

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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Form	ACO1 - Well Completion
Operator	Samuel Gary Jr. & Associates, Inc.
Well Name	ESCAPE TO COLORADO 16C-9-1910
Doc ID	1424855

All Electric Logs Run

NEUTRON-DENSITY
MICRO
RESISTIVITY
SONIC



**TRILOBITE
TESTING, INC**

DRILL STEM TEST REPORT

Samuel Gary Jr. & Associates, Inc.

9-19s-10W

1515 w ynkoop Suit 700
Denver CO 80202

Discovery #4

ATTN: Jim Musgrove

Job Ticket: 64590

DST#: 1

Test Start: 2018.08.31 @ 09:49:00

GENERAL INFORMATION:

Formation: **LKC 'F'**

Deviated: No Whipstock: ft (KB)

Time Tool Opened: 13:22:30

Time Test Ended: 19:30:45

Test Type: Conventional Bottom Hole (Initial)

Tester: Spencer J. Staab

Unit No: 84

Interval: 3052.00 ft (KB) To 3085.00 ft (KB) (TVD)

Reference Elevations: 1771.00 ft (KB)

Total Depth: 3085.00 ft (KB) (TVD)

1764.00 ft (CF)

Hole Diameter: 7.88 inches Hole Condition:

KB to GR/CF: 7.00 ft

Serial #: 8934 Outside

Press@RunDepth: 54.76 psig @ 3053.00 ft (KB)

Capacity: 8000.00 psig

Start Date: 2018.08.31

End Date:

2018.08.31

Last Calib.:

2018.08.31

Start Time: 09:49:00

End Time:

19:30:45

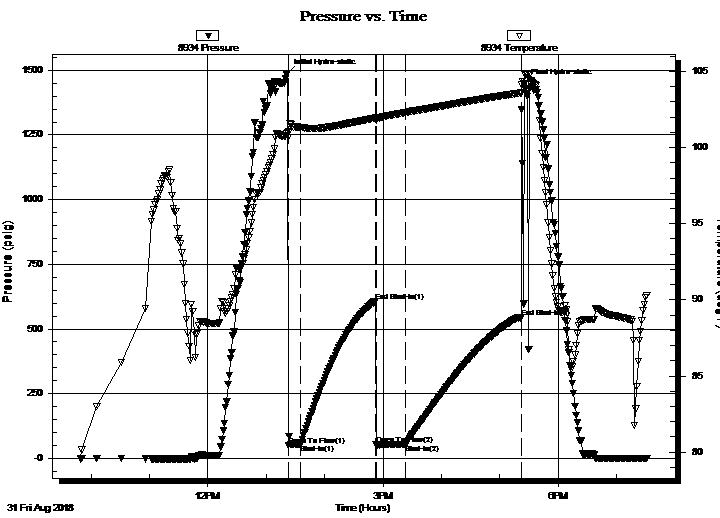
Time On Btm:

2018.08.31 @ 13:22:00

Time Off Btm:

2018.08.31 @ 17:25:15

TEST COMMENT: 5-IF-Weak Blow ; Built to 1/2"
75-ISI-No Return
30-FF-Weak Blow ; Built to 3&1/2"
120-FSI-No Return



PRESSURE SUMMARY

Time (Min.)	Pressure (psig)	Temp (deg F)	Annotation
0	1487.98	100.98	Initial Hydro-static
1	49.29	100.65	Open To Flow (1)
14	53.91	101.33	Shut-In(1)
90	607.83	101.95	End Shut-In(1)
91	53.11	101.78	Open To Flow (2)
121	54.76	102.30	Shut-In(2)
240	544.67	103.59	End Shut-In(2)
244	1449.05	104.88	Final Hydro-static

Recovery

Length (ft)	Description	Volume (bbl)
80.00	OSM 100%M	0.84

Gas Rates

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



**TRILOBITE
TESTING, INC**

DRILL STEM TEST REPORT

TOOL DIAGRAM

Samuel Gary Jr. & Associates, Inc.

9-19s-10W

1515 Wynkoop Suit 700
Denver CO 80202

Discovery #4

Job Ticket: 64590

DST#: 1

ATTN: Jim Musgrove

Test Start: 2018.08.31 @ 09:49:00

Tool Information

Drill Pipe:	Length: 3016.00 ft	Diameter: 3.82 inches	Volume: 42.75 bbl	Tool Weight:	2800.00 lb
Heavy Wt. Pipe:	Length: ft	Diameter: 2.75 inches	Volume: - bbl	Weight set on Packer:	25000.00 lb
Drill Collar:	Length: 32.00 ft	Diameter: 2.25 inches	Volume: 0.16 bbl	Weight to Pull Loose:	110000.0 lb
			<u>Total Volume:</u> - bbl	Tool Chased	12.00 ft
Drill Pipe Above KB:	32.00 ft			String Weight: Initial	45000.00 lb
Depth to Top Packer:	3052.00 ft			Final	46000.00 lb
Depth to Bottom Packer:	ft				
Interval between Packers:	33.00 ft				
Tool Length:	69.00 ft				
Number of Packers:	1	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			3017.00	
pup sub	5.00			3022.00	
Shut In Tool	5.00			3027.00	
Sampler	2.00			3029.00	
Hydraulic tool	5.00			3034.00	
Jars	5.00			3039.00	
Safety Joint	3.00			3042.00	
Packer	5.00			3047.00	36.00 Bottom Of Top Packer
Packer	5.00			3052.00	
Stubb	1.00			3053.00	
Recorder	0.00	8368	Inside	3053.00	
Recorder	0.00	8934	Outside	3053.00	
Perforations	29.00			3082.00	
Bullnose	3.00			3085.00	33.00 Bottom Packers & Anchor

Total Tool Length: 69.00



**TRILOBITE
TESTING, INC**

DRILL STEM TEST REPORT

FLUID SUMMARY

Samuel Gary Jr. & Associates, Inc.

9-19s-10W

1515 Wynkoop Suit 700
Denver CO 80202

Discovery #4

Job Ticket: 64590

DST#: 1

ATTN: Jim Musgrove

Test Start: 2018.08.31 @ 09:49:00

Mud and Cushion Information

Mud Type: Gel Chem

Cushion Type:

Oil API:

deg API

Mud Weight: 9.00 lb/gal

Cushion Length:

ft

Water Salinity:

ppm

Viscosity: 57.00 sec/qt

Cushion Volume:

bbbl

Water Loss: 7.20 in³

Gas Cushion Type:

Resistivity: ohm.m

Gas Cushion Pressure:

psig

Salinity: 4000.00 ppm

Filter Cake: inches

Recovery Information

Recovery Table

Length ft	Description	Volume bbbl
80.00	OSM 100%M	0.838

Total Length: 80.00 ft Total Volume: 0.838 bbl

Num Fluid Samples: 0

Num Gas Bombs: 0

Serial #:

Laboratory Name:

Laboratory Location:

Recovery Comments: 2#LCM

Sampler= 2000ml--160ml O 1840ml M 8%O 92%M @650PSI

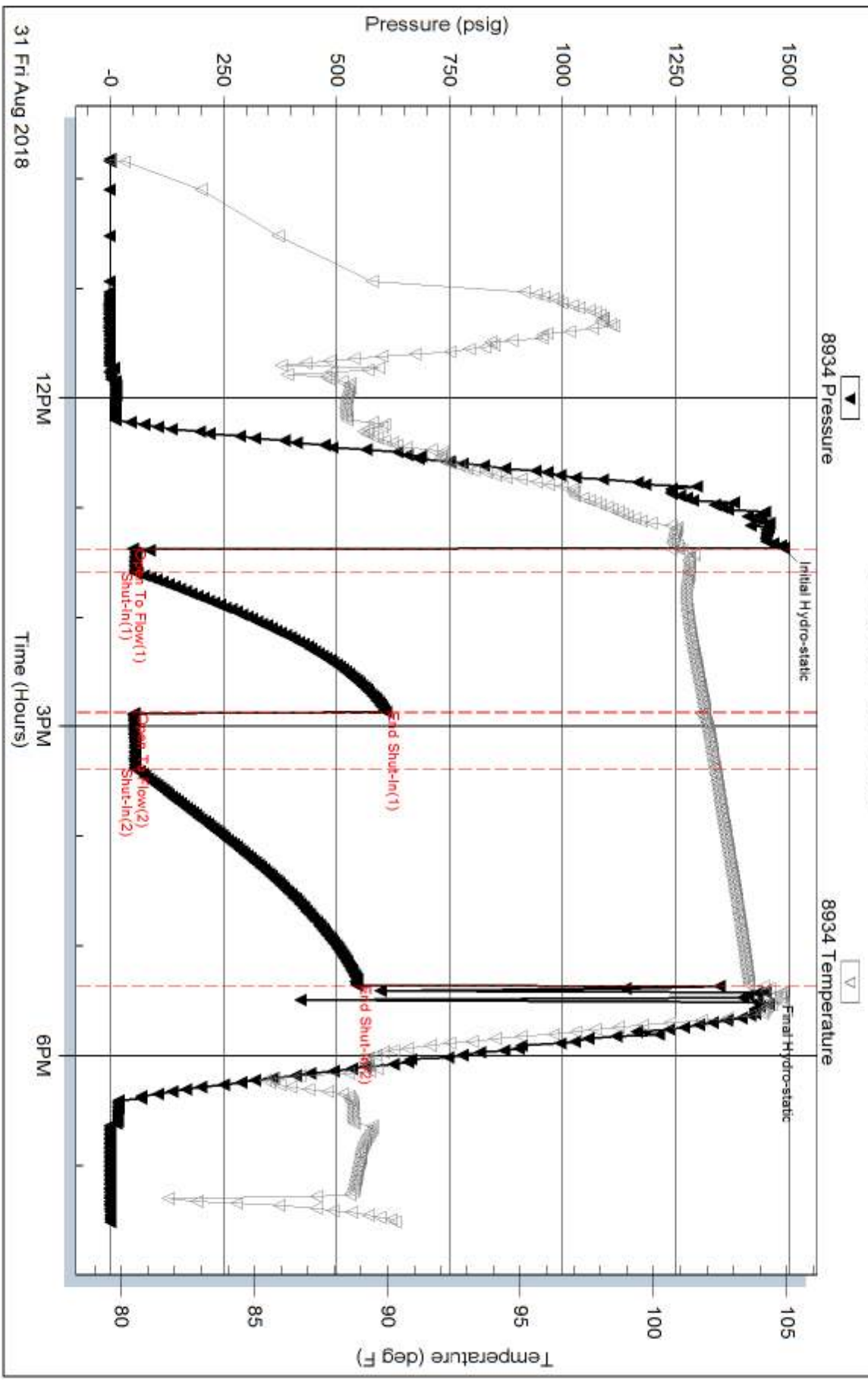
Serial #: 8934

Outside Samuel Gary Jr. & Associates, Inc.

Discovery #4

DST Test Number: 1

Pressure vs. Time



Trilobite Testing, Inc

Ref. No: 64590

Printed: 2018.08.31 @ 20:00:38



TRILOBITE TESTING, INC.

DRILL STEM TEST REPORT

Samuel Gary Jr. & Associates, Inc.

9-19s-10W

1515 w ynkoop Suit 700
Denver CO 80202

Discovery #4

Job Ticket: 64591

DST#: 2

ATTN: Jim Musgrove

Test Start: 2018.09.01 @ 10:04:00

GENERAL INFORMATION:

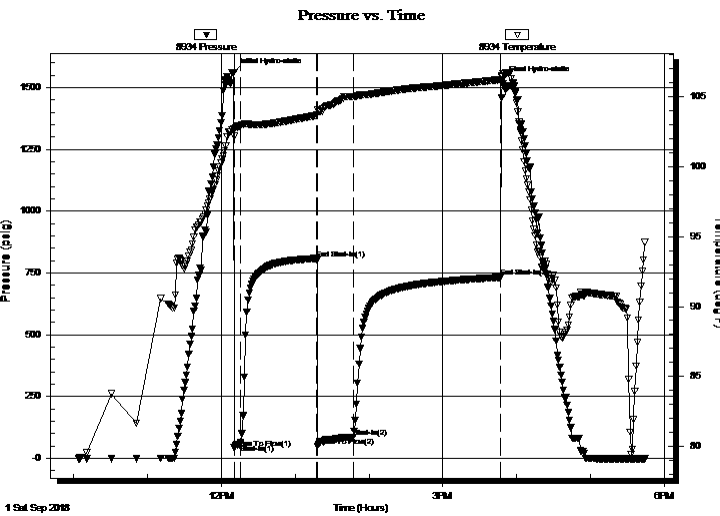
Formation: **LKC 'I-J-K'**
 Deviated: No Whipstock: ft (KB)
 Time Tool Opened: 12:10:30
 Time Test Ended: 17:44:15
 Interval: **3153.00 ft (KB) To 3221.00 ft (KB) (TVD)**
 Total Depth: 3221.00 ft (KB) (TVD)
 Hole Diameter: 7.88 inches Hole Condition:
 Test Type: Conventional Bottom Hole (Reset)
 Tester: Spencer J. Staab
 Unit No: 84
 Reference Elevations: 1771.00 ft (KB)
 1764.00 ft (CF)
 KB to GR/CF: 7.00 ft

Serial #: 8934

Outside

Press@RunDepth: 85.75 psig @ 3157.00 ft (KB)
 Start Date: 2018.09.01 End Date: 2018.09.01
 Start Time: 10:04:15 End Time: 17:44:15
 Capacity: 8000.00 psig
 Last Calib.: 2018.09.01
 Time On Btm: 2018.09.01 @ 12:10:15
 Time Off Btm: 2018.09.01 @ 15:48:00

TEST COMMENT: 5-IF-Fair Blow ; Built to 5"
 60-ISI-No Return
 30-FF-Fair Blow ; BOB in 8 mins ; Built to 24&1/2"
 120-FSI-Surface Return



PRESSURE SUMMARY

Time (Min.)	Pressure (psig)	Temp (deg F)	Annotation
0	1561.54	102.73	Initial Hydro-static
1	43.01	102.18	Open To Flow (1)
6	57.42	102.92	Shut-In(1)
68	808.98	103.67	End Shut-In(1)
68	49.29	104.03	Open To Flow (2)
97	85.75	105.00	Shut-In(2)
217	732.37	106.22	End Shut-In(2)
218	1528.86	106.51	Final Hydro-static

Recovery

Length (ft)	Description	Volume (bbl)
60.00	GOCM 75%G 10%O 15%M	0.55
40.00	GVSO CM 2%G 3%O 95%M	0.57
0.00	210' GIP 100%G	0.00

* Recovery from multiple tests

Gas Rates

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



TRILOBITE TESTING, INC.

DRILL STEM TEST REPORT

Samuel Gary Jr. & Associates, Inc.

9-19s-10W

1515 w ynkoop Suit 700
Denver CO 80202

Discovery #4

Job Ticket: 64591

DST#: 2

ATTN: Jim Musgrove

Test Start: 2018.09.01 @ 10:04:00

GENERAL INFORMATION:

Formation: **LKC 'I-J-K'**

Deviated: No Whipstock: ft (KB)

Time Tool Opened: 12:10:30

Time Test Ended: 17:44:15

Test Type: Conventional Bottom Hole (Reset)

Tester: Spencer J. Staab

Unit No: 84

Interval: 3153.00 ft (KB) To 3221.00 ft (KB) (TVD)

Reference Elevations: 1771.00 ft (KB)

Total Depth: 3221.00 ft (KB) (TVD)

1764.00 ft (CF)

Hole Diameter: 7.88 inches Hole Condition:

KB to GR/CF: 7.00 ft

Serial #: 8368

Inside

Press@RunDepth: psig @ 3157.00 ft (KB)

Capacity: 8000.00 psig

Start Date: 2018.09.01

End Date:

2018.09.01

Last Calib.:

2018.09.01

Start Time: 10:04:15

End Time:

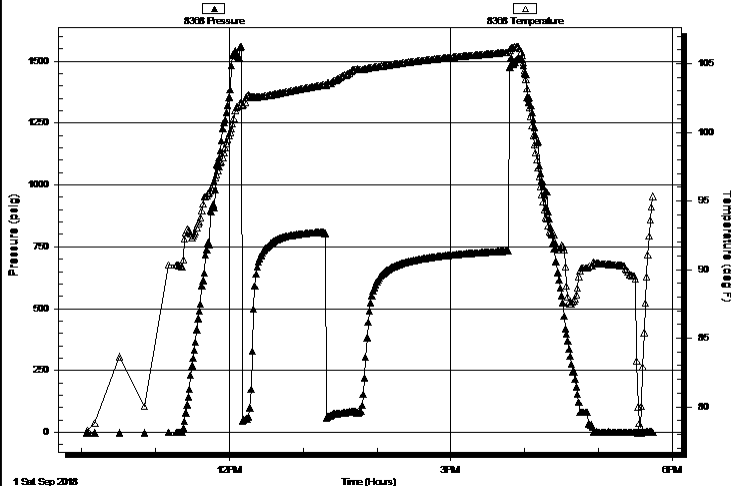
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Time On Btm:

Time Off Btm:

TEST COMMENT: 5-IF-Fair Blow ; Built to 5"
60-ISI-No Return
30-FF-Fair Blow ; BOB in 8 mins ; Built to 24&1/2"
120-FSI-Surface Return

Pressure vs. Time



PRESSURE SUMMARY

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

Recovery

Length (ft)	Description	Volume (bbl)
60.00	GOCM 75%G 10%O 15%M	0.55
40.00	GVSOCM 2%G 3%O 95%M	0.57
0.00	210' GIP 100%G	0.00

Gas Rates

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

* Recovery from multiple tests



TRILOBITE TESTING, INC.

DRILL STEM TEST REPORT

Samuel Gary Jr. & Associates, Inc.

9-19s-10W

1515 Wynkoop Suit 700
Denver CO 80202

Discovery #4

Job Ticket: 64591

DST#: 2

ATTN: Jim Musgrove

Test Start: 2018.09.01 @ 10:04:00

GENERAL INFORMATION:

Formation: **LKC 'I-J-K'**

Deviated: No Whipstock: ft (KB)

Time Tool Opened: 12:10:30

Time Test Ended: 17:44:15

Test Type: Conventional Bottom Hole (Reset)

Tester: Spencer J. Staab

Unit No: 84

Interval: **3153.00 ft (KB) To 3221.00 ft (KB) (TVD)**

Reference Elevations: 1771.00 ft (KB)

Total Depth: 3221.00 ft (KB) (TVD)

1764.00 ft (CF)

Hole Diameter: 7.88 inches Hole Condition:

KB to GR/CF: 7.00 ft

Serial #: 9120

Fluid

Press@RunDepth: psig @ 3118.00 ft (KB)

Capacity: 8000.00 psig

Start Date: 2018.09.01

End Date:

2018.09.01

Last Calib.:

2018.09.01

Start Time: 10:04:15

End Time:

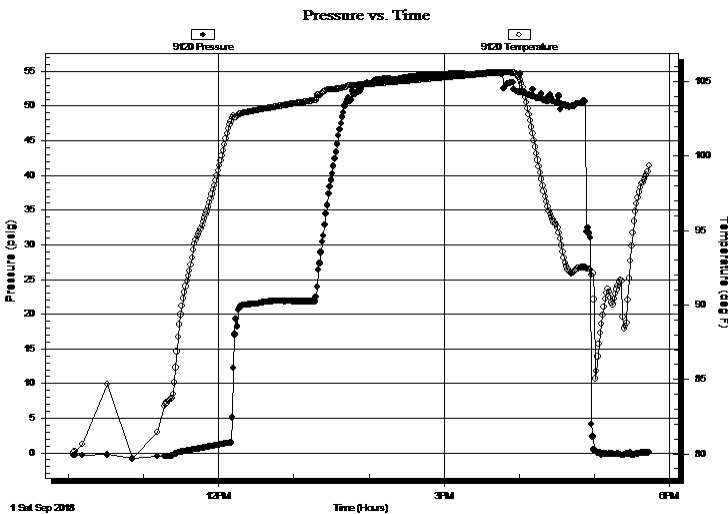
17:44:15

Time On Btm:

Time Off Btm:

TEST COMMENT: 5-IF-Fair Blow ; Built to 5"
60-ISI-No Return
30-FF-Fair Blow ; BOB in 8 mins ; Built to 24&1/2"
120-FSI-Surface Return

PRESSURE SUMMARY



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

Recovery

Length (ft)	Description	Volume (bbl)
60.00	GOCM 75%G 10%O 15%M	0.55
40.00	GVSOCM 2%G 3%O 95%M	0.57
0.00	210' GIP 100%G	0.00

Gas Rates

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

* Recovery from multiple tests



**TRILOBITE
TESTING, INC.**

DRILL STEM TEST REPORT

FLUID SUMMARY

Samuel Gary Jr. & Associates, Inc.

9-19s-10W

1515 Wynkoop Suit 700
Denver CO 80202

Discovery #4

Job Ticket: 64591

DST#: 2

ATTN: Jim Musgrove

Test Start: 2018.09.01 @ 10:04:00

Mud and Cushion Information

Mud Type: Gel Chem

Cushion Type:

Oil API:

deg API

Mud Weight: 9.00 lb/gal

Cushion Length:

ft

Water Salinity:

ppm

Viscosity: 57.00 sec/qt

Cushion Volume:

bbbl

Water Loss: 7.97 in³

Gas Cushion Type:

Resistivity: ohm.m

Gas Cushion Pressure:

psig

Salinity: 5000.00 ppm

Filter Cake: inches

Recovery Information

Recovery Table

Length ft	Description	Volume bbbl
60.00	GOCM 75%G 10%O 15%M	0.554
40.00	GVSOCM 2%G 3%O 95%M	0.567
0.00	210' GIP 100%G	0.000

Total Length: 100.00 ft Total Volume: 1.121 bbl

Num Fluid Samples: 0

Num Gas Bombs: 0

Serial #:

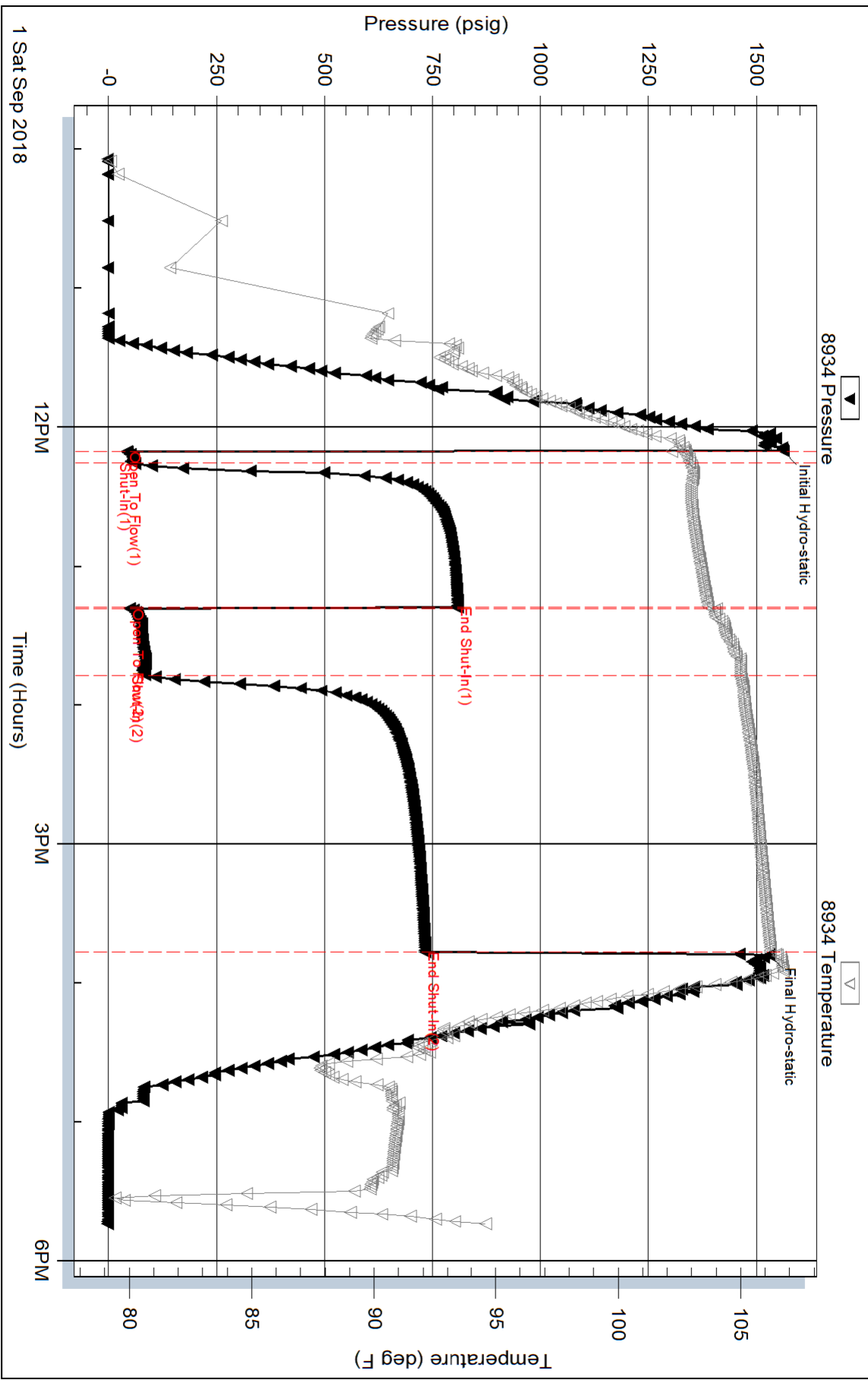
Laboratory Name:

Laboratory Location:

Recovery Comments: 2#LCM

Sampler= 1500ml total, 1125ml G, 225ml O, 150ml M @425psi= 75%G, 15%O, 10%M

Pressure vs. Time



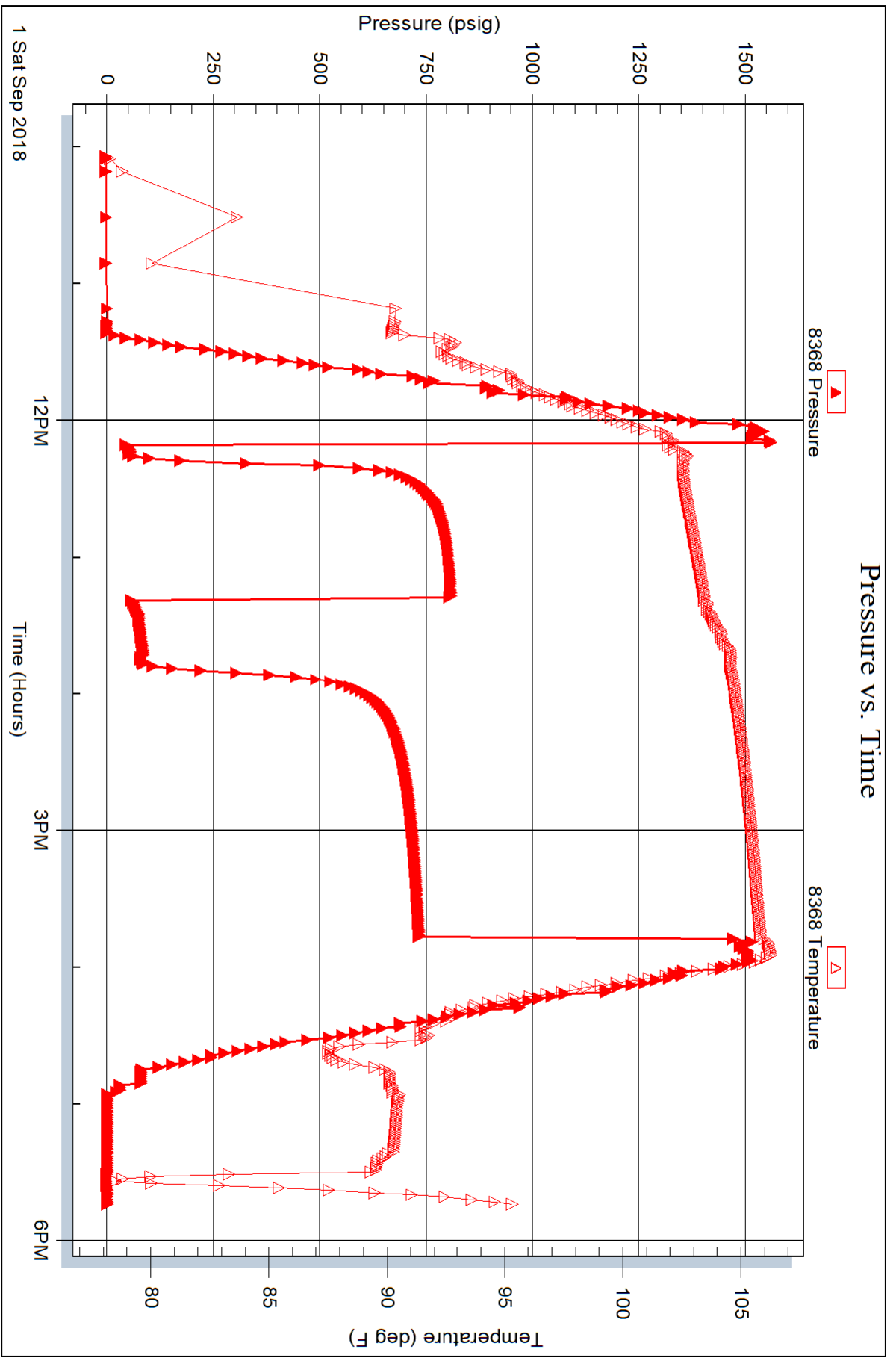
Serial #: 8368

Inside

Samuel Gary Jr. & Associates, Inc.

Discovery #4

DST Test Number: 2



Trilobite Testing, Inc

Ref. No: 64591

Printed: 2018.09.02 @ 00:17:41

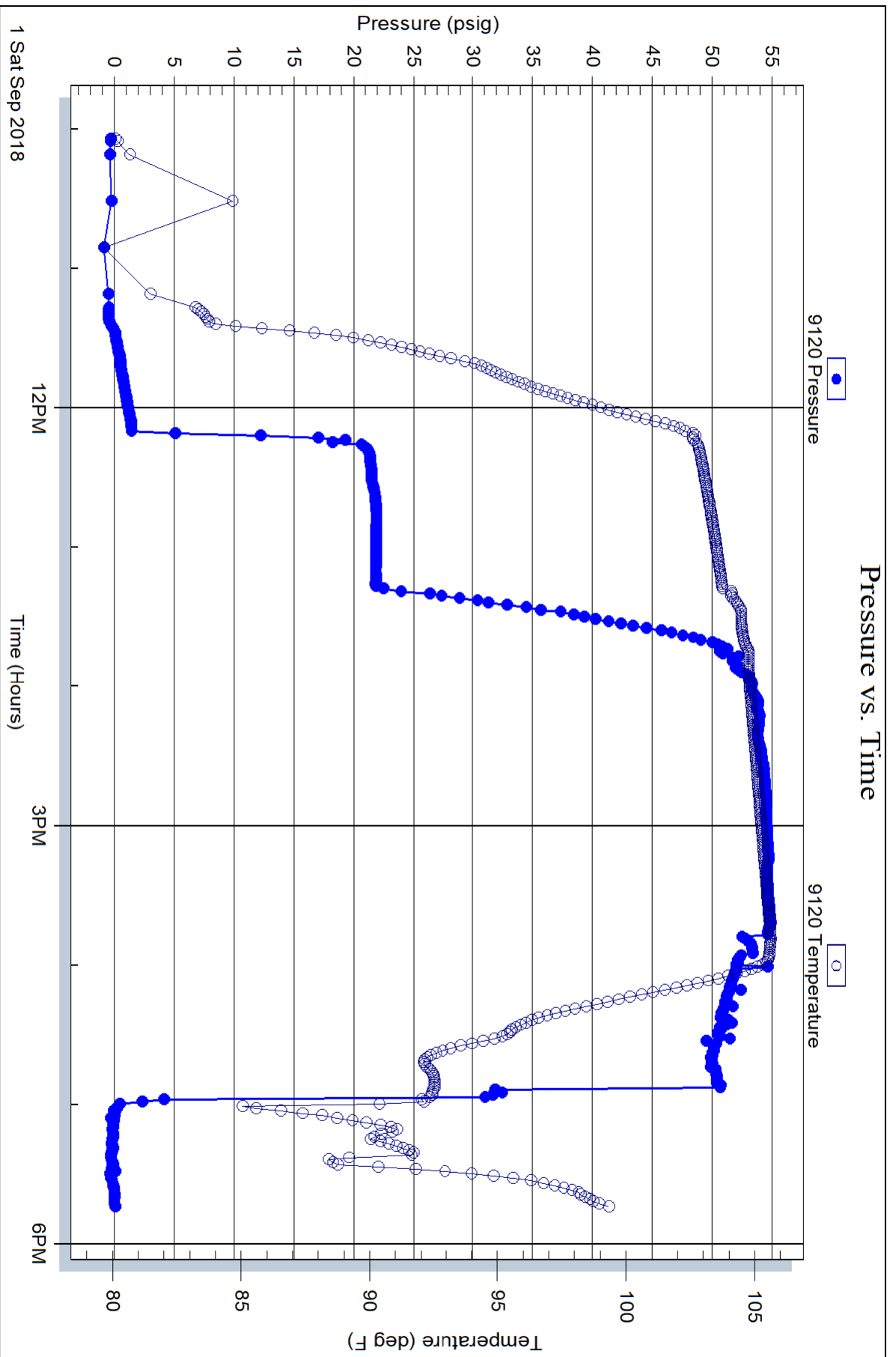
Serial #: 9120

Fluid

Samuel Gary Jr. & Associates, Inc.

Discovery #4

DST Test Number: 2





TRILOBITE TESTING, INC.

DRILL STEM TEST REPORT

Samuel Gary Jr. & Associates, Inc.

9-19s-10W

1515 w ynkoop Suit 700
Denver CO 80202

Discovery #4

Job Ticket: 64592

DST#: 3

ATTN: Jim Musgrove

Test Start: 2018.09.02 @ 07:58:00

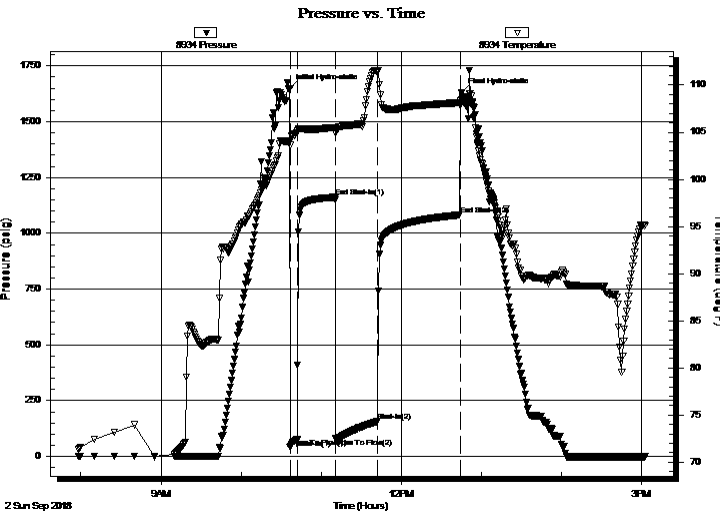
GENERAL INFORMATION:

Formation: **Arbuckle**
 Deviated: No Whipstock: ft (KB)
 Time Tool Opened: 10:36:45
 Time Test Ended: 15:03:00
 Interval: **3275.00 ft (KB) To 3342.00 ft (KB) (TVD)**
 Total Depth: 3342.00 ft (KB) (TVD)
 Hole Diameter: 7.88 inches Hole Condition: Fair
 Test Type: Conventional Bottom Hole (Reset)
 Tester: Spencer J. Staab
 Unit No: 84
 Reference Elevations: 1771.00 ft (KB)
 1764.00 ft (CF)
 KB to GR/CF: 7.00 ft

Serial #: 8934 Outside

Press@RunDepth: 156.96 psig @ 3311.00 ft (KB) Capacity: 8000.00 psig
 Start Date: 2018.09.02 End Date: 2018.09.02 Last Calib.: 2018.09.02
 Start Time: 07:58:15 End Time: 15:03:00 Time On Btm: 2018.09.02 @ 10:36:30
 Time Off Btm: 2018.09.02 @ 12:45:15

TEST COMMENT: 5-IF-Fair; Built to 6"
 30-ISI-No Return
 30-FF-Fair to Strong; BOB in 9 mins; Built to 48"
 60-FSI-Fair to Strong; BOB in 40mins; Built to 12"



PRESSURE SUMMARY

Time (Min.)	Pressure (psig)	Temp (deg F)	Annotation
0	1648.49	104.12	Initial Hydro-static
1	42.15	103.63	Open To Flow (1)
6	75.02	104.95	Shut-In(1)
34	1161.32	105.52	End Shut-In(1)
35	81.99	104.98	Open To Flow (2)
66	156.96	111.43	Shut-In(2)
128	1081.89	108.15	End Shut-In(2)
129	1628.75	108.44	Final Hydro-static

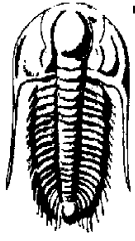
Recovery

Length (ft)	Description	Volume (bbl)
30.00	GMCO 50%G 15%M 35%O	0.15
260.00	GMCO 70%G 10%M 20%O	3.67
30.00	GSMCO 10%G 5%M 85%O	0.43
0.00	315' GIP 100%G	0.00

* Recovery from multiple tests

Gas Rates

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



TRILOBITE TESTING, INC.

DRILL STEM TEST REPORT

Samuel Gary Jr. & Associates, Inc.

9-19s-10W

1515 W Ynkoop Suit 700
Denver CO 80202

Discovery #4

Job Ticket: 64592

DST#: 3

ATTN: Jim Musgrove

Test Start: 2018.09.02 @ 07:58:00

GENERAL INFORMATION:

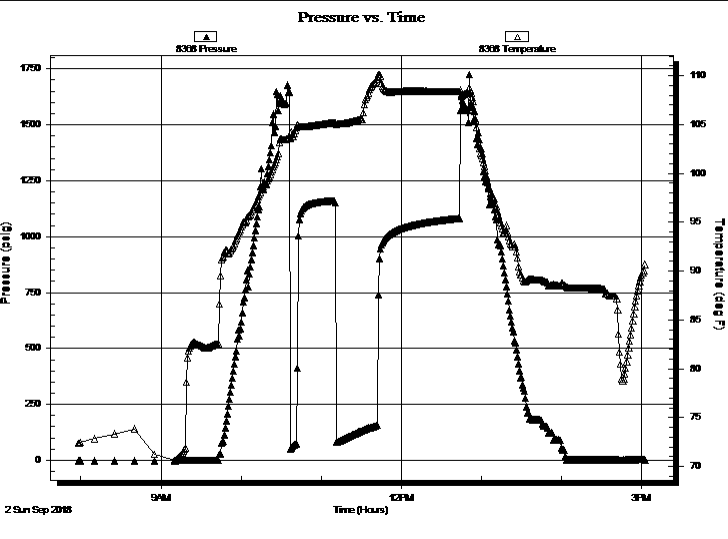
Formation: **Arbuckle**
 Deviated: No Whipstock: (KB) Test Type: Conventional Bottom Hole (Reset)
 Time Tool Opened: 10:36:45 Tester: Spencer J. Staab
 Time Test Ended: 15:03:00 Unit No: 84
 Interval: **3275.00 ft (KB) To 3342.00 ft (KB) (TVD)** Reference Elevations: 1771.00 ft (KB)
 Total Depth: 3342.00 ft (KB) (TVD) 1764.00 ft (CF)
 Hole Diameter: 7.88 inches Hole Condition: Fair KB to GR/CF: 7.00 ft

Serial #: 8368

Inside

Press@RunDepth: psig @ 3311.00 ft (KB) Capacity: 8000.00 psig
 Start Date: 2018.09.02 End Date: 2018.09.02 Last Calib.: 2018.09.02
 Start Time: 07:58:15 End Time: 15:03:00 Time On Btm:
 Time Off Btm:

TEST COMMENT: 5-IF-Fair; Built to 6"
 30-ISI-No Return
 30-FF-Fair to Strong; BOB in 9 mins; Built to 48"
 60-FSI-Fair to Strong; BOB in 40mins; Built to 12"



PRESSURE SUMMARY

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

Recovery

Length (ft)	Description	Volume (bbl)
30.00	GMCO 50%G 15%M 35%O	0.15
260.00	GMCO 70%G 10%M 20%O	3.67
30.00	GSMCO 10%G 5%M 85%O	0.43
0.00	315' GIP 100%G	0.00

* Recovery from multiple tests

Gas Rates

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



TRILOBITE TESTING, INC.

DRILL STEM TEST REPORT

Samuel Gary Jr. & Associates, Inc.

9-19s-10W

1515 w ynkoop Suit 700
Denver CO 80202

Discovery #4

Job Ticket: 64592

DST#: 3

ATTN: Jim Musgrove

Test Start: 2018.09.02 @ 07:58:00

GENERAL INFORMATION:

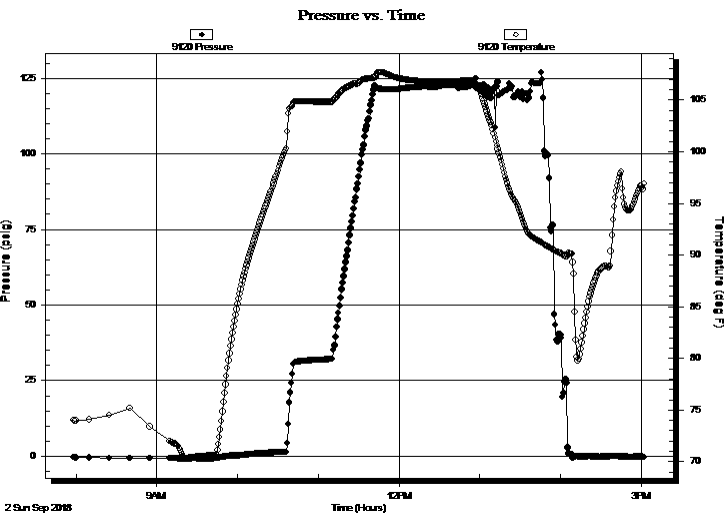
Formation: **Arbuckle**
 Deviated: No Whipstock: ft (KB)
 Time Tool Opened: 10:36:45
 Time Test Ended: 15:03:00
 Interval: **3275.00 ft (KB) To 3342.00 ft (KB) (TVD)**
 Total Depth: 3342.00 ft (KB) (TVD)
 Hole Diameter: 7.88 inches Hole Condition: Fair
 Test Type: Conventional Bottom Hole (Reset)
 Tester: Spencer J. Staab
 Unit No: 84
 Reference Elevations: 1771.00 ft (KB)
 1764.00 ft (CF)
 KB to GR/CF: 7.00 ft

Serial #: 9120

Fluid

Press@RunDepth: psig @ 3240.00 ft (KB) Capacity: 8000.00 psig
 Start Date: 2018.09.02 End Date: 2018.09.02 Last Calib.: 2018.09.02
 Start Time: 07:58:15 End Time: 15:03:00 Time On Btm:
 Time Off Btm:

TEST COMMENT: 5-IF-Fair; Built to 6"
 30-ISI-No Return
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 60-FSI-Fair to Strong; BOB in 40mins; Built to 12"



PRESSURE SUMMARY

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

Recovery

Length (ft)	Description	Volume (bbl)
30.00	GMCO 50%G 15%M 35%O	0.15
260.00	GMCO 70%G 10%M 20%O	3.67
30.00	GSMCO 10%G 5%M 85%O	0.43
0.00	315' GIP 100%G	0.00

* Recovery from multiple tests

Gas Rates

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



**TRILOBITE
TESTING, INC.**

DRILL STEM TEST REPORT

FLUID SUMMARY

Samuel Gary Jr. & Associates, Inc.

9-19s-10W

1515 Wynkoop Suit 700
Denver CO 80202

Discovery #4

Job Ticket: 64592

DST#: 3

ATTN: Jim Musgrove

Test Start: 2018.09.02 @ 07:58:00

Mud and Cushion Information

Mud Type: Gel Chem

Cushion Type:

Oil API:

42 deg API

Mud Weight: 9.00 lb/gal

Cushion Length:

ft

Water Salinity:

ppm

Viscosity: 58.00 sec/qt

Cushion Volume:

bbbl

Water Loss: 8.78 in³

Gas Cushion Type:

Resistivity: ohm.m

Gas Cushion Pressure:

psig

Salinity: 5000.00 ppm

Filter Cake: inches

Recovery Information

Recovery Table

Length ft	Description	Volume bbbl
30.00	GMCO 50%G 15%M 35%O	0.148
260.00	GMCO 70%G 10%M 20%O	3.667
30.00	GSMCO 10%G 5%M 85%O	0.425
0.00	315' GIP 100%G	0.000

Total Length: 320.00 ft Total Volume: 4.240 bbl

Num Fluid Samples: 0

Num Gas Bombs: 0

Serial #:

Laboratory Name:

Laboratory Location:

Recovery Comments: 2#LCM

Sampler= 1500ml, 500ml G, 970ml O, 30ml M

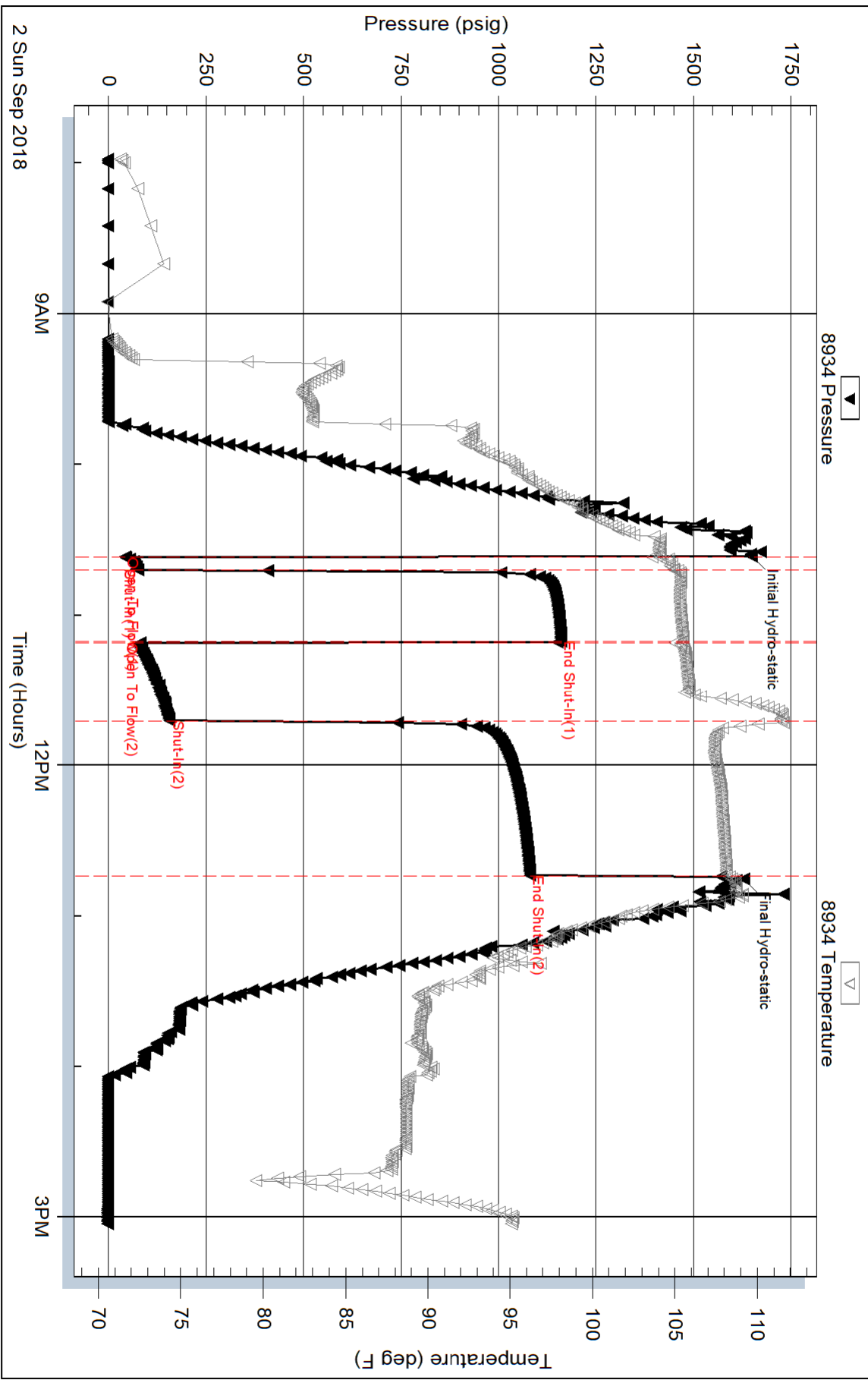
Serial #: 8934

Outside Samuel Gary Jr. & Associates, Inc.

Discovery #4

DST Test Number: 3

Pressure vs. Time



Trilobite Testing, Inc

Ref. No: 64592

Printed: 2018.09.02 @ 15:53:45

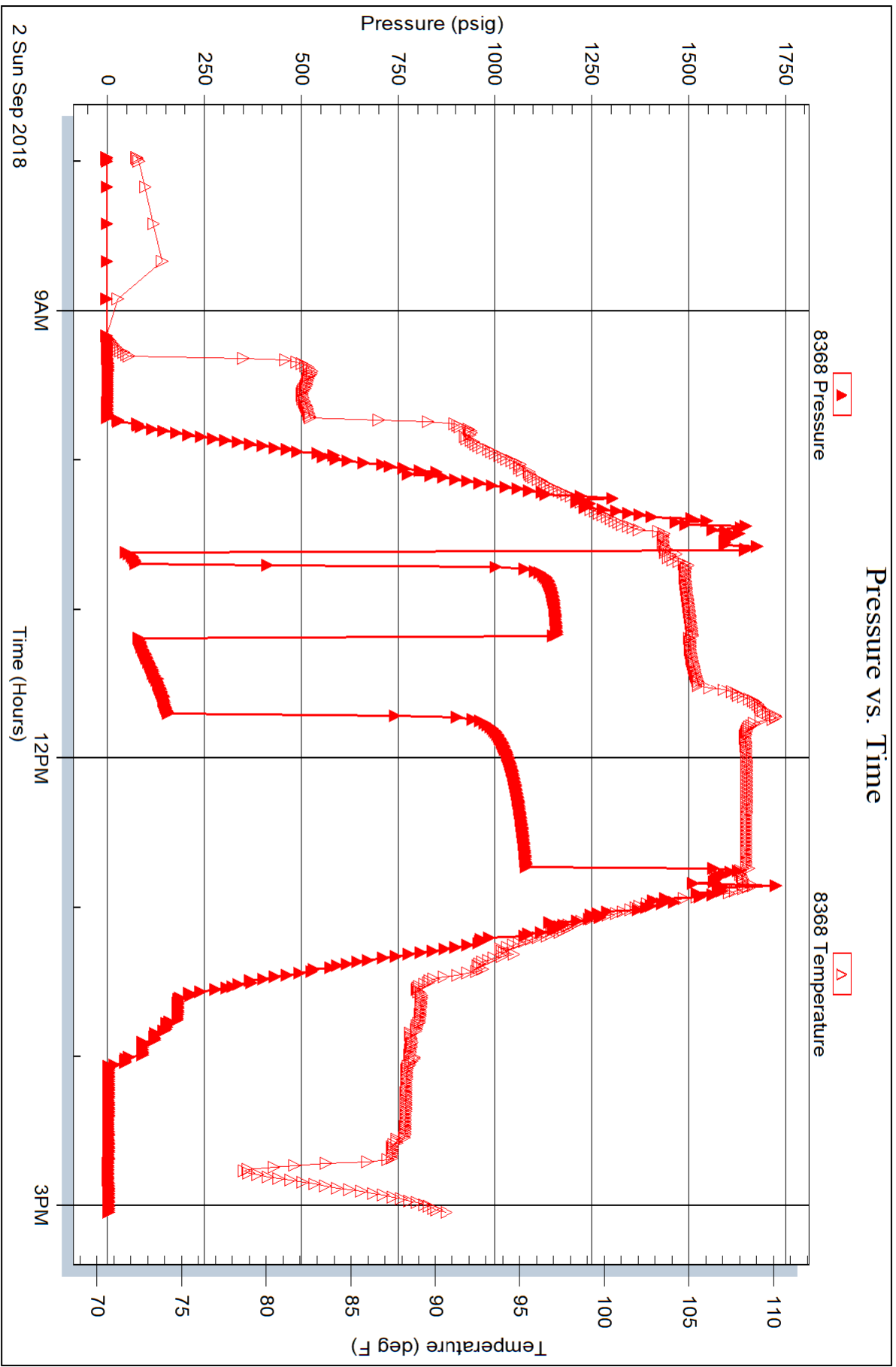
Serial #: 8368

Inside

Samuel Gary Jr. & Associates, Inc.

Discovery #4

DST Test Number: 3



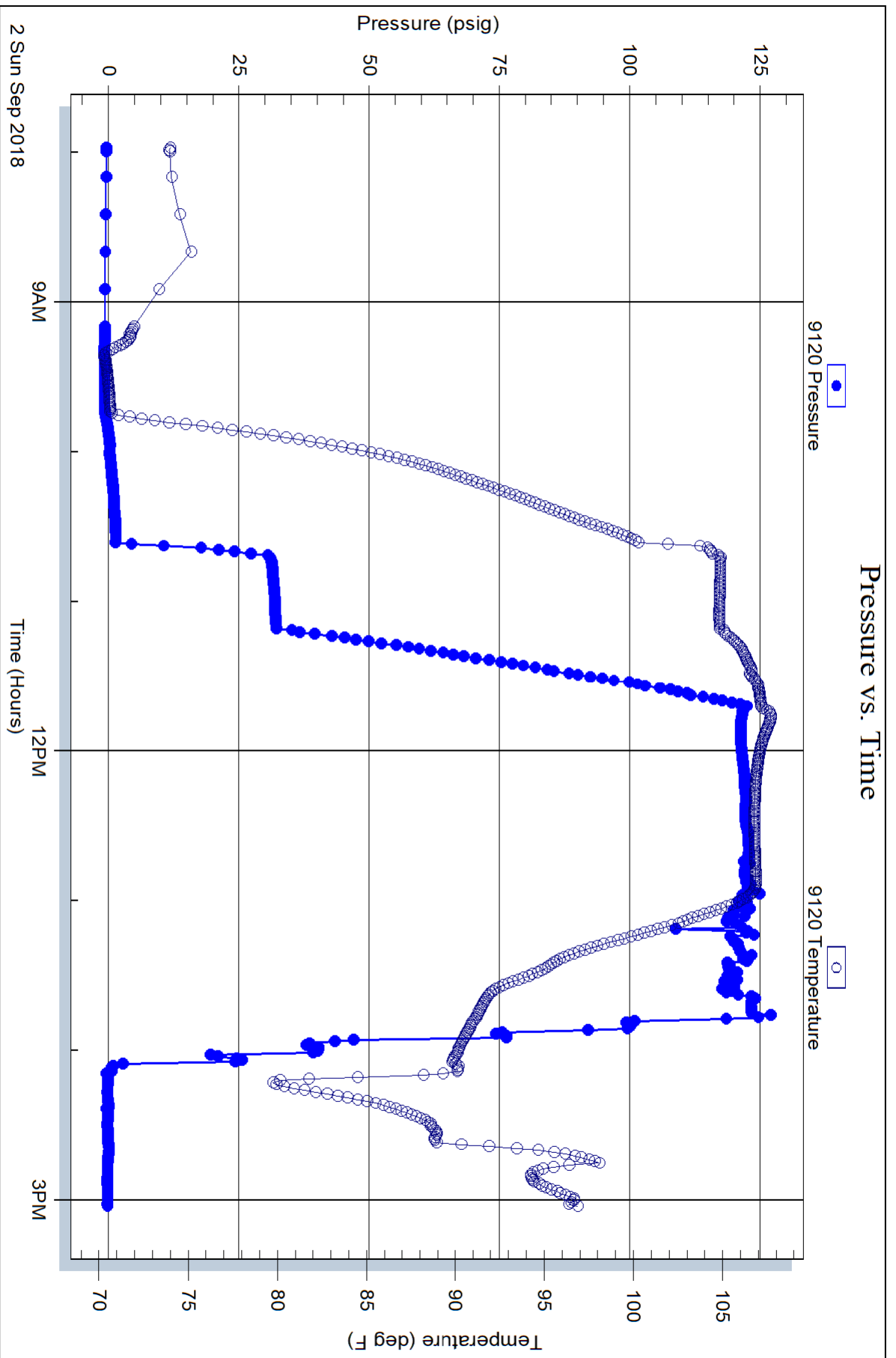
Serial #: 9120

Fluid

Samuel Gary Jr. & Associates, Inc.

Discovery #4

DST Test Number: 3



QUALITY OILWELL CEMENTING, INC.

Federal Tax I.D.# 20-2886107

Phone 785-483-2025
Cell 785-324-1041

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

No. 936

Date	8-28-18	Sec.	9	Twp.	19	Range	10	County	RECE Butler	State	KS	On Location		Finish	12:15 AM
------	---------	------	---	------	----	-------	----	--------	---------------------------	-------	----	-------------	--	--------	----------

Lease Escape to Colorado Well No. 16C-9-1910 Location Claffin, BE to 4th Rd, 6-7 S to I Rd, 1/4 W

Contractor Discovery #4 Owner N Hints

Type Job Surface
To Quality Oilwell Cementing, Inc.
You are hereby requested to rent cementing equipment and furnish cementer and helper to assist owner or contractor to do work as listed.

Hole Size 12 1/4" T.D. 348' Charge To Samuel Gary Jr. + Associates

Csg. 85 1/8" Depth 348' Street

Tbg. Size Depth City State

Tool Depth The above was done to satisfaction and supervision of owner agent or contractor.

Cement Left in Csg. 20' Shoe Joint 20' Cement Amount Ordered 275 80% 3% CC 2% Gel 1/2 # Flow Seal

Meas Line Displace 21 BLS

EQUIPMENT

Pumptrk 16 No. Cementer David Common 220

Bulktrk 9 No. Driver Doug Poz. Mix 55

Bulktrk p.u. No. Driver Rick Gel.

Calcium 10

JOB SERVICES & REMARKS

Remarks: Cement did Circulate Halls 5

Rat Hole Salt

Mouse Hole Flowseal 140 #

Centralizers Kol-Seal

Baskets Mud CLR 48

D/V or Port Collar CFL-117 or CD110 CAF 38

Handling 291

Mileage

FLOAT EQUIPMENT

Guide Shoe

Centralizer

Baskets

AFU Inserts

Float Shoe

Latch Down

Pumptrk Charge Surface

Mileage 35

Tax

Discount

Total Charge

X Signature John Joseph

Thanks

QUALITY OILWELL CEMENTING, INC.

Federal Tax I.D.# 20-2886107

Phone 785-483-2025
Cell 785-324-1041

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

No. 1001

Date	9.3.18	Sec.	9	Twp.	19	Range	10	County	Rice	State	KS	On Location		Finish	2.15pm
------	--------	------	---	------	----	-------	----	--------	------	-------	----	-------------	--	--------	--------

Lease *Escape to Colorado* Well No. *166-9-1910* Location *Plot in GE to 4th RD 75th RD 14W*

Contractor *Discourt #4* Owner *To Quality Oilwell Cementing, Inc.*
 You are hereby requested to rent cementing equipment and furnish cementer and helper to assist owner or contractor to do work as listed.

Type Job *Production String* Charge To *Sam Conroy*

Hole Size *2 7/8* T.D. *3342* Street _____ City _____ State _____

Csg. *5 1/2* Depth *33328* Street _____ City _____ State _____

Tbg. Size _____ Depth _____ City _____ State _____

Tool _____ Depth _____ The above was done to satisfaction and supervision of owner agent or contractor.

Cement Left in Csg. *42.48* Shoe Joint *42.40* Cement Amount Ordered *180 Q-Pro-C 10/salt*

Meas Line _____ Displace *78 1/4 BL* *5/6 1/2 salt 1/4 # FLO 350 2/30 Q-Pro-C 1/4 # FLO*

EQUIPMENT Common *500 gal mid clear*

Pumptrk *16* No. *5* Cementer *va g* Helper *bratt* Poz. Mix _____

Bulktrk *#20* No. _____ Driver *Tom* Gel. _____

Bulktrk *#19* No. _____ Driver *Jacik* Calcium _____

JOB SERVICES & REMARKS Hulls _____

Remarks: _____ Salt _____

Rat Hole *30SK* Flowseal _____

Mouse Hole *15SK* Kol-Seal _____

Centralizers _____ Mud CLR 48 _____

Baskets _____ CFL-117 or CD110 CAF 38 _____

D/V or Port Collar _____ Sand _____

5 1/2 csg @ 3328 Bulktrk #2 328 560 Handling _____

BS - Circulation Pump for 20 min + Mileage _____

Digs bail to see packer stop. **FLOAT EQUIPMENT** *5 1/2*

Circulate 30 min Pump 500 gal Guide Shoe _____

mid clear @ 10BL 22 spacer Centralizer *11*

Digs Rat hole + mouse hole Cement Baskets *6*

5 1/2 with 485 sk Clear lines + AFU Inserts _____

Digs Rat Hole 20BL KCL Float Shoe *Triplex shoe*

LF pressure 11009 Plug land @ 1500' Latch Down *1*

Release Pressure Diff. Pumptrk Charge _____

Cement Did NOT Circulate! Mileage _____

X Mud flush at d. show Tax _____

Signature *[Signature]* Discount _____

Total Charge _____



Musgrove

PETROLEUM CORPORATION
Clafin, Kansas

GEOLOGIST'S REPORT

DRILLING TIME AND SAMPLE LOG

COMPANY Samuel Gary & Associates, Inc.
 LEASE Escape to Colorado 16C-9-1910
 FIELD Mansz
 LOCATION SW-NE-SW-SE (435' FSL & 1263' FEL)
 SEC 9 TWSP 19S RGE 10W
 COUNTY Rice STATE Kansas

ELEVATIONS

KB 1771'
 DF _____
 GL 1763'
 Measurements Are All
 From KB

CONTRACTOR Southwind Drilling, Inc. (Rig #3)
 SPUD 08/27/2018 COMP 09/02/2018
 RTD 3342' LTD 3340'
 MUD UP 2400' TYPE MUD Chemical

CASING
 SURFACE 8 5/8'@ 348'
 PRODUCTION 5 1/2"@3335'

ELECTRICAL SURVEYS

By: Weatherford











SAMPLES SAVED FROM 2500' TO RTD
 DRILLING TIME KEPT FROM 2500' TO RTD
 SAMPLES EXAMINED FROM 2500' TO RTD
 GEOLOGICAL SUPERVISION FROM 2500' TO RTD
 GEOLOGIST ON WELL Jim Musgrove

FORMATION TOPS	LOG	SAMPLES
Anhydrite	492 (+1279)	Congl. 3321(-1550)
B. Anhydrite	507 (+1264)	Arbuckle 3333 (-1562)
Topeka	2589 (-818)	RTD 3342 (-1571)
Heebner	2855 (-1084)	LTD 3340 (-1569)
Toronto	2872 (-1101)	
Douglas	2888 (-1117)	
Douglas Sd.	2907 (-1136)	


		9	

Brown Lime	2978	(-1207)			
Lansing	3007	(-1236)			
Base Kansas City	3277	(-1506)			X

ROCK TYPES

 Chtcongl	 Lmst fw>7	 Carbon Sh	 Ss
 Dolprim	 shale, grn	 shale, red	
 Lmst fw<7	 shale, gry	 Shcol	

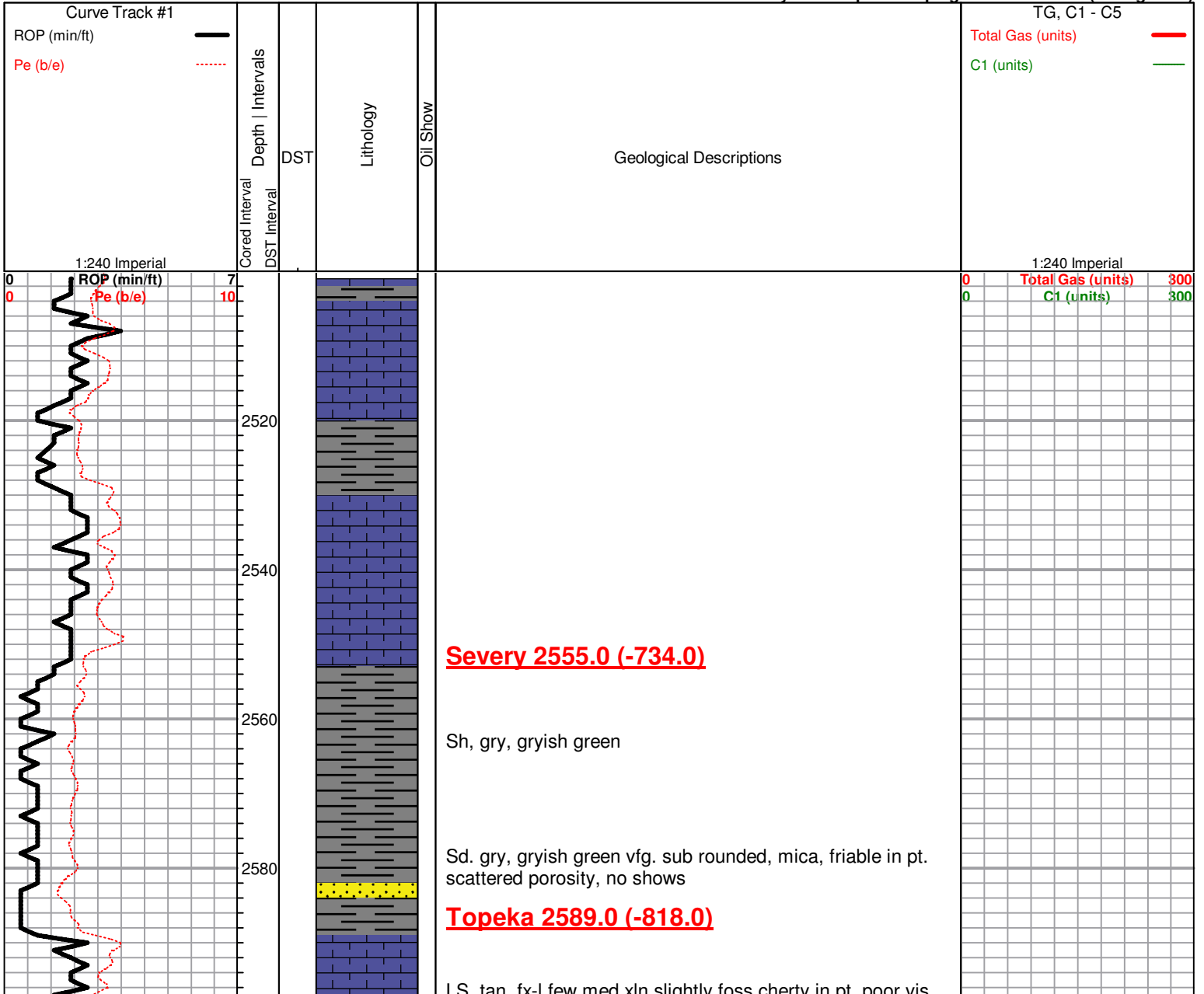
ACCESSORIES

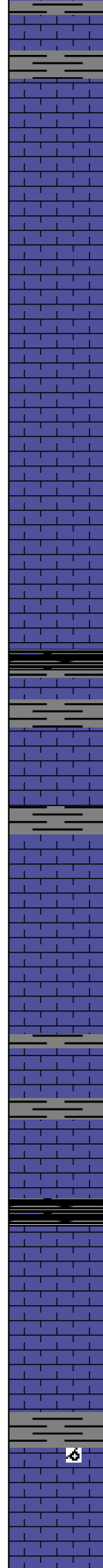
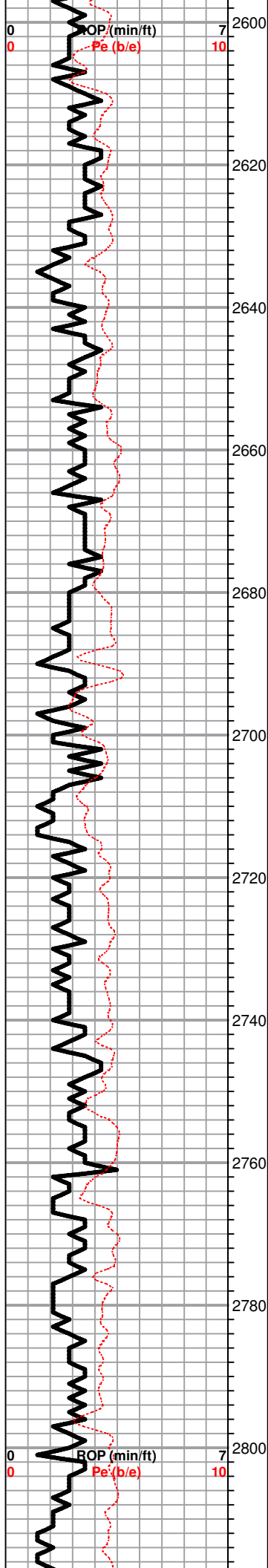
FOSSIL
 Oomoldic

OTHER SYMBOLS

Oil Show	DST
● Good Show	■ DST Int
● Fair Show	■ DST alt
● Poor Show	■ Core
○ Spotted or Trace	■ tail pipe
○ Questionable Stn	
D Dead Oil Stn	
■ Fluorescence	
* Gas	

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





LS, tan, fxl, low med xlm slightly less cherty in pt, poor vis. porosity, no shows

LS, tan, white, fxl, chalky, poor vis. porosity

LS, white, gry, foss, slightly chalky, poor vis. porosity, no shows

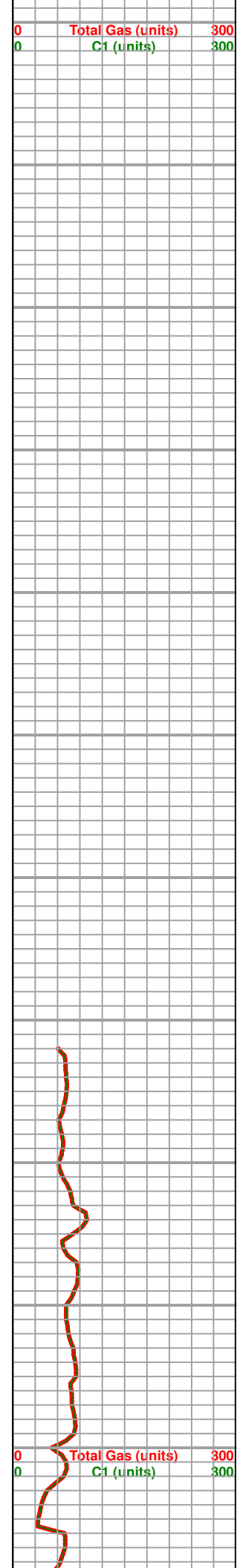
LS, a/a, slightly gran, chalky, tr. gry chert

King Hill 2688.0 (-917.0)
Sh, black carb
Sh gry, silty
Sh, maroon, gry- greenish, tr gry chert

LS, tan, fxl, few foss, gran. in pt, + white/ gry chert

LS, white, gry, chalky, poor developed porosity, no shows

Queen Hill 2764.0 (-993.0)
Sh, black carb
LS, gry, tan, fxl, foss in pt, + coal black chert
LS, tan, gry, sub oom poorly developed oom type porosity, chalky in pt, no shows
LS, tan, fxl, foss in pt, scattered porosity, no shows
LS, tan, gry, sub oom, poorly developed oom type



2820
2840
2860
2880
2900
2920
2940
2960
2980
3000
3020

porosity, chalky in pt, no shows

LS, white, cream, chalky + white chalk, poorly developed porosity

Heebner 2855.0 (-1084.0)

Sh, black carb
LS, tan, fxl, dense

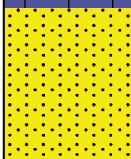
Sh, gry, greenish gry

Toronto 2877.0 (-1106.0)

LS, tan, gry, fxl, few chalky, inc. chert, dense, no shows

Douglas 2886.0 (-1115.0)

Sh, gry, gryish green, soft, platy



Sd. gry, gryish green, vfg. sub rounded, friable, fair I.G. porosity, slightly calc, mica. in pt, tan to dk brn stain/ sat., SFO, fair odor

Sh, A/a

Tr. LS, white, cream, chalky

Brown Lime 2978.0 (-1207.0)

LS, tan, fxl, slightly cherty, few med xln, dense,

Sh, gry, gryish green, silty

Lansing 3008.0 (-1237.0)

LS, white, cream, tan, f-med xln, few foss, poor vis. porosity, ??? stain, nsfo, no odor

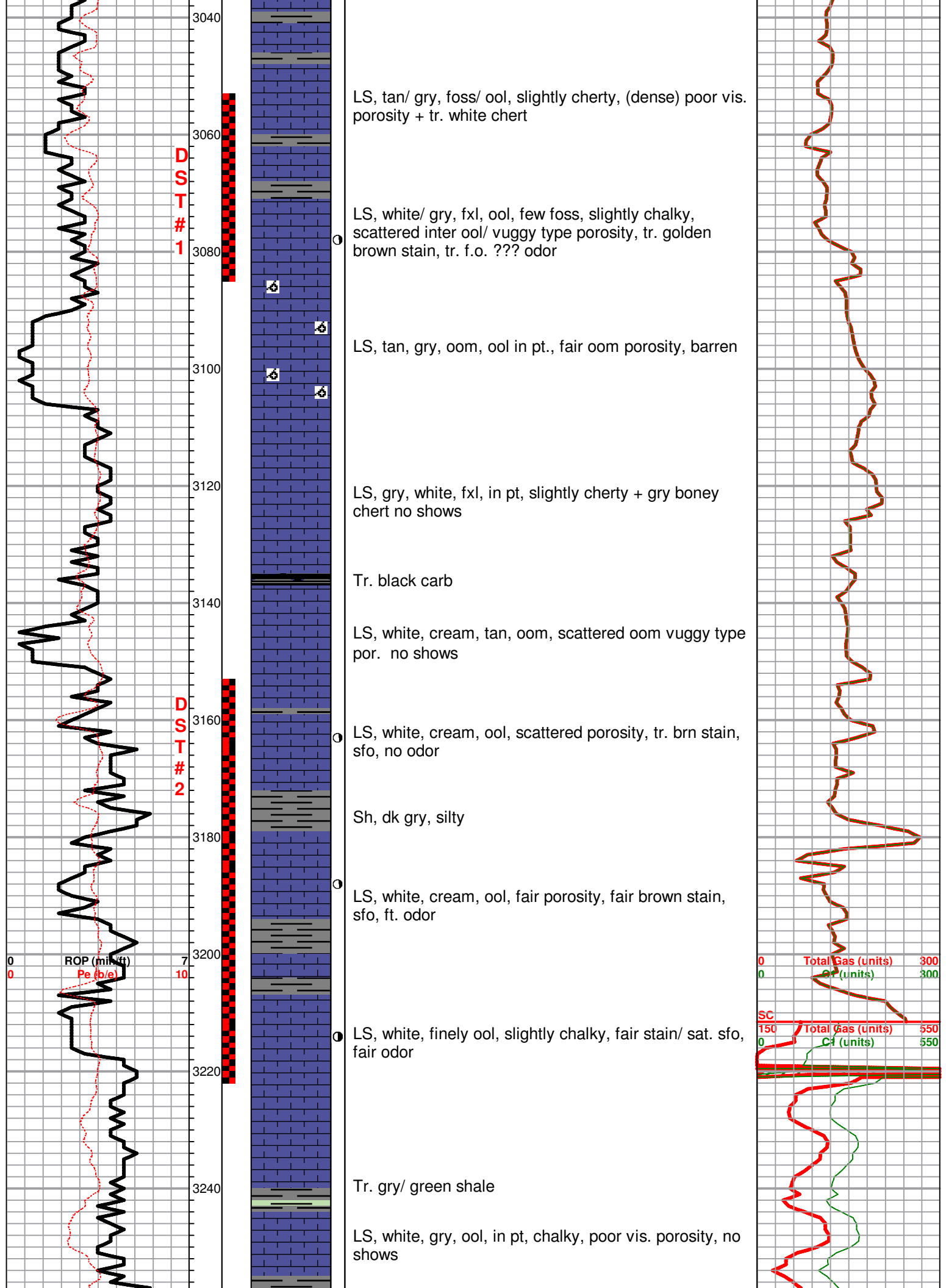
LS, white/ gry, oom, fair- oom porosity, barren

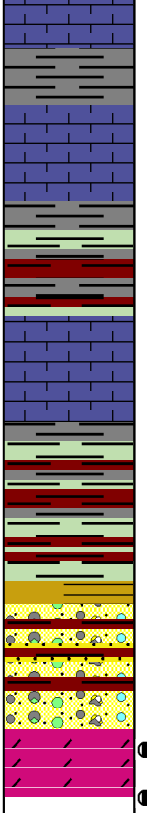
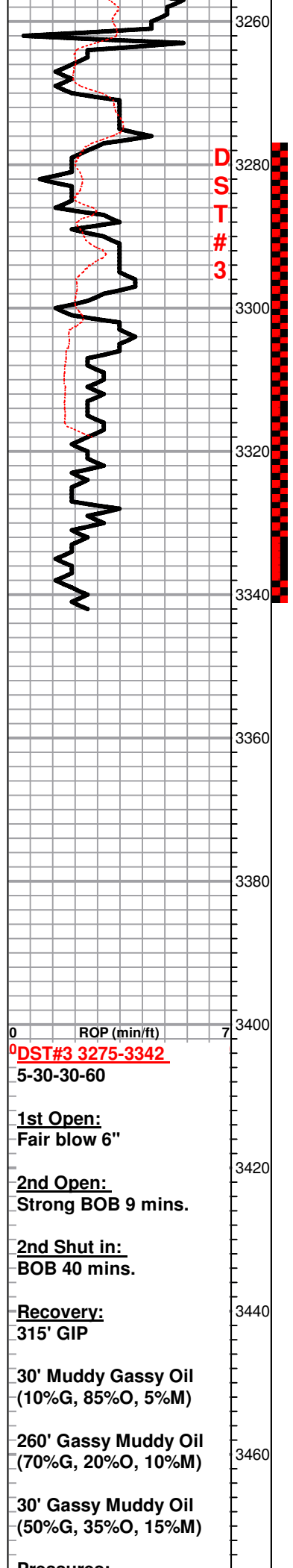
ROP (min/ft) 7
Pe (b/e) 10

100u gas kick

+6

Total Gas (units) 300
G1 (units) 300





Sh, gry/ blk/ green

LS, white, foss in pt, glauc.

BKC 3277.0 (-1506.0)

Sh, maroon, gry greenish

LS, white, cream, chalky ----> cherty (dense)

Sh, maroon, gry, green shale

Conglomerate 3320.0 (-1549.0)

V.C. cherts, tr. white/ clear, vfg sand, no shows

Sh, maroon,+ rusty brown. sandy, shale + tr. white chert

Arbuckle 3334.0 (-1563.0)

Dol, white, cream, suc. scattered p.p. porosity, lt. brown stain, sfo, fair odor

Dol. white, gry, suc. few f-med xln, scattered p.p. vuggy type porosity, lt. brn golden brown sfo, fair - good odor

RTD 3342.0 (-1571.0)

LTD 3340.0 (-1569.0)

DST#1 3052-3085

5-75-30-120

1st Open:

Weak 1/2"

2nd Open:

Weak to 3 1/2"

Recovery:

80' Oil specked mud

Pressures:

ISIP 607 psi

FSIP 544 psi

IFP 49-53 psi

FFP 53-54 psi

HSH 1487-1449 psi

DST#2 3153-3221

5-60-30-120

1st Open:

Fair

2nd Open:

Fair to strong BOB 7 mins

Recovery:

210' GIP

40' Oil cut mud

(2%G, 3%O, 95%M)

60' Heavy gas & Oil cut Mud

(75%G, 10%O, 15%M)

ROP (min/ft)

DST#3 3275-3342

5-30-30-60

1st Open:

Fair blow 6"

2nd Open:

Strong BOB 9 mins.

2nd Shut in:

BOB 40 mins.

Recovery:

315' GIP

30' Muddy Gassy Oil

(10%G, 85%O, 5%M)

260' Gassy Muddy Oil

(70%G, 20%O, 10%M)

30' Gassy Muddy Oil

(50%G, 35%O, 15%M)

Pressures:

+9

1

