 10:30am wt vis pH chl 9.4 63 10 3500 Filt LCM 8.8 1</p> <p>Mud-Co/Service Mud Inc. Check #9 @ 4260' 07/09/22 10:30am wt vis pH chl 9.4 54 10.5 3600 Filt LCM 8.8 1</p> <p>Mud-Co/Service Mud Inc. Check #10 @ 4310' 07/10/22 10:30am wt vis pH chl 9.5 59 10 4500 Filt LCM 9.6 1/2</p> <p>Mud-Co/Service Mud Inc. Check #11 @ 4401' 07/11/22 09:50am wt vis pH chl 9.4 61 10 4800 Filt LCM 8.8 tr</p>

Formation tops and lithologies have been adjusted to correlate to the electric log.

Oil Shows indicator: Left Block 0-10 tray pcs w/show, Middle Block 10-20 tray pcs w/show, Right Block 20+ tray pcs w/show.

NOTE: RED TEXT INDICATES THE PRESENCE OF OIL.

Survey Record
Deg @ Ft
0.75 @ 220'
0.25 @ 3850'
1.00 @ 4390'



Drill cutting samples at 10' intervals start at 3500'.

LS: cm/lt gry, vf-m xtal, vry sndy, chalky, no vis por, no odor, ns.

SH: lt-dk gry/red-bm, some vry silty, carb, soft-firm.

LS: cm/lt bm, micro-m xtal, some vry silty/sndy, min foss frags, no vis por, no odor, ns.

SH: lt-m gry/red bm/lt gry-green, some vry silty/sndy, carb, soft-firm.

LS: cm/lt bm/lt gry, vf-m xtal, chalky, silty/sndy, foss frags/fush, no vis por, no odor, ns.

LS: cm/lt-m gry/lt-m bm, vf-m xtal, silty/sndy, chalky, foss frags/grainy, no vis por, no odor, ns.

SH: lt-dk gry/bm/red-bm, some vry silty/sndy, carb, soft-firm.

LS: cm/lt bm/lt gry, micro-f xtal, silty/sndy, min chalky, foss frags, no vis por, no odor, ns.

No sample collected at 3610'; Assume LS.

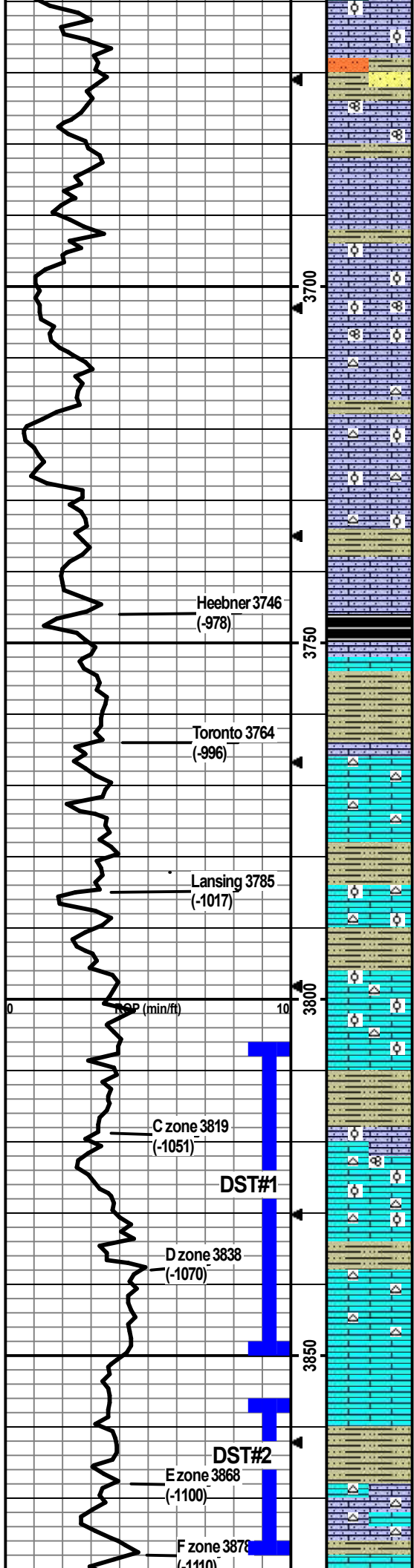
LS: cm/lt bm, vf-m xtal, vry silty/sndy, some chalky, min cm chert, min foss frags, no vis por, no odor, ns.

LS: m-dk bm/m-dk gry, vf-m xtal, chalky, vry silty/sndy/arg, foss frags/ool, no vis por, no odor, ns.

LS: cm/lt bm/lt-dk gry/dk gry mottling, vf-m xtal, vry silty/sndy/arg, chalky, foss frags/ool/grainy, no vis por, no odor, ns.

SH: lt-dk gry/red-bm, vry silty/sndy, carb, firm.

LS: cm/lt bm/lt-m gry, vf-m xtal, vry silty/sndy/arg, chalky, min gry chert, foss frags/ool/grainy, no vis por, no odor, ns.



LS: wht/cm/lt bm, vf-m xtal, silty/sndy, smpl vry chalky, foss frags/ool, ppt-f in-xtal/in-ool por, no odor, ns.
 SH: lt-dk gry/red brn, some vry silty/sndy, carb, soft-firm. SS/Sltstn: lt gry/blk mottling, vf-f, silt carb, friable, no odor, ns.
 LS: wht/cm/lt bm/lt gry/dk gry mottling, vf-m xtal, vry silty/sndy, chalky, foss frags/fusln/grainy, vf-m in-xtal por, no odor, ns.

LS: lt bm/lt gry, vf-m xtal, chalky, vry silty/sndy, foss frags/grainy, ppt-f in-xtal por, no odor, ns.

LS: cm/lt bm/lt gry, micro-m xtal, silty/sndy, chalky, foss frags/ool/grainy, ppt-f in-xtal por, no odor, ns.

LS: cm/lt gry/lt bm, micro-m xtal, some vry silty/sndy, some chalky, foss frags/fusln/ool, ppt-f in-xtal por, no odor, ns.

LS: cm/lt bm, micro-m xtal, silty/sndy, some chalky, wht/cm chert, foss frags/grainy, ppt-f in-xtal por, no odor, ns.

LS: cm/lt-m bm, micro-m xtal, silty/sndy, some chalky, wht/cm foss chert, foss frags/ool/some grainy, min ppt-f in-xtal por, no odor, ns.

SH: lt-dk gry/dk bm/red-brn, some silty, silt carb, soft-firm.

LS: cm/lt bm/lt gry-bm, vf-m xtal, vry silty/sndy, chalky, foss frags, no vis por, no odor, ns.

SH: blk, some silty, carb, firm.

LS: cm/lt bm, micro-m xtal, some silty/sndy, some chalky, foss frags, no vis por, no odor, ns.

SH: lt-dk gry/blk/lt gry-green, some vry silty/sndy, silt carb, soft-firm.

LS: cm/min lt gry, vf-f xtal, some silty, some chalky, gd amt wht/cm chert, no vis por, no odor, ns.

SH: lt-dk gry/lt gry-green/dk bm/red-brn, some vry silty, carb, soft-firm.

LS: cm/lt bm, micro-f, some silty/sndy, chalky, wht chert, foss frags/dense fm ool, no vis por, no odor, ns. (Smpl is flood of SH).

SH: m-dk gry/lt gry-green/red-brn, some vry silty/sndy, silt carb, soft-firm.

LS: cm, micro-m xtal, some chalky, min wht chert, foss frags/dense ool, min ppt-f in-xtal/in-ool por, no odor, ns.

SH: lt-m gry/red-brm/lt gry-green, some silty, silt carb, soft-firm.

LS: cm/min lt gry, micro-m xtal, some silty/sndy, chalky, min wht chert, foss frags/fusln/ool, 9 pcs w/staining w/min fo on break, vf-m in-xtal/in-ool por, dul-brit yel fluor, no odor, sfo.

LS: cm, micro-f xtal, some chalky, wht/cm chert, min foss frags/ool, 3 ool pcs w/staining/min fo on break, vf-f in-ool por, dul yel fluor, no odor, sfo.

LS: cm/min lt gry, micro-f xtal, some chalky, wht chert, min foss frags, no vis por, no odor, ns.

LS: cm, micro-f xtal, some chalky, wht chert, min foss frags/min dense ool, no vis por, no odor, ns.

LS: cm/min lt gry, micro-m w/crs 2ndry xtals, chalky, dense w/min frac por, no odor, ns.

SH: gry/red-brm/lt gry-green, some silty, carb, soft-firm.

LS: cm/lt bm, micro-m xtal, some silty/sndy, chalky, wht chert, foss frags, ~10% of smpl w/sfo, mostly ppt-f w/some m-crs in-xtal por, brit yel fluor, gd odor, sfo.

LS: cm, micro-m xtal, some vry silty, smpl vry chalky, wht chert, min foss frags, 21 pcs w/sfo, mostly ppt-f w/some m-crs/vug in-xtal por, dul-brit yel fluor, silt odor, sfo.

Pipe strap TOH for DST #1 @ 3850' was 1.20' short to board.

DST1) 3806-3850
 Lansing C & D-zones
 30/45/30/45
 1st 1/4" blow dead at 30min; No BB.
 2nd) No blow; No BB.
 IFP 31-37#
 ISIP 386#
 FFP 38-41#
 FSIP 381#
 HP 1846-1812#
 Recvd: 10' Mud.
 CFS @ 3790'
 Stop/30"/60"

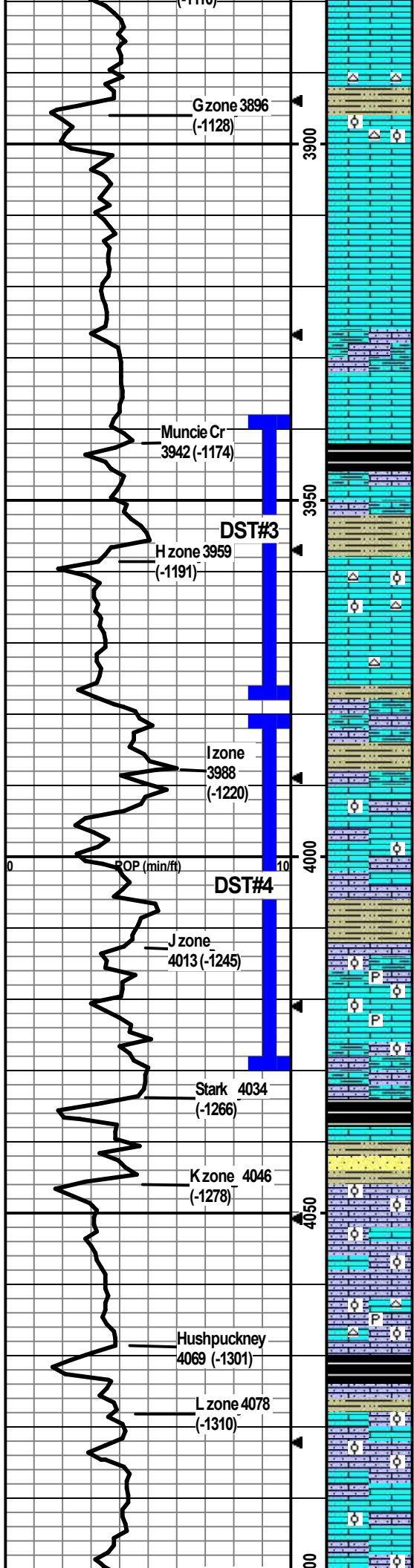
CFS @ 3802'
 Stop/30"/60"

CFS @ 3825'
 Stop/30"/60"

CFS @ 3850'
 Stop/30"/60"

CFS @ 3878'
 Stop/30"/60"

DST2) 3856-3878



LS: wht/cm/min lt gry, micro-m xtal, chalky, foss frags, no vis por, no odor, ns.

LS: crm/lt brn/lt gry, micro-m xtal, chalky, wht/cm chert, foss frags, no vis por, no odor, ns.

LS: crm/lt brn/min lt gry, micro-m xtal, chalky, min wht chert, foss frags/ool, 2 non-ool pcs w/staining and fo on break w/ppt-f in-xtal por, dul yel fluor, m-crs/vug oo-castic por, no odor, slit sfo (60min).

LS: crm/lt brn/min lt gry, micro-m xtal, smpl vry chalky, foss frags, mostly dense wfew crs oo-castic por pcs, no odor, ns.

LS: crm/lt brn/lt gry, micro-m xtal, smpl vry chalky, foss frags, no vis por, no odor, ns.

LS: crm/lt gry, micro-m xtal, chalky, min foss frags, no vis por, no odor, ns.

LS: crm/lt-m brn/lt gry, micro-m xtal, some silty/sndy/arg, chalky, foss frags, no vis por, no odor, ns.

SH: blk, slit silty, carb, firm.

LS: crm/lt-m brn/lt gry, micro-m xtal, some silty/sndy/arg, chalky, wht/lt-dk brn chert, foss frags/fusn/crin, no vis por, 1 brn sat stained pce w/no fo, dul yel fluor, no odor.

SH: lt-dk gry/red-brn, some vry silty, some chalky, carb, soft-firm.

LS: crm/lt-m brn/lt gry, micro-m xtal, some chalky, min wht chert, foss frags/ool, 21 w/sfo, vf-crs in-xtal/in-ool por, dul-brit yel fluor, slit odor, sfo.

LS: crm/lt-m brn/lt gry, micro-m xtal, some silty, some chalky, min wht chert, foss frags, 7 pcs w/sfo, f-crs in-xtal por, dul-brit yel fluor, no odor, sfo.

SH: lt-dk gry/brn/red-brn, some vry silty, carb, soft-firm.

LS: crm/lt-m brn/lt gry, micro-m xtal, some silty/sndy/arg, chalky, 5 pcs w/sfo, vf-m in-xtal por, dul yel fluor, slit odor, sfo.

LS: wht/cm/min lt brn, micro-m xtal, gd amt chalk, some silty/sndy, foss frags/ool, 9 pcs w/sfo, vf-m in-xtal/in-ool por, dul yel fluor, slit odor, sfo.

LS: crm/lt brn/lt gry, micro-m xtal, chalky, silty/sndy, foss frags/some dense ool, no vis por, no odor, ns.

SH: lt-m gry/maroon, some vry silty, carb, soft-firm.

LS: wht/cm/lt brn/lt gry, micro-m xtal, chalky, some silty/sndy/arg, min pyrite, min foss frags/dense ool, no vis por, no odor, ns.

LS: wht/cm/min lt brn/min lt gry, micro-m w/crs 2ndry xtal, chalky, min silty/sndy/arg, min pyrite, min foss frags/dense ool, dense w/min crs oo-castic por, no odor, ns.

SH: blk, silty, carb, soft-hard, fissile.

LS: crm/lt-m brn, micro-m xtal, some chalky, foss frags, 2 pcs w/sat sfo, m-crs/vug in-xtal por, brit yel fluor, slit odor, sfo.

SH: gry/red brn, some vry silty/sndy, carb, soft-firm. SS: lt gry, vf, qtz, arg, carb, friable, no odor, ns.

LS: crm/lt brn/lt gry, micro-m xtal, some vry chalky, some vry silty/sndy, foss frags/ool, min crs oo-castic por, no odor, ns.

LS: crm/lt brn/lt gry, micro-m xtal, smpl vry chalky, some vry silty/sndy, foss frags/ool, no vis por, no odor, ns.

LS: crm/lt brn/lt gry/dk gry mottling, micro-m xtal, some vry chalky, some vry silty/sndy, some lt gry chert, min pyrite, foss frags/ool, no vis por, no odor, ns.

SH: blk, some silty, carb, soft-firm, fissile.

LS: crm/lt brn/lt gry, micro-m xtal, some vry silty/sndy, chalky, foss frags/ool, no vis por, no odor, ns.

SH: lt-dk gry/blk/maroon/red-brn, some vry silty, carb, soft-firm.

LS: wht/cm/lt gry, micro-m xtal, smpl vry chalky, some silty/sndy, foss frags/ool, min frac por, no odor, ns.

LS: crm/lt brn/lt gry, micro-m xtal, chalky, some silty, foss frags/min ool, min frac por, no odor, ns.

DST1) 3838-3878
Lansing E-zone
 30/45/45/60
 1st) Blow built to 1/2"; No BB.
 2nd) Blow built to 1/4"; No BB.
 IFP 30-42#
 ISIP 245#
 FFP 43-53#
 FSIP 234#
 HP 1887-1880#
 Recvd: 45' OCM (15%O, 85%M).

DST3) 3938-3978
Lansing H-zone
 30/30/30/30
 1st) Blow built to 1/8" then fell to SB; No BB.
 2nd) No blow, flushed tool at 5min, no blow; No BB.
 IFP 32-31#
 ISIP 48#
 FFP 31-32#
 FSIP 49#
 HP 1972-1953#
 Recvd: 3' Mud.

CFS @ 3978'
 Stop/30"/60"

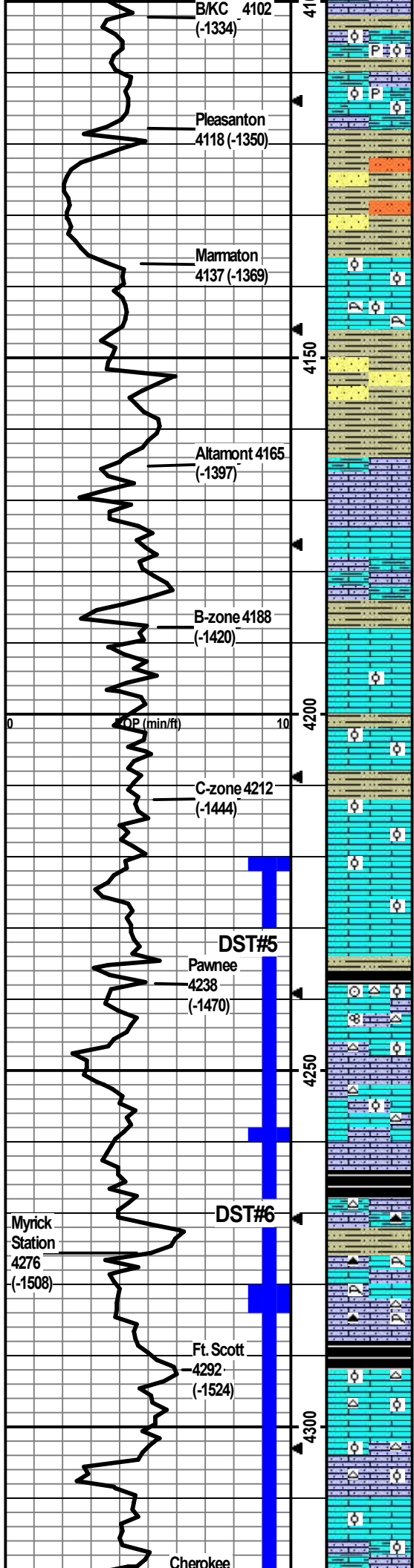
CFS @ 4002'
 Stop/30"/60"

DST4) 3981-4030
Lansing I & J-zones
 30/30/30/30
 1st) Weak surface blow dead at 13min; No BB.
 2nd) No blow, flushed tool at 5min, no blow; No BB.
 IFP 28-32#
 ISIP 895#
 FFP 33-38#
 FSIP 900#
 HP 1984-1993#
 Recvd: 10' Mud.

CFS @ 4030'
 Stop/30"/60"

CFS @ 4070'
 Stop/30"/60"

CFS @ 4095'
 Stop/30"/60"



SH: m-dk gry/bm, some vry silty, carb, soft-firm.
 LS: wht/cm/lt-m bm/lt gry/dk gry mottling, micro-m xtal, chalky, silty/sndy/arg, min pyritic, foss frags/ool, no vis por, no odor, ns.

LS: cm/lt bm/lt-m gry, micro-m xtal, some chalky, some silty/sndy/arg, min pyritic, foss frags/ool, no vis por, no odor, ns.

SH: lt-dk gry/maroon/dk red-bm/lt gry-green, some vry silty/sndy, carb, soft-firm. SS/Sltstn: lt gry/red-bm, vf-f, sr-wr, pred qtz, arg, silt carb, soft-firm, friable, no odor, ns.

LS: cm/lt bm, micro-m w/crs 2ndry xtal, some chalky, foss frags/dense ool, no vis por, no odor, ns.

LS: wht/cm/lt bm, micro-m w/crs 2ndry xtal, some chalky, foss frags/lattice coral/min ool, no vis por, no odor, ns.

SH: m-dk gry/bm/red-bm, some vry silty/sndy, silt carb, soft-firm.

SH: lt-m gry/dk bm/red-bm/gry-green, some vry silty/sndy, carb, soft-firm. SS: lt gry, vf-f, arg, carb, friable, no odor, ns.

LS: cm/lt gry/lt bm/red-bm mottling, micro-m xtal, vry chalky, some vry silty/sndy/arg, foss frags, no vis por, no odor, ns.

LS: cm/lt gry, micro-m xtal, some chalky, some silty/sndy/arg, foss frags, no vis por, no odor, ns.

LS: cm/lt gry/lt bm, micro-m xtal, some chalky, some silty/arg, foss frags, no vis por, no odor, ns.

SH: lt-dk gry/blk/red-bm, some vry silty, carb, soft-firm.

LS: cm/lt bm/lt gry, micro-m xtal, some chalky, foss frags/min ool, no vis por, no odor, ns.

LS: cm/lt-m bm, micro-m xtal, chalky, foss frags/ool, no vis por, no odor, ns.

SH: m-dk gry/red-brn/green-gry, some vry silty, carb, soft-firm.

LS: cm/lt bm, micro-m w/some crs xtal, chalky, foss frags/ool, no vis por, no odor, ns.

LS: cm/min lt gry, micro-m xtal, chalky, foss frags/ool, 3 chalky pcs w/staining w/ppt in-xtal por w/dul yel fluor/brit yel cut, no vis fo, no odor.

SH: lt-dk gry/blk/min lt green-gry/red-brn, some vry silty, carb, soft-firm.

LS: cm/lt-m bm/lt gry, micro-m xtal, some chalky, wht chert, foss frags/min crin/min ool, 11 pcs w/staining w/fo on break, 2 chert pcs w/frac staining, ppt-vf in-xtal por, brit yel fluor, no odor, sfo.

LS: cm/lt-m bm, micro-m xtal, some silty/sndy, some chalky, wht chert, foss frags/ool/fusln, 2 pcs LS w/sfo w/ppt-f in-xtal por, 1 pcs chert w/frac edge staining, brit yel fluor, no odor, sfo.

LS: cm/lt-m bm, micro-m xtal, chalky, some silty/sndy, wht/bm chert, foss frags/ool, 2 pcs w/sfo, ppt-f in-xtal por, brit yel fluor, no odor, sfo.

SH: m-dk gry/blk/dk bm/red-brn/green-gry, some silty, carb, soft-firm.

LS: cm/lt brn/lt-m gry, vf-m xtal, silty/sndy/arg, chalky, brn-dk brn chert, foss frags, no vis por, no odor, ns.

LS: cm/min lt-m bm, micro-m xtal, chalky, some silty/sndy, wht/lt gry/bm chert, foss frags/lattice coral, 13 pcs (30min) w/sfo, mostly ppt-f w/some m-crs in-xtal por, dul yel fluor, silt odor, sfo. (60min 23 pcs w/sfo).

3 pcs of LS show as above.

SH: m-dk gry/blk, silt silty, carb, soft-firm.

LS: cm/lt-m bm, micro-m xtal, chalky, some ool wht/lt gry/bm chert, foss frags/ool, 2 pcs w/sfo w/ppt-f in-xtal/in-ool por, dul yel fluor, no odor, silt sfo.

LS: cm/lt-m bm/min lt gry, micro-m xtal, smpl vry chalky, silty/sndy, min wht/bm ool chert, foss frags/ool, 5 pcs w/staining w/fo on break w/ppt-vf in-xtal/in-ool por, dul yel fluor/cut, no odor, silt sfo.

LS: cm/lt-m bm/lt-m gry, micro-m xtal, some chalky, some silty/arg, foss frags/dense ool, no vis por, no odor, ns.

CFS @ 4120'
Stop/30"/60"

CFS @ 4150'
Stop/30"/60"

CFS @ 4180'
Stop/30"/60"

CFS @ 4200'
Stop/30"/60"

DST5) 4220-4260
Pawnee
 30/30/30/30
 1st) Weak surface bubbles dead at 13min; No BB.
 2nd) No blow, flushed tool at 5min, weak blow dead at 20min; No BB.
 IFP 30-42#
 ISIP 727#
 FFP 34-36#
 FSIP 837#
 HP 2134-2101#
 Recvd: 5' Oil spotted mud (2%O, 98%M).

CFS @ 4260'
Stop/30"/60"

DST6) 4258-4282
Myrick Station
 30/30/30/30
 1st) Strong surface blow dead at 18min; No BB.
 2nd) No blow; No BB.
 IFP 28-31#
 ISIP 46#
 FFP 30-30#
 FSIP 41#
 HP 2157-2147#
 Recvd: 1' Mud.
 CFS @ 4282'
 Stop/30"/60"

CFS @ 4310'
Stop/30"/60"

30/45/45/60
 1st) Blow built to 2"; No BB.
 2nd) Blow built to 1.5"; No BB.
 IFP 39-74#
 ISIP 696#
 FFP 79-108#
 FSIP 676#
 HP 2210-2189#
 Recvd: 150' Mud.

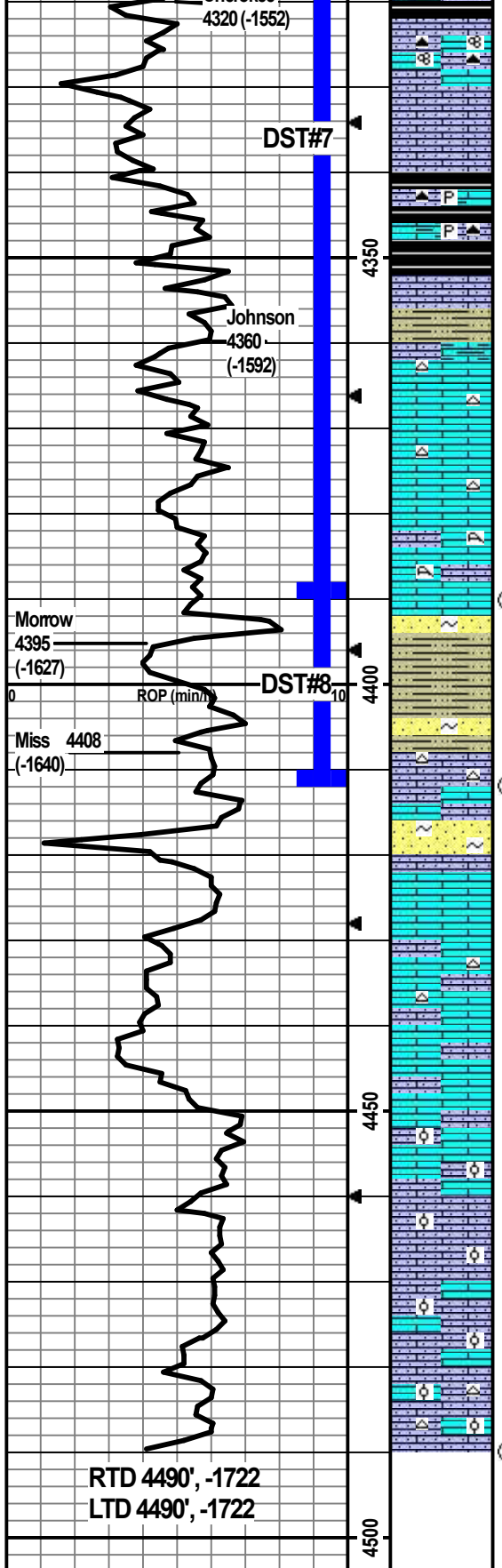
Pipe strap TOH for
 DST #7 @ 4390'
 was 3.17' short to
 board.

CFS @ 4390'
 Stop/30"/60"

CFS @ 4412'
 Stop/30"/60"

**DST8) 4390-4412
 Morrow**
 30/30/30/30
 1st) Surface blow dead at 15min;
 No BB.
 2nd) No blow; No BB.
 IFP 31-35#
 ISIP 46#
 FFP 35-35#
 FSIP 40#
 HP 2266-2262#
 Recvd: 3' Mud.

CFS @ 4490'
 Stop/30"/60"
 CTCH 1.5 hr, then TOH for
 logging.



SH: lt-dk gry/dk brn/blk, some vry silty, carb, soft-firm.
LS: cm/lt-m bm, micro-m xtal, some silty, smpl vry chalky, bm chert, foss frags/fusln, 3 pcs w/staining/no vis fo, 1 pcs w/fo on break, ppt-vf in-xtal por, no fluor, no odor, slt sfo.

LS: cm/lt bm/lt gry, micro-m xtal, some chalky, silty/sndy, foss frags, 14 pcs w/sfo w/ppt-crs in-xtal por, dul yel fluor, no odor, sfo.

SH: lt-dk gry/blk/red-bm, some vry silty, carb, soft-firm.
LS: cm/lt-dk bm/gry-bm, micro-m xtal, some silty/sndy/arg, chalky, dk gry-bm pyritic chert, foss frags, no vis por, no odor, ns

LS: cm/lt-m bm/gry, micro-m xtal, some chalky, some silty/sndy, bm/dk bm chert, foss frags/brac, 29 pcs w/sfo w/ppt-crs/vug in-xtal por, dul yel fluor, stg odor, gd sfo.

SH: m-dk gry/blk/lt gry-green, some silty, slt carb, firm.
LS: cm/lt bm, micro-m xtal, some silty/arg, some chalky, some wht/lt gry/bm chert, foss frags, 32 pcs w/sfo w/ppt-m in-xtal por, dul yel fluor, gd odor, sfo.

LS: cm/lt bm, micro-m xtal, some chalky, wht/lt gry/lt bm chert, foss frags, 39 pcs w/sfo w/ppt-crs in-xtal por, dul yel fluor, gd odor, gd sfo.

LS: cm/lt bm/lt gry, micro-m xtal, some chalky, some silty, foss frags/lattice coral, 8 pcs w/ppt-m in-xtal/coral por, dul yel fluor, gd odor, sfo.

Min SS: wht/lt gry/lt green, vf-f, sr-wr, pred qtz, min glauc, friable, no odor, ns.

SH: lt-dk gry/bm/red-bm/lt gry-green/mustard yel, some vry silty/sndy, silt carb, firm.
 Flood of SH as above, smpl vry chalky, min SS as above, no odor, ns.

LS: cm/lt bm, micro-m xtal, some silty/sndy, vry chalky, some LS w/SS attached, cm/lt bm chert, no vis por, no odor, ns.
 LS: wht/cm/lt rose/lt brn, micro-vf, chalky, min foss frags, no vis por, no odor, ns.

Flood of SH: lt-dk gry/red-bm/mustard yel, some vry sndy, pyritic, glauc, soft-firm. SS: wht/min lt green, vf-crs, sr-wr, pred qtz, carb matrix, vry chalky, min glauc, friable, no vis por, no odor, ns.
LS: cm/lt bm/lt rose, micro-f, some chalky, some silty, min foss frags, no vis por, no odor, ns. (Smpl flood of SH/SS as above).

LS: cm/lt bm/lt rose, micro-f xtal, some silty/sndy, some chalky, min wht/cm chert, some foss frags, no vis por, no odor, ns. (Cont flood SH/SS).

LS: cm/lt-m bm/lt rose, micro-m xtal, some silty/sndy, some chalky, min foss frags, no vis por, no odor, ns.

LS: cm/lt bm, micro-f xtal, some silty/sndy, chalky, min dense ool, no vis por, no odor, ns.

LS: wht/cm/lt bm, vf-f xtal, silty/sndy, chalky, dense ool, no vis por, no odor, ns.

LS: wht/cm/lt bm/min lt gry, vf-m xtal, some silty/sndy, some chalky, foss frags/dense ool, no vis por, no odor, ns.

LS: wht/cm/min lt bm/min lt gry, vf-m xtal, some sndy, vry chalky, cm/lt bm/lt orange chert, ool, no vis por, no odor, ns.

TD @ 4490'

RTD 4490', -1722
 LTD 4490', -1722

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