

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
--	---

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	STRAIGHT UP 10C-9-1810
Doc ID	1459330

All Electric Logs Run

DENSITY-NEUTRON
INDUCTION
MICRO
SONIC

QUALITY OILWELL CEMENTING, INC.

Federal Tax I.D.# 20-2886107

785-483-2025

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

No. 1213

15-324-1041

Lease	1-31-19	Sec. 9	Twp. 18	Range 10	County Rice	State KS	On Location	Finish 2:45 AM
Well No.	10c-9-1810							
Location	Clafin 6 1/2 4 # 2 25 1/2 W N into							
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.							
Contractor	Straight up Discovery #2		Charge To Sam Gary Jr & Associates					
Type Job	Surface		Street					
Hole Size	12 1/4		City State					
Csg.	8 5/8		Depth 346					
Tbg. Size			Depth					
Tool			The above was done to satisfaction and supervision of owner agent or contractor.					
Cement Left in Csg.	15'		Shoe Joint Cement Amount Ordered 275 8 1/2 3.1.22.42					
Meas Line			Displace 21 BL 1/2 # 170					
EQUIPMENT				Common 220				
Pumptrk	20		Cement No. 20					
			Helper No. 9					
Bulktrk	9 1/2		Driver No. 5					
			Driver No. 5					
			Calcium 10					
JOB SERVICES & REMARKS				Hulls				
Remarks:	Salt							
Rat Hole	Flowseal 140							
Mouse Hole	Kol-Seal							
Centralizers	Mud CLR 48							
Baskets	CFL-117 or CD110 CAF 38							
D/V or Port Collar	Sand							
	8 5/8 on bottom Est. Circulation		Handling 291					
	Mix 275 SK & Displace		Mileage					
	Cement Circulated		FLOAT EQUIPMENT					
			Guide Shoe					
			Centralizer					
			Baskets					
			AFU Inserts					
			Float Shoe					
			Latch Down					
			Pumptrk Charge Surface					
			Mileage 35					
			Tax					
			Discount					
			Total Charge					
Signature	[Signature]							

Thanks

X Signature

QUALITY OILWELL CEMENTING, INC.

Federal Tax I.D.# 20-2886107

Phone 785-483-2025
785-324-1041

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

No. 534

Date	1-31-19	Sec.	9	Twp.	18	Range	10	County	Rice	State	KS	On Location		Finish	8:30 AM
								Location	Clafline to CRD 25 Bw N						

Lease	Straight up		Well No.	10091810	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.	
Contractor	Discovery 2				Charge To		
Type Job	plug back				To Sam Gary Jr & Assoc.		
Hole Size	7 7/8	T.D.	348	Street			
Csg.	778	Depth	466	City			
Tbg. Size		Depth		State			
Tool		Depth		The above was done to satisfaction and supervision of owner agent or contractor.			
Cement Left in Csg.		Shoe Joint		Cement Amount Ordered			
				75 cov 4% CC			

Meas Line	Displace					
EQUIPMENT						
Pumptrk	5	No.	Cement	Craig		Common
			Helper			75
Bulktrk	15	No.	Driver	Dowg		Poz. Mix
			Driver			Gel.
Bulktrk	pu	No.	Driver	Dave		Calcium
			Driver			4

JOB SERVICES & REMARKS						
Remarks:					Hulls	
Rat Hole					Salt	
Mouse Hole					Flowseal	
Centralizers					Kol-Seal	
Baskets					Mud CLR 48	
D/V or Port Collar					CFL-117 or CD110 CAF 38	
					Sand	
					Handling	
					79	
					Mileage	
					437	
					248	

FLOAT EQUIPMENT						
						Guide Shoe
						Centralizer
						Baskets
						AFU Inserts
						Float Shoe
						Latch Down

						Pumptrk Charge
						plug back
						Mileage
						35
						Tax
						Discount
						Total Charge

Thanks

[Signature]

QUALITY OILWELL CEMENTING, INC.

Federal Tax I.D.# 20-2886107

Phone 785-483-2025

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

No. 1193

Cell 785-324-1041

Date	2-8-19	Sec.	9	Twp.	18	Range	10	County	Rice	State	Ks	On Location		Finish	4:00 AM
Lease		Straight up		Well No.		100-9-1810		Location		Clafin - E to 4th Rd, 25, 1/2 mi, N 4th					
Contractor		Discovery #2		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		plug		Charge To		Samuel Gary Jr. + Associates									
Hole Size		7 7/8"		T.D.		3400'		Street							
Csg.				Depth				City		State					
Tbg. Size		4 1/2" D.P.		Depth		3258		City		State					
Tool				Depth				The above was done to satisfaction and supervision of owner agent or contractor.							
Cement Left in Csg.				Shoe Joint				Cement Amount Ordered 215 60/40 4% Gel Yut# Flo Seal							
Meas Line		Displace		H20/mnd											
EQUIPMENT															
Pumptrk		17		Cementer		David		Common		129					
Bulktrk		14		Helper		Tony		Poz. Mix		86					
Bulktrk		p.u.		Driver		Rick		Gel.		8					
Bulktrk				Driver				Calcium							
JOB SERVICES & REMARKS															
Remarks:		3258' - 35 SX										Hulls			
Rat Hole		1250' - 35 SX										Salt			
Mouse Hole		900' - 35 SX										Flowseal 50#			
Centralizers		400' - 35 SX										Kol-Seal			
Baskets		60' - 25 SX										Mud CLR 48			
D/V or Port Collar		Rathole w/ 30 SX mousehole w/ 20 SX										CFL-117 or CD110 CAF 38			
		Cement did Circulate										Sand			
												Handling 238			
												Mileage			
FLOAT EQUIPMENT															
												Guide Shoe			
												Centralizer			
												Baskets			
												AFU Inserts			
												Float Shoe			
												Latch Down			
												Pumptrk Charge plug			
												Mileage 35			
Signature												Tax			
												Discount			
												Total Charge			



TRILOBITE TESTING, INC.

DRILL STEM TEST REPORT

Samuel Gary Jr & Associates Inc

9-18s-10w Rice KS

1515 Wynkoop STE 700
Denver CO 80202+2062

Straight Up 10C-9-18

ATTN: Jim Musgrove

Job Ticket: 57089

DST#: 1

Test Start: 2019.02.04 @ 20:51:00

GENERAL INFORMATION:

Formation: **LKC**
 Deviated: No Whipstock: ft (KB)
 Time Tool Opened: 00:09:30
 Time Test Ended: 05:55:30
 Interval: **2996.00 ft (KB) To 3012.00 ft (KB) (TVD)**
 Total Depth: 3012.00 ft (KB) (TVD)
 Hole Diameter: 7.88 inches Hole Condition: Fair
 Test Type: Conventional Bottom Hole (Initial)
 Tester: Spencer J Staab
 Unit No: 67
 Reference Elevations: 1774.00 ft (KB)
 1767.00 ft (CF)
 KB to GR/CF: 7.00 ft

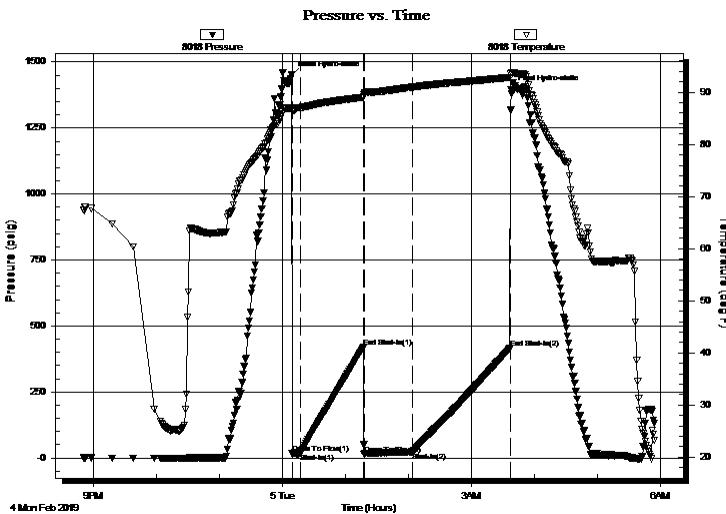
Serial #: 8018

Inside

Press@RunDepth: 21.76 psig @ 2997.00 ft (KB) Capacity: 8000.00 psig
 Start Date: 2019.02.04 End Date: 2019.02.05 Last Calib.: 2019.02.05
 Start Time: 20:51:05 End Time: 05:55:30 Time On Btm: 2019.02.05 @ 00:09:15
 Time Off Btm: 2019.02.05 @ 03:38:00

TEST COMMENT: 5-IF-Weak; Built to 4&1/2"
 60-ISI-No Return
 45-FF-BOB 20secs; Built to 35"
 90-FSI-Weak Surface Blow

PRESSURE SUMMARY



Time (Min.)	Pressure (psig)	Temp (deg F)	Annotation
0	1449.97	86.94	Initial Hydro-static
1	15.91	86.29	Open To Flow (1)
9	16.55	87.09	Shut-In(1)
69	418.76	89.07	End Shut-In(1)
69	13.58	89.51	Open To Flow (2)
115	21.76	91.01	Shut-In(2)
208	415.51	92.87	End Shut-In(2)
209	1393.98	93.48	Final Hydro-static

Recovery

Length (ft)	Description	Volume (bbl)
20.00	VSOCM 2%O 98%M	0.15
0.00	410' GIP 100%G	0.00

Gas Rates

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



**TRILOBITE
TESTING, INC.**

DRILL STEM TEST REPORT

FLUID SUMMARY

Samuel Gary Jr & Associates Inc

9-18s-10w Rice KS

1515 Wynkoop STE 700
Denver CO 80202+2062

Straight Up 10C-9-18

Job Ticket: 57089

DST#: 1

ATTN: Jim Musgrove

Test Start: 2019.02.04 @ 20:51:00

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: 7.20 in³

Gas Cushion Type:

Resistivity: ohm.m

Gas Cushion Pressure:

psig

Salinity: 6700.00 ppm

Filter Cake: inches

Recovery Information

Recovery Table

Length ft	Description	Volume bbl
20.00	VSOCM 2%O 98%M	0.147
0.00	410' GIP 100%G	0.000

Total Length: 20.00 ft Total Volume: 0.147 bbl

Num Fluid Samples: 0

Num Gas Bombs: 0

Serial #:

Laboratory Name:

Laboratory Location:

Recovery Comments: 1#LCM

Sampler= 200ml G 200ml M 600ml O @150PSI

Serial #: 8018

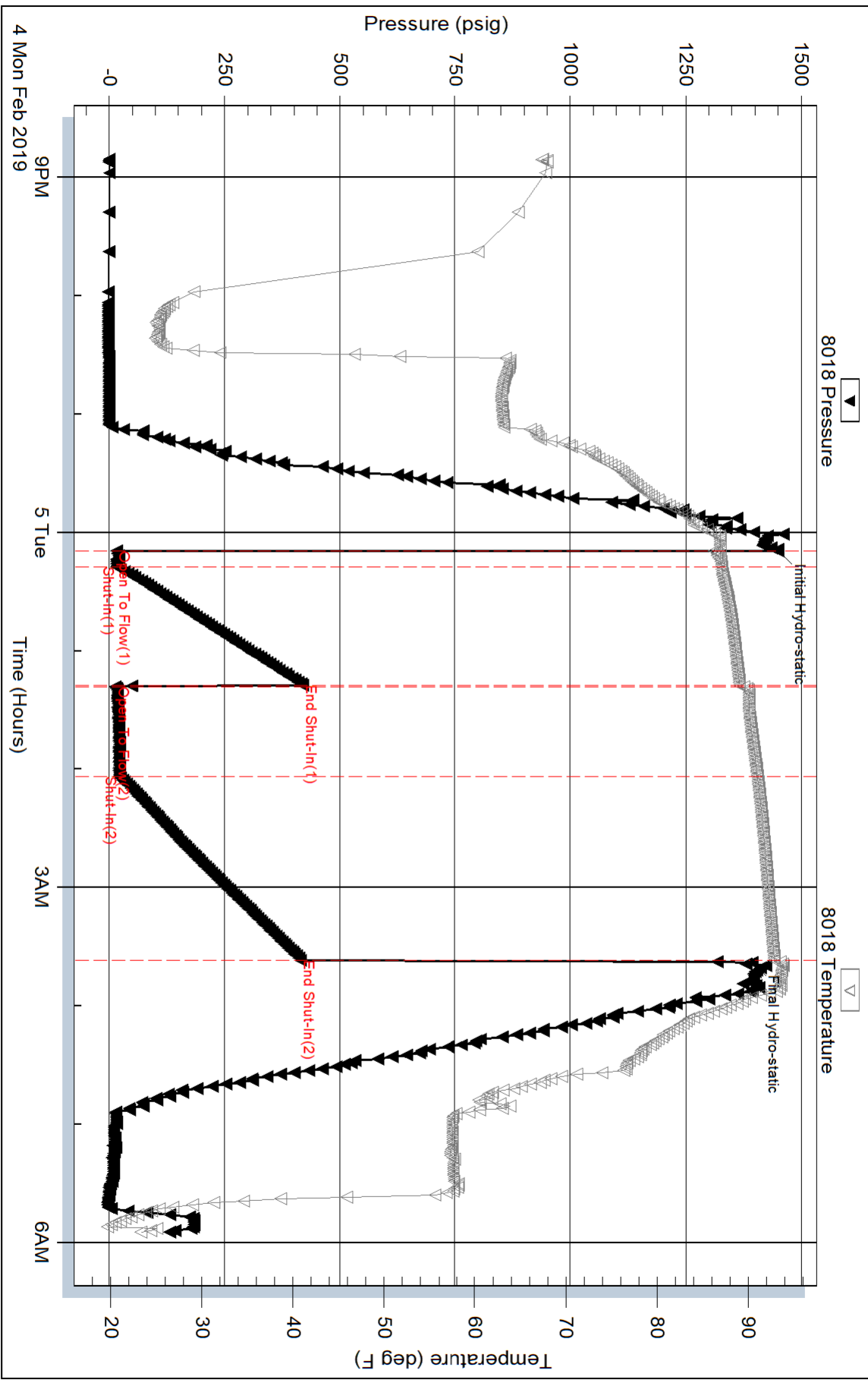
Inside

Samuel Gary Jr & Associates Inc

Straight Up 10C-9-18

DST Test Number: 1

Pressure vs. Time



Serial #: 6839

Fluid

Samuel Gary Jr & Associates Inc

Straight Up 10C-9-18

DST Test Number: 1





TRILOBITE TESTING, INC.

DRILL STEM TEST REPORT

Samuel Gary Jr & Associates Inc

9-18s-10w Rice KS

1515 Wynkoop STE 700
Denver CO 80202+2062

Straight Up 10C-9-18

ATTN: Jim Musgrove

Job Ticket: 57090

DST#: 2

Test Start: 2019.02.07 @ 02:57:04

GENERAL INFORMATION:

Formation: **LKC**

Deviated: No Whipstock: ft (KB)

Time Tool Opened: 06:15:19

Time Test Ended: 09:48:19

Test Type: Conventional Straddle (Reset)

Tester: Spencer J Staab

Unit No: 67

Interval: 3168.00 ft (KB) To 3200.00 ft (KB) (TVD)

Reference Elevations: 1774.00 ft (KB)

Total Depth: 3402.00 ft (KB) (TVD)

1767.00 ft (CF)

Hole Diameter: 7.88 inches Hole Condition: Fair

KB to GR/CF: 7.00 ft

Serial #: 8018 Inside

Press@RunDepth: 18.15 psig @ 3169.00 ft (KB)

Capacity: 8000.00 psig

Start Date: 2019.02.07 End Date: 2019.02.07

Last Calib.: 2019.02.07

Start Time: 02:57:09 End Time: 09:48:18

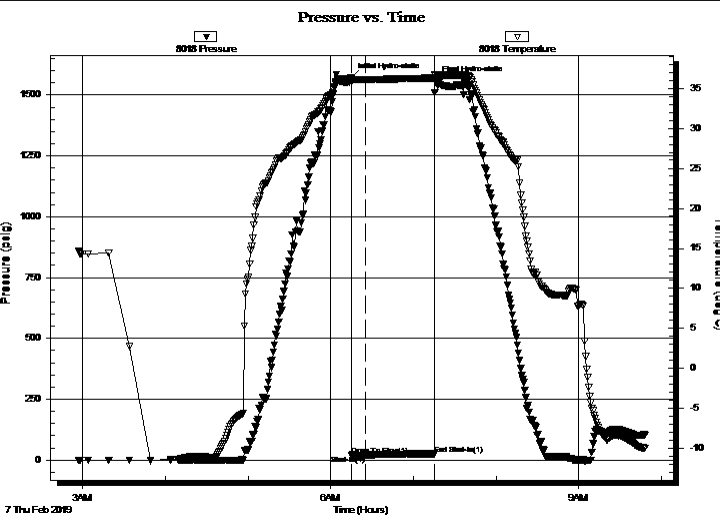
Time On Btm: 2019.02.07 @ 06:15:04

Time Off Btm: 2019.02.07 @ 07:16:04

TEST COMMENT: 10-IF-Weak; Built to 1&1/4"

60-ISI-No Return

Pulled because interval was wrong



PRESSURE SUMMARY

Time (Min.)	Pressure (psig)	Temp (deg C)	Annotation
0	1570.92	36.32	Initial Hydro-static
1	18.00	35.79	Open To Flow (1)
10	18.15	36.06	Shut-In(1)
61	24.74	36.28	End Shut-In(1)
61	1559.17	36.53	Final Hydro-static

Recovery

Length (ft)	Description	Volume (bbl)
5.00	OSM 100%M	0.04

* 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

9-18s-10w Rice KS

1515 Wynkoop STE 700
Denver CO 80202+2062

Straight Up 10C-9-18

Job Ticket: 57090

DST#: 2

ATTN: Jim Musgrove

Test Start: 2019.02.07 @ 02:57:04

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: 58.00 sec/qt

Cushion Volume:

bbbl

Water Loss: 7.59 in³

Gas Cushion Type:

Resistivity: ohm.m

Gas Cushion Pressure:

psig

Salinity: 7100.00 ppm

Filter Cake: inches

Recovery Information

Recovery Table

Length ft	Description	Volume bbl
5.00	OSM 100%M	0.037

Total Length: 5.00 ft Total Volume: 0.037 bbl

Num Fluid Samples: 0

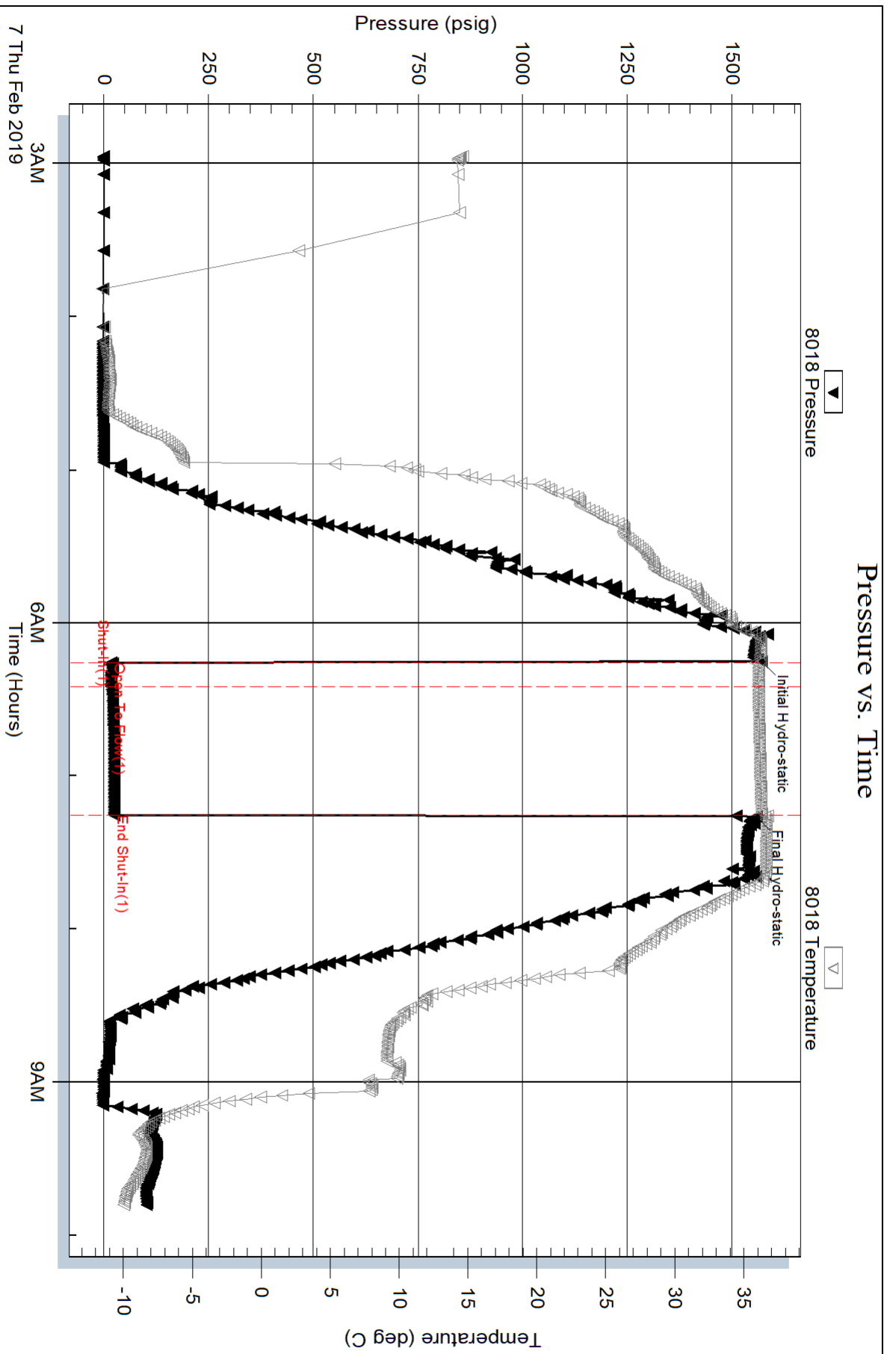
Num Gas Bombs: 0

Serial #:

Laboratory Name:

Laboratory Location:

Recovery Comments: 1#LCM



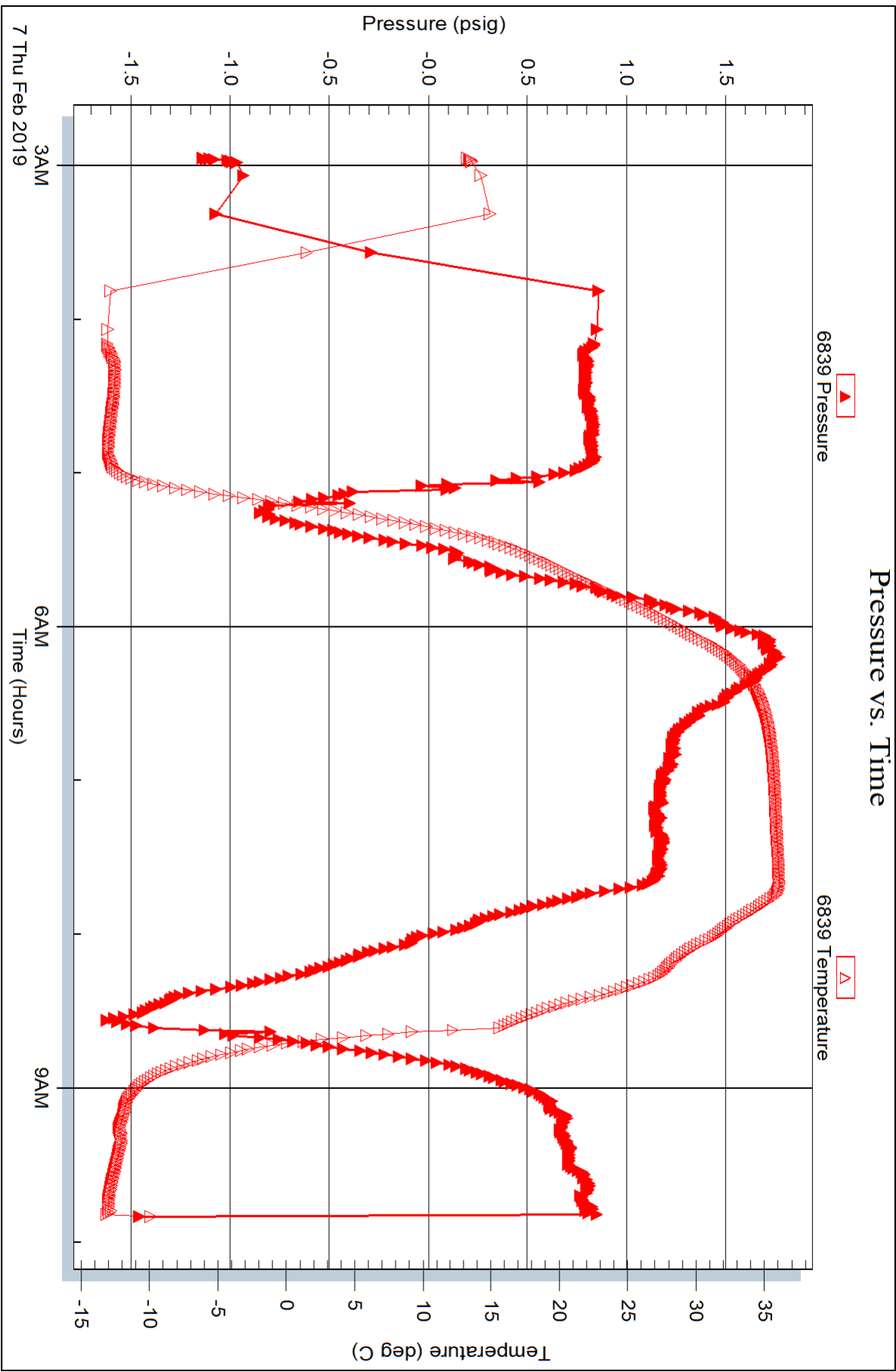
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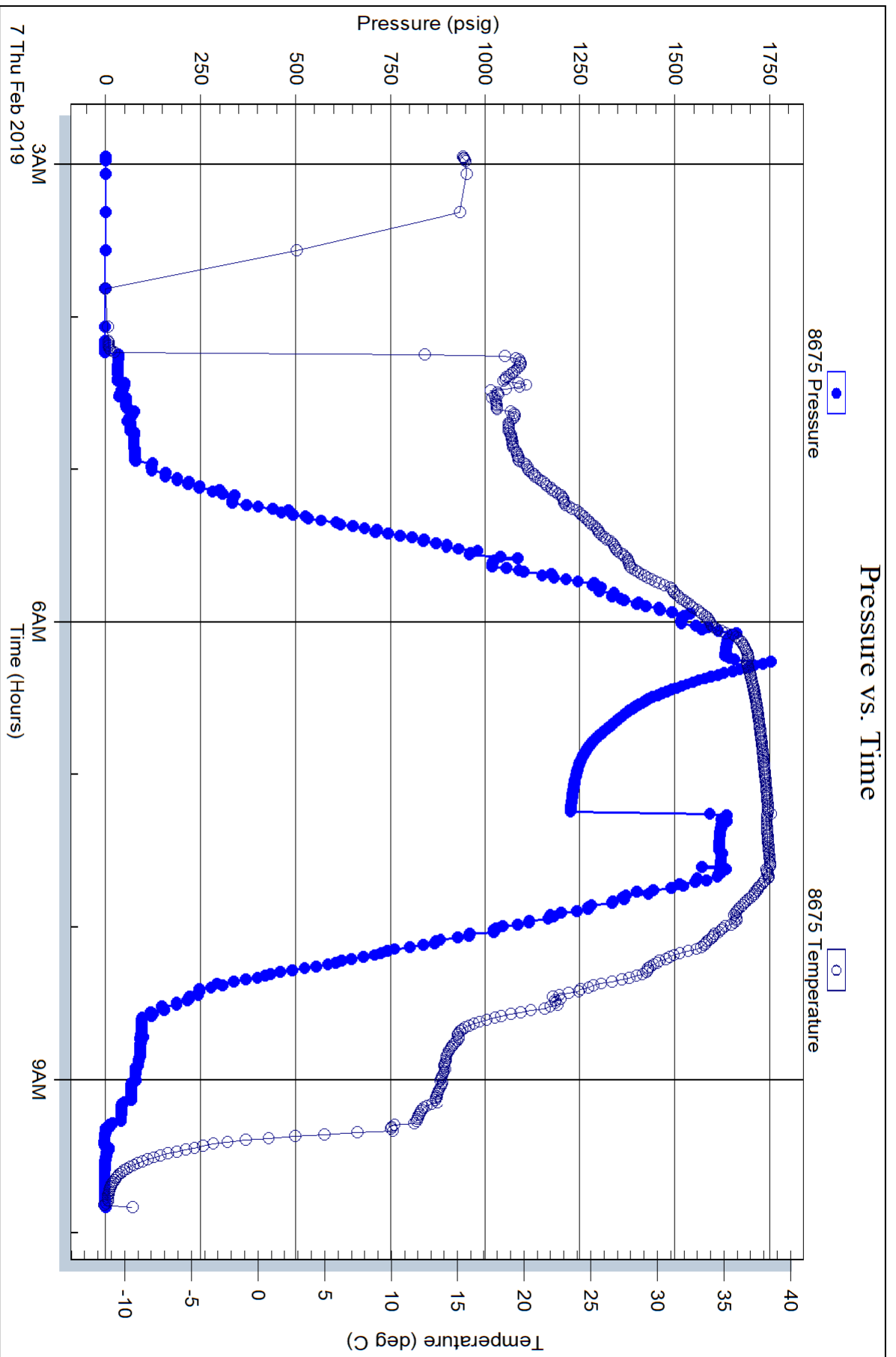
Fluid

Samuel Gary Jr & Associates Inc

Straight Up 10C-9-18

DST Test Number: 2







TRILOBITE TESTING, INC.

DRILL STEM TEST REPORT

Samuel Gary Jr & Associates Inc

9-18s-10w Rice KS

1515 Wynkoop STE 700
Denver CO 80202+2062

Discovery #2

Job Ticket: 57091

DST#: 3

ATTN: Jim Musgrove

Test Start: 2019.02.07 @ 10:30:00

GENERAL INFORMATION:

Formation: **LKC "I"**

Deviated: No Whipstock: ft (KB)

Time Tool Opened: 12:29:30

Time Test Ended: 18:02:00

Test Type: Conventional Straddle (Reset)

Tester: Spencer J Staab

Unit No: 67

Interval: 3090.00 ft (KB) To 3122.00 ft (KB) (TVD)

Total Depth: 3402.00 ft (KB) (TVD)

Hole Diameter: 7.88 inches Hole Condition: Fair

Reference Elevations: 1774.00 ft (KB)

1767.00 ft (CF)

KB to GR/CF: 7.00 ft

Serial #: 8018

Inside

Press@RunDepth: 64.66 psig @ 3091.00 ft (KB)

Start Date: 2019.02.07

End Date:

2019.02.07

Start Time: 10:30:05

End Time:

18:01:59

Capacity: 8000.00 psig

Last Calib.: 2019.02.07

Time On Btm: 2019.02.07 @ 12:29:15

Time Off Btm: 2019.02.07 @ 15:37:15

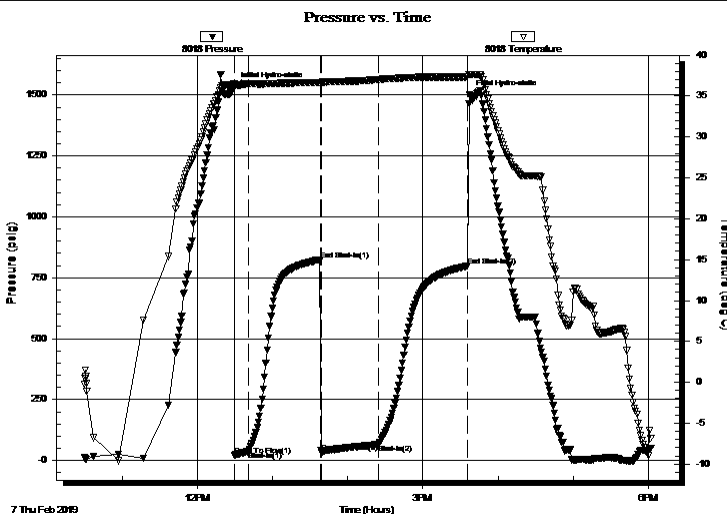
TEST COMMENT: 10-IF-Weak; Built to 3&1/2"

60-ISI-No Return

45-FF-BOB 2 mins; Built to 45"

90-FSI-Weak Surface Blow

PRESSURE SUMMARY



Time (Min.)	Pressure (psig)	Temp (deg C)	Annotation
0	1534.86	36.46	Initial Hydro-static
1	21.05	36.13	Open To Flow (1)
12	35.78	36.49	Shut-In(1)
69	823.85	36.67	End Shut-In(1)
70	32.97	36.68	Open To Flow (2)
116	64.66	37.03	Shut-In(2)
187	798.06	37.35	End Shut-In(2)
188	1500.56	37.64	Final Hydro-static

Recovery

Length (ft)	Description	Volume (bbl)
60.00	GMO 25%G 35%O 40%M	0.44
30.00	GSOCM 5%G 5%O 90%M	0.22
0.00	540' 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

9-18s-10w Rice KS

1515 Wynkoop STE 700
Denver CO 80202+2062

Discovery #2

Job Ticket: 57091

DST#: 3

ATTN: Jim Musgrove

Test Start: 2019.02.07 @ 10:30:00

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: 58.00 sec/qt

Cushion Volume:

bbbl

Water Loss: 7.60 in³

Gas Cushion Type:

Resistivity: ohm.m

Gas Cushion Pressure:

psig

Salinity: 7100.00 ppm

Filter Cake: inches

Recovery Information

Recovery Table

Length ft	Description	Volume bbbl
60.00	GMO 25%G 35%O 40%M	0.441
30.00	GSOCM 5%G 5%O 90%M	0.220
0.00	540' GIP 100%G	0.000

Total Length: 90.00 ft Total Volume: 0.661 bbl

Num Fluid Samples: 0

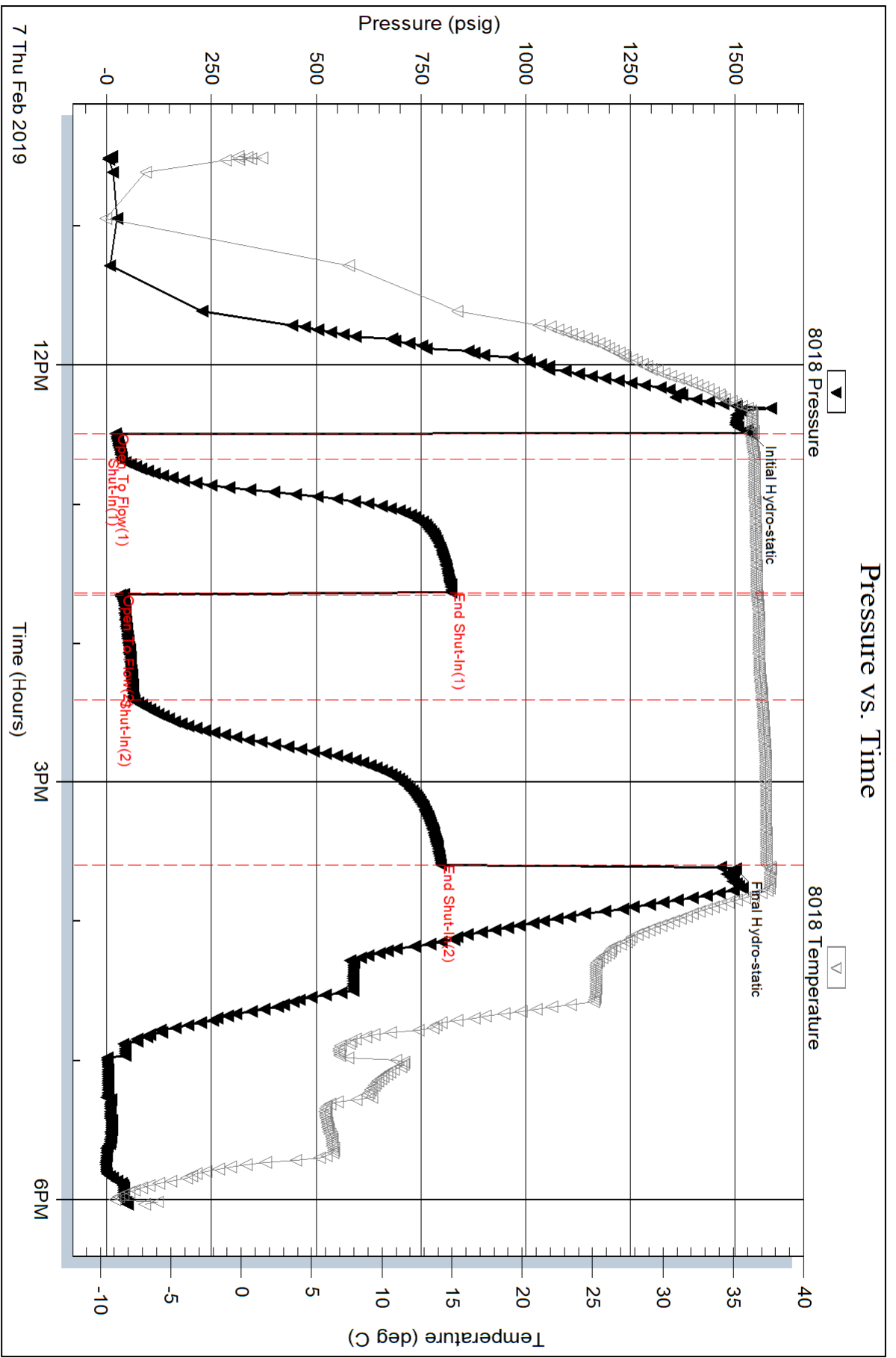
Num Gas Bombs: 0

Serial #:

Laboratory Name:

Laboratory Location:

Recovery Comments: 1#LCM



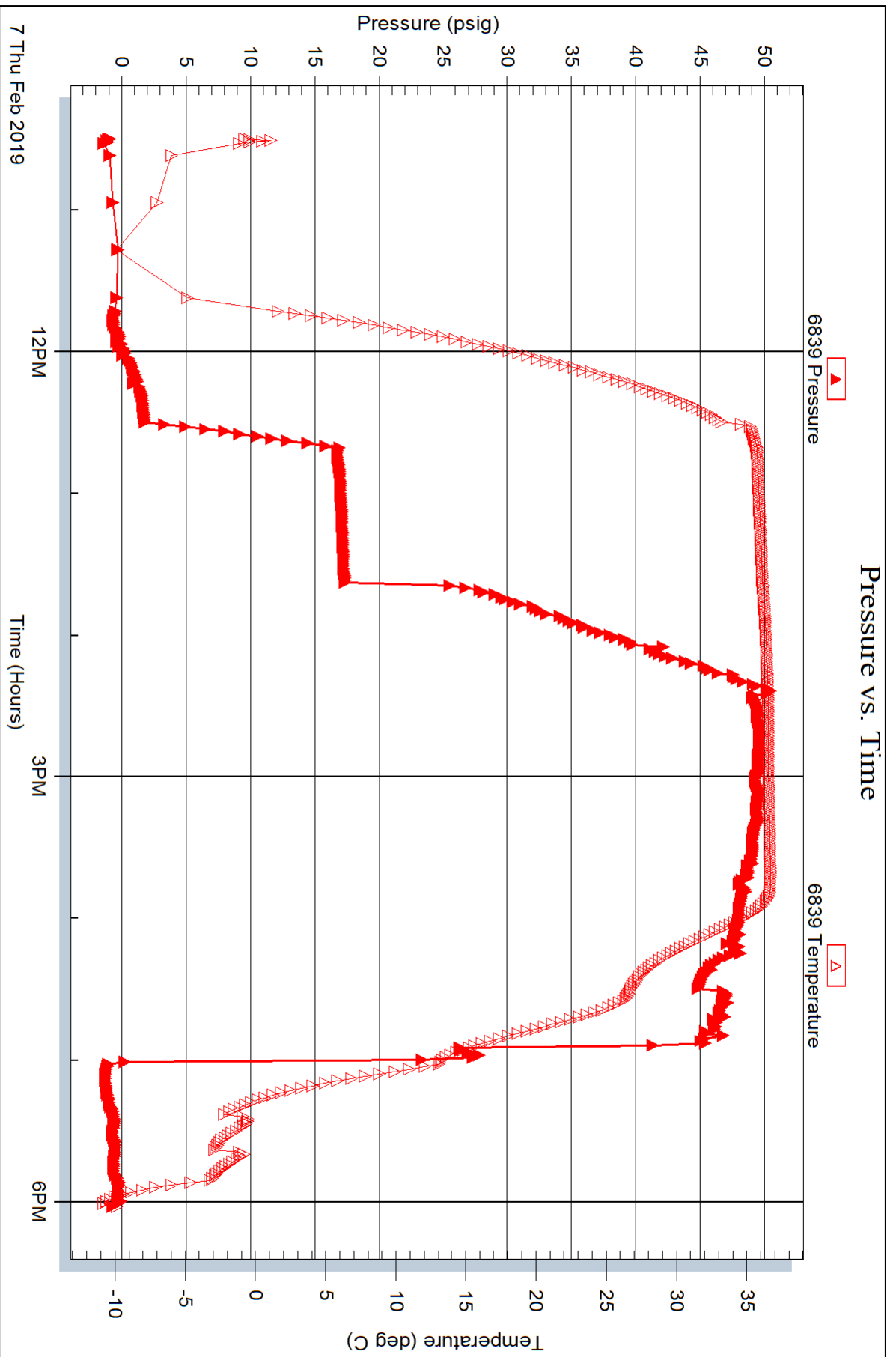
Serial #: 6839

Fluid

Samuel Gary Jr & Associates Inc

Discovery #2

DST Test Number: 3

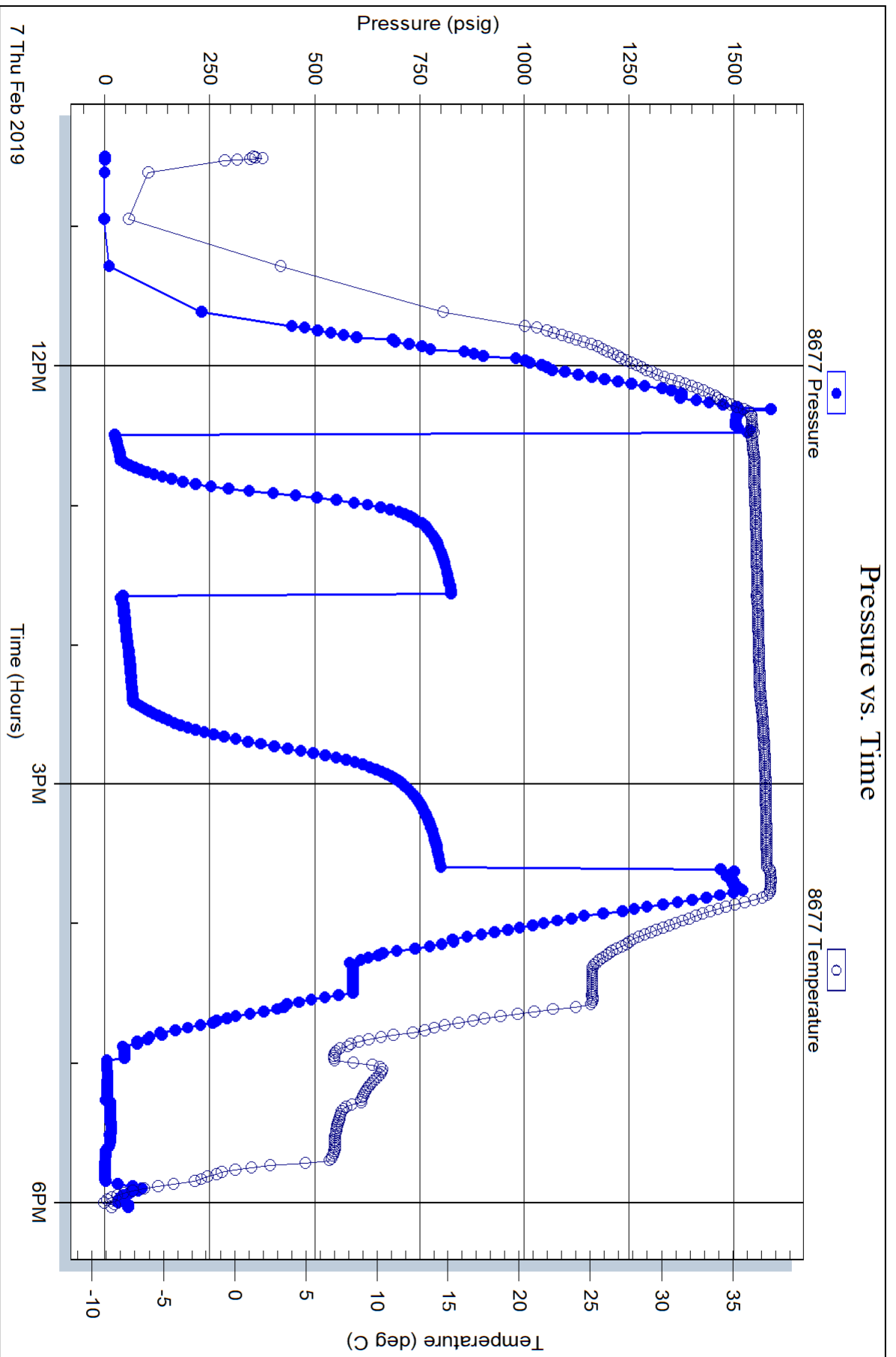


Serial #: 8677

Outside Samuel Gary Jr & Associates Inc

Discovery #2

DST Test Number: 3

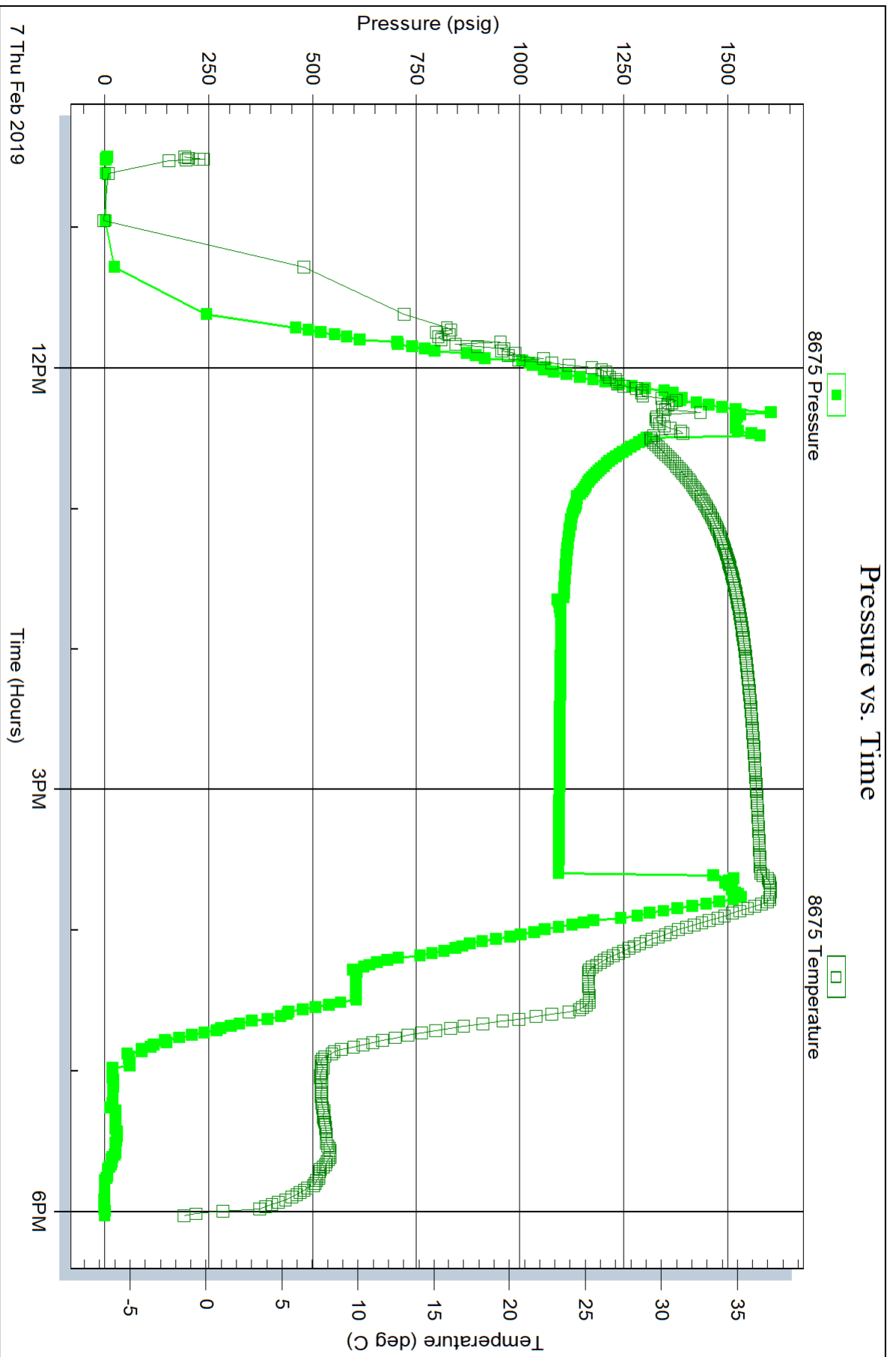


Serial #: 8675

Below (Stratton) Gary Jr & Associates Inc

Discovery #2

DST Test Number: 3





Musgrove

Petroleum Geology
212 Main Street, Claflin KS

GEOLOGIST'S REPORT

DRILLING TIME AND SAMPLE LOG

COMPANY <u>Samuel Gary & Associates, Inc.</u>	ELEVATIONS
LEASE <u>Straight Up #10-C-9-1810</u>	KB <u>1775'</u>
FIELD <u>Heinz East</u>	DF _____
LOCATION <u>NE-SW-NW-SE</u> (1970' FSL & 2070' FEL)	GL <u>1767'</u>
SEC <u>9</u> TWSP <u>18S</u> RGE <u>10W</u>	Measurements Are All From <u>KB</u>
COUNTY <u>Rice</u> STATE <u>Kansas</u>	
CONTRACTOR <u>Discovery Drilling CO. (Rig #2)</u>	CASING
SPUD <u>01-30-2019</u> COMP <u>02-07-2019</u>	SURFACE <u>8 5/8" @ 348'</u>
RTD <u>3400'</u> LTD <u>3402'</u>	PRODUCTION <u>None</u>
MUD UP <u>2300</u> TYPE MUD <u>Chemical</u>	ELECTRICAL SURVEYS
	By Weatherford

SAMPLES SAVED FROM 2400' TO RTD

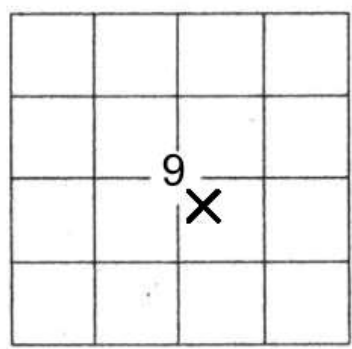
DRILLING TIME KEPT FROM 2400' TO RTD

SAMPLES EXAMINED FROM 2400' TO RTD

GEOLOGICAL SUPERVISION FROM 2400 TO RTD

GEOLOGIST ON WELL Jim Musgrove

FORMATION TOPS	LOG	SAMPLES
Anhydrite	494 (+1281)	Arbuckle 3258 (-1483)
B. Anhydrite	513 (+1262)	RTD 3402 (-1645)
Topeka	2541 (-766)	LTD 3402 (-1647)
Heebner	2802 (-1027)	
Toronto	2820 (-1045)	
Douglas	2830 (-1055)	
Brown Lime	2920 (-1145)	
Lansing	2937 (-1162)	
BKC	3204 (-1429)	
Conglomerate	3219 (-1444)	



DRILLSTEM TESTS

No	Interval	Formation
1	3300-3320	Topkea
2	3168-3200 Straddle Test	Lansing "L"
3	3090-3122 Straddle Test	Lansing 'I'



**TRILOBITE
TESTING, INC**

DRILL STEM TEST REPORT

Samuel Gary Jr & Associates Inc

Straight Up #10C-9-1810

1515 Wynkoop STE 700
Denver CO 80202+2062

9-18s-10w Rice,KS

Job Ticket: 57089

DST#: 1

ATTN: Jim Musgrove

Test Start: 2019.02.04 @ 20:51:00

GENERAL INFORMATION:

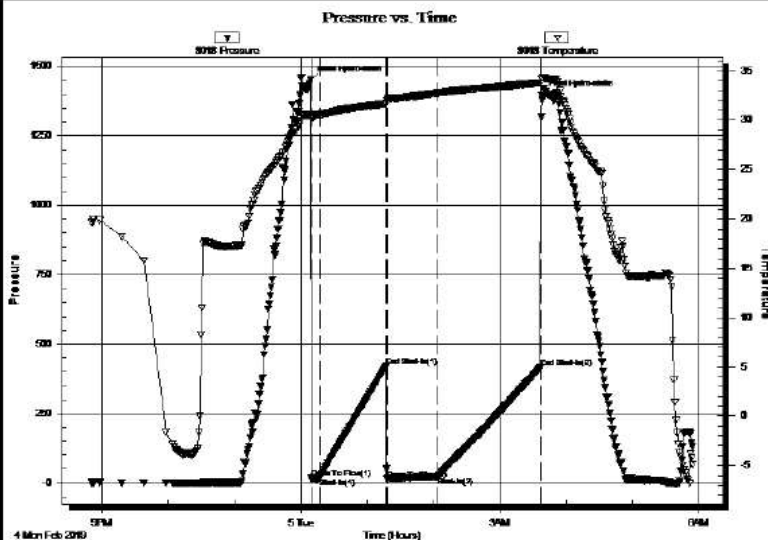
Formation: **LKC**
 Deviated: No Whipstock: ft (KB)
 Time Tool Opened: 00:09:30
 Time Test Ended: 05:55:30
 Interval: **2996.00 ft (KB) To 3012.00 ft (KB) (TVD)**
 Total Depth: 3012.00 ft (KB) (TVD)
 Hole Diameter: 7.88 inches Hole Condition: Fair
 Test Type: Conventional Bottom Hole (Initial)
 Tester: Spencer J Staab
 Unit No: 67
 Reference Elevations: 1774.00 ft (KB)
 1767.00 ft (CF)
 KB to GR/CF: 7.00 ft

Serial #: 8018

Inside

Press@RunDepth: 21.76 psig @ 2997.00 ft (KB) Capacity: 8000.00 psig
 Start Date: 2019.02.04 End Date: 2019.02.05 Last Calib.: 2019.02.05
 Start Time: 20:51:05 End Time: 05:55:30 Time On Btm: 2019.02.05 @ 00:09:15
 Time Off Btm: 2019.02.05 @ 03:38:00

TEST COMMENT: 5-F-Weak; Built to 4 1/2"
 60-IS-No Return
 45-FF-BOB 20 secs; Built to 35"
 90-FSI-Weak Surface Blow



PRESSURE SUMMARY

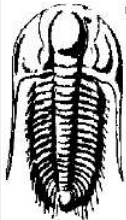
Time (Min.)	Pressure (psig)	Temp (deg C)	Annotation
0	1449.97	30.52	Initial Hydro-static
1	15.91	30.16	Open To Flow (1)
9	16.55	30.60	Shut-in(1)
69	418.76	31.71	End Shut-in(1)
69	13.58	31.95	Open To Flow (2)
115	21.76	32.78	Shut-in(2)
208	415.51	33.82	End Shut-in(2)
209	1393.98	34.15	Final Hydro-static

Recovery

Length (ft)	Description	Volume (bbl)
20.00	VSOCM 2%O 98%M	0.15
0.00	410' GP 100%G	0.00

Gas Rates

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



**TRILOBITE
TESTING, INC.**

DRILL STEM TEST REPORT

Samuel Gary Jr & Associates Inc

Straight Up #10C-9-1810

1515 Wynkoop STE 700
Denver CO 80202+2062

9-18s-10w Rice,KS

Job Ticket: 57090

DST#:2

ATTN: Jim Musgrove

Test Start: 2019.02.07 @ 02:57:04

GENERAL INFORMATION:

Formation: **LKC "L"**

Deviated: No Whipstock: ft (KB)

Time Tool Opened: 06:15:19

Time Test Ended: 09:48:19

Test Type: Conventional Straddle (Reset)

Tester: Spencer J Staab

Unit No: 67

Interval: 3168.00 ft (KB) To 3200.00 ft (KB) (TVD)

Total Depth: 3402.00 ft (KB) (TVD)

Hole Diameter: 7.88 inches Hole Condition: Fair

Reference Elevations: 1774.00 ft (KB)

1767.00 ft (CF)

KB to GR/CF: 7.00 ft

Serial #: 8018

Inside

Press@RunDepth: 18.15 psig @ 3169.00 ft (KB)

Start Date: 2019.02.07

End Date:

2019.02.07

Start Time: 02:57:09

End Time:

09:48:18

Capacity: 8000.00 psig

Last Calib.: 2019.02.07

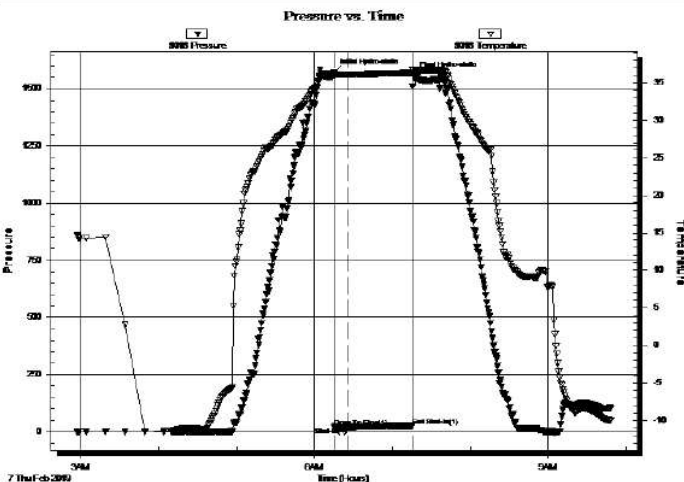
Time On Btm: 2019.02.07 @ 06:15:04

Time Off Btm: 2019.02.07 @ 07:16:04

TEST COMMENT: 10-F-Weak;Built to 1&1/4"

60-IS-No Return

Pulled because interval w as wrong



PRESSURE SUMMARY

Time (Min.)	Pressure (psig)	Temp (deg C)	Annotation
0	1570.92	36.32	Initial Hydro-static
1	18.00	35.79	Open To Flow (1)
10	18.15	36.06	Shut-In(1)
61	24.74	36.28	End Shut-In(1)
61	1559.17	36.53	Final Hydro-static

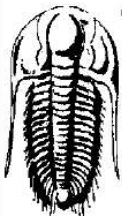
Recovery

Length (ft)	Description	Volume (bbl)
5.00	OSM 100%M	0.04

* Recovery from multiple tests

Gas Rates

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



TRILOBITE TESTING, INC

DRILL STEM TEST REPORT

Samuel Gary Jr & Associates Inc

Straight Up #10C-9-1810

1515 Wynkoop STE 700
Denver CO 80202+2062

9-18e-10w Rice, KS

Job Ticket: 57091

DST#: 3

ATTN: Jim Musgrove

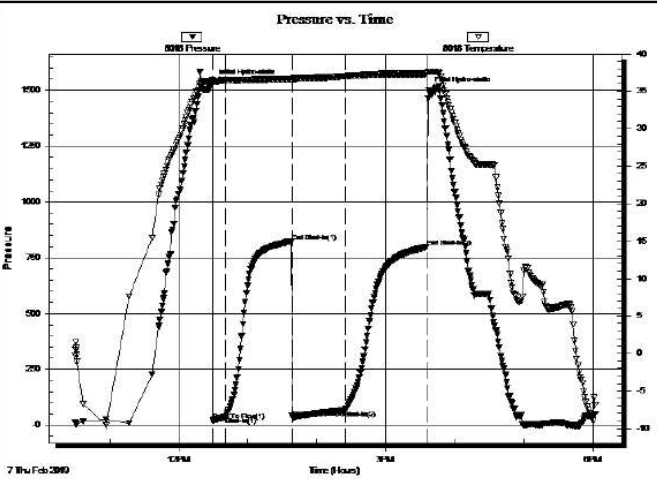
Test Start: 2019.02.07 @ 10:30:00

GENERAL INFORMATION:

Formation: **LKC "I"**
 Deviated: **No Whipstock** ft (KB)
 Time Tool Opened: **12:29:30**
 Time Test Ended: **18:02:00**
 Interval: **3090.00 ft (KB) To 3122.00 ft (KB) (TVD)**
 Total Depth: **3402.00 ft (KB) (TVD)**
 Hole Diameter: **7.88 Inches** Hole Condition: **Fair**
 Test Type: **Conventional Straddle (Raset)**
 Tester: **Spencer J Staab**
 Unit No: **67**
 Reference Elevations: **1774.00 ft (KB)**
1767.00 ft (CF)
 KB to GRVCF: **7.00 ft**

Serial #: 8018 Inside
 Press@RunDepth: **64.66 psig @ 3091.00 ft (KB)** Capacity: **8000.00 psig**
 Start Date: **2019.02.07** End Date: **2019.02.07** Last Callb.: **2019.02.07**
 Start Time: **10:30:05** End Time: **18:01:59** Time On Btm: **2019.02.07 @ 12:29:15**
 Time Off Btm: **2019.02.07 @ 15:37:15**

TEST COMMENT: 10-IF-Weak; Built to 3 1/2"
 60-ISI-No Return
 45-FF-BOB 2 mins; Built to 45"
 90-FSI-Weak Surface Blow



PRESSURE SUMMARY

Time (Mn.)	Pressure (psig)	Temp (deg C)	Annotation
0	1534.86	36.46	Initial Hydro-static
1	21.05	36.13	Open To Flow (1)
12	35.78	36.49	Shut-In(1)
69	823.85	36.67	End Shut-In(1)
70	32.97	36.68	Open To Flow (2)
116	64.66	37.03	Shut-In(2)
187	798.06	37.35	End Shut-In(2)
188	1500.56	37.64	Final Hydro-static

Recovery

Length (ft)	Description	Volume (bbl)
60.00	GMO 25%G 35%O 40%M	0.44
30.00	GSOCM 5%G 5%O 90%M	0.22
0.00	540' GIP 100%G	0.00

* Recovery from multiple tests

Gas Rates

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

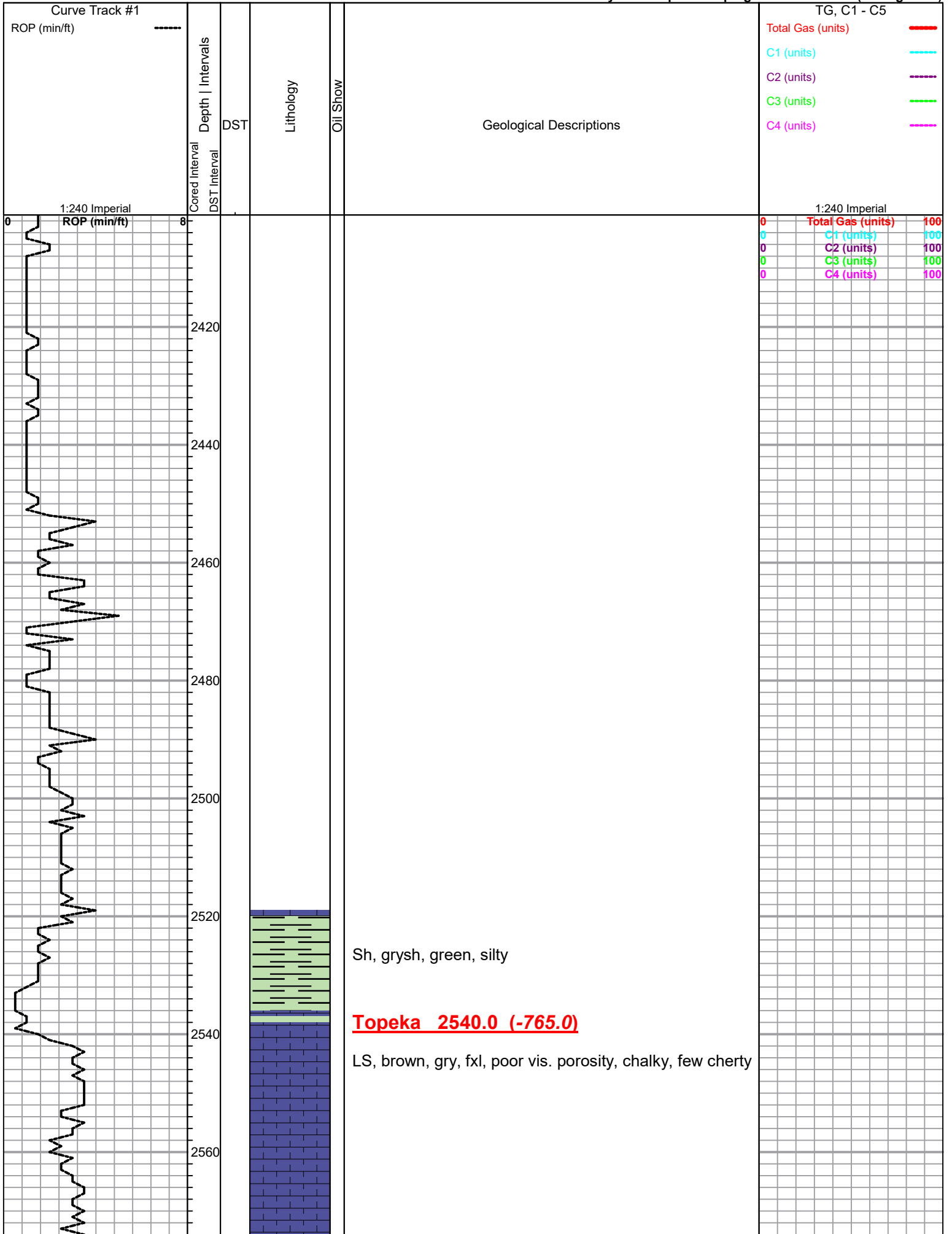
ROCK TYPES

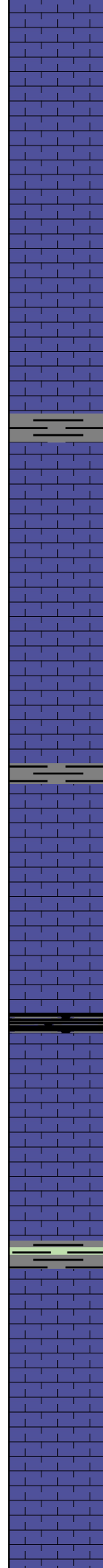
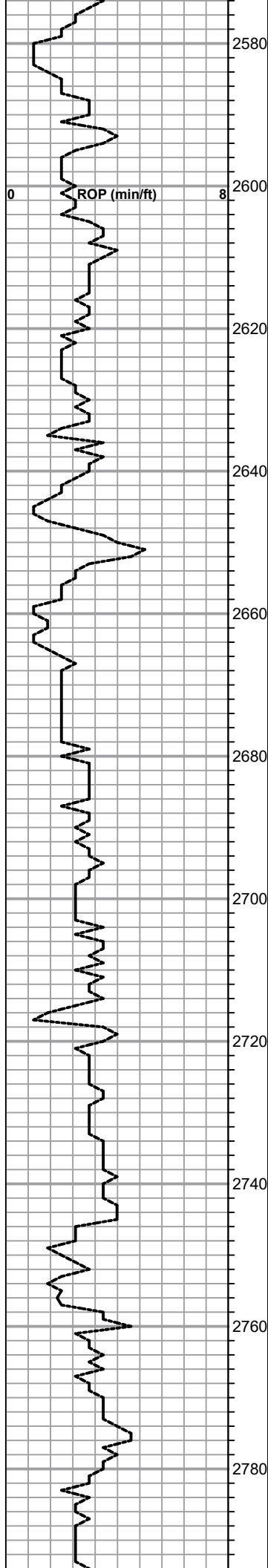
Cht vari	Lmst fw<7	shale, gry	shale, red
Dolprim	shale, grn	Carbon Sh	Ss

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





LS, gry, tan, fxl, gran. in pt., scattered porosity, no shows

LS, gry, tan, fxl, slightly cherty (dense), tr. white, foss chert

Sh, black carb

LS, tan, fxl, slightly cherty (dense)

Sh, gry/ gyish green, +Tr. white chalk & boney chert

LS, white/ yellow, f-med. xln, scattered porosity, chalky in pts, no shows

Sh, black carb

LS, white, gry, fxl, few foss chalky in pts, LS, white, gry, fxl, few foss, chalky in pts

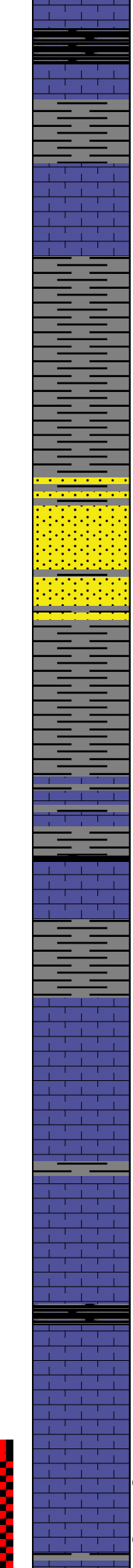
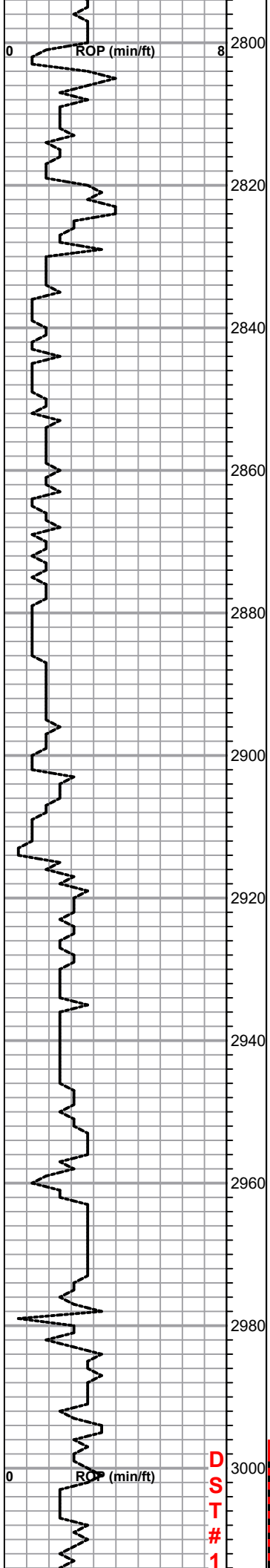
Sh, gry green

LS, gry, white, foss, scattered porosity, blk gry, dk brown, stain, sfo, no odor

LS, a/a, few finely oom porosity, no shows

LS, white, gry, fxl, few foss, chalky, + tr. gry chert

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



Sh, black carb

Sh, maroon, gry

Toronto 2815.0 (-1040.0)

LS, white, tan, mottled, chalky, poor - fair porosity, no shows

Douglas 2830.0 (-1055.0)

Sh, gry, gryish green sh

Sh, a/a

Sd. gry, gryish green vfg, mica, scatt IG porosity, no shows

Sh, gry, gryish green, silty

LS, white, cream, chalky, Sh, a/a

Brown Lime 2915.0 (-1140.0)

LS, white, tan, mottled chalky, poor- fair porosity

Sh, gry, maroon

Lansing 2935.0 (-1160.0)

LS, white, f- med xln, few foss, chalky, poorly developed porosity, no shows (barren)

LS, tan, fxl, ool, oom, slightly chalky, (barren), fair oom porosity

Sh, black carb

LS, gry, tan, highly ool, poor porosity, no shows + gry chert

LS, gry, tan, fxl, slightly cherty (dense)

○ LS, tan, highly ool, chalky in part, ??? stain, nsfo, no odor

● LS, tan, ool, fair porosity, inter/ool, brown stain, sfo, ft. odor

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

DST # 1 299-3012
5-60-45-90

1st Open:
Weak build to 4.5"

2nd Open:
BOB 20 sec.

Recovery:

410' GIP

20' VSOCM
(2%O, 98%M)

Pressures:

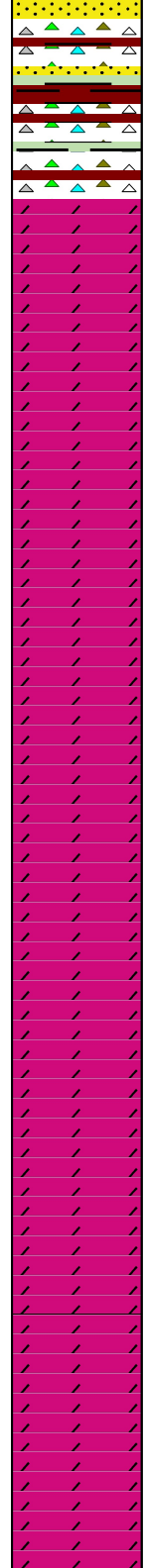
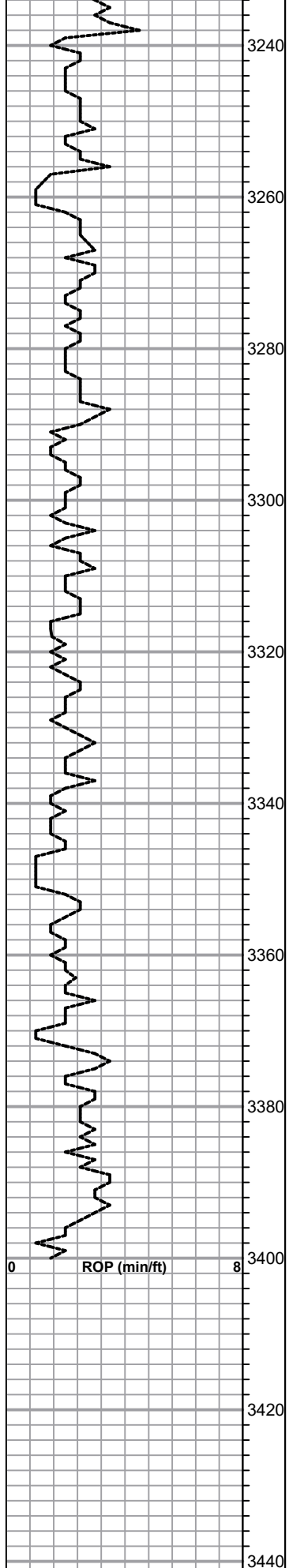
○ ISIP 418 psi

○ FSIP 415 psi

○ IFP15-16 psi

○ FFP 13-21 psi

○ HSH 1440 1200 psi



V.C sandy sh.
+tr. sd. gry vfg. & v.c. opaque chert sw

Sh, maroon, red soft sh.+opaque cherts

Arbuckle 3255.0 (-1480.0)

Dol. white/ cream, f-med xln, poor , chalky, lustr, no shows

Dol. white, cream, fxl, suc. poorly developed, porosity, no shows

Dol. white, cream, fxl, suc. sandy in part, few med xln, glauc. slightly cherty, poorly developed no shows

Dol. white, gry, f- med xln, poor inxln porosity, chalky, luster tr. white chalk & white/amber boney chert

Dol.,a/a, glauc. poor/fair porosity, no shows

Dol., gry, white, f- med xln , scattered inxln porosity (barren)

Dol., white, cream, med- coarse xln, fair inxln porosity, no shows

Dol., a/a, fair inxln/ vuggy porosity, no shows

Dol., white, cream, med xln , fair inxln porosity+ white chalk & white chert

RTD 3400.0 (-1625.0)

LTD 3402.0 (-1627.0)

Interval

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

3460

3480

3500