KOLAR Document ID: 1466274

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 # 31938
Name: Indian Oil Co., Inc.
Address 1: 2507 SE US HWY 160
Address 2: PO BOX 209
City: MEDICINE LODGE State: KS Zip: 67104 + 0209
Contact Person: Anthony Farrar
Phone: (620) 886-3763
CONTRACTOR: License # 34484
Name: Fossil Drilling, Inc.
Wellsite Geologist: Aaron L Young
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 #:

05/31/2019 Spud Date or Recompletion Date
06/08/2019 Date Reached TD
9/6/2019 Completion Date or Recompletion Date

API No.: 15-007-24351-00-00
Spot Description:
_ - NE - NE - NE Sec. 17 Twp. 30 S. R. 13 ☐ East ☑ West
330 Feet from ☑ North / ☐ South Line of Section
330 Feet from ☑ East / ☐ West Line of Section
Footages Calculated from Nearest Outside Section Corner:
☑ NE ☐ NW ☐ SE ☐ SW
GPS Location: Lat: *(e.g. xx.xxxxx)* , Long: *(e.g. -xxx.xxxxx)*
Datum: ☐ NAD27 ☐ NAD83 ☐ WGS84
County: Barber
Lease Name: RETA Well #: 1
Field Name: Gem
Producing Formation: Viola
Elevation: Ground: 1834 Kelly Bushing: 1846
Total Vertical Depth: 4755 Plug Back Total Depth: 4698
Amount of Surface Pipe Set and Cemented at: 261 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: 5000 ppm Fluid volume: 80 bbls
Dewatering method used: Evaporated
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: 09/16/2019
☐ **Confidential Release Date:** 09/15/2021
☑ **Wireline Log Received** ☑ **Drill Stem Tests Received**
☑ **Geologist Report / Mud Logs Received**
☐ **UIC Distribution**
ALT ☑ **I** ☐ **II** ☐ **III** **Approved by:** Karen Ritter **Date:** 09/19/2019

Page Two

Operator Name: Indian Oil Co., Inc. Lease Name: RETA Well #: 1

Sec. 17 Twp. 30 S. R. 13 ☐ East ☑ West County: Barber

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 *(Attach Additional Sheets)*	☑ Yes	☐ No	
Samples Sent to Geological Survey	☑ Yes	☐ No	
Cores Taken	☐ Yes	☑ No	
Electric Log Run	☑ Yes	☐ No	
Geologist Report / Mud Logs	☑ Yes	☐ No	

List All E. Logs Run: Attached

☑ Log Formation (Top), Depth and Datum ☑ Sample

Name: Attached Top: Attached Datum: Attached

CASING RECORD ☑ New ☐ 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
Surface	17.5	13.375	48	261	60/40 poz	300	774lb CaCl; 75lb celloflake
Production	7.875	5.5	15.5	4735	AA2	155	1sk 60/40 poz; 39# celloflake; 730#gypsu

ADDITIONAL CEMENTING / SQUEEZE RECORD

Purpose:	Depth Top Bottom	Type of Cement	# Sacks Used	Type and Percent Additives
☐ Perforate ☐ Protect Casing ☐ Plug Back TD ☐ 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: 9/8/2019

Producing Method: ☐ Flowing ☑ Pumping ☐ Gas Lift ☐ Other *(Explain)*

Estimated Production Per 24 Hours	Oil Bbls.	Gas Mcf	Water Bbls.	Gas-Oil Ratio	Gravity

DISPOSITION OF GAS: ☐ Vented ☑ Sold ☐ Used on Lease *(If vented, Submit ACO-18.)*

METHOD OF COMPLETION: ☐ Open Hole ☑ Perf. ☐ Dually Comp. *(Submit ACO-5)* ☐ Commingled *(Submit ACO-4)*

PRODUCTION INTERVAL:

Top	Bottom
4530	4572

Shots Per Foot	Perforation Top	Perforation Bottom	Bridge Plug Type	Bridge Plug Set At	Acid, Fracture, Shot, Cementing Squeeze Record *(Amount and Kind of Material Used)*
2	4530	4572			1700 gal 15% MCA; 2500 gal 15% NeFe; frac: 3750 bbl slick water, 1081 crosslink, 35,410# 30/50 sand, 15,200# 20/40 RCS

TUBING RECORD: Size: Set At: Packer At:

Mail to: KCC - Conservation Division, 266 N. Main, Suite 220, Wichita, Kansas 67202

Form	ACO1 - Well Completion
Operator	Indian Oil Co., Inc.
Well Name	RETA 1
Doc ID	1466274

All Electric Logs Run

compensated density/ neutron
sonic
microlog
dual induction

Form	ACO1 - Well Completion
Operator	Indian Oil Co., Inc.
Well Name	RETA 1
Doc ID	1466274

Tops

Name	Top	Datum
Heebner	3731	-1885
Lansing	3932	-2086
Stark	4255	-2409
BKC	4332	-2486
Marmaton	4346	-2500
Miss	4400	-2554
Viola	4485	-2639
Simpson Sand	4594	-2748
Arbuckle	4680	-2834

Form	ACO1 - Well Completion
Operator	Indian Oil Co., Inc.
Well Name	RETA 1
Doc ID	1466274

Casing

Purpose Of String	Size Hole Drilled	Size Casing Set	Weight	Setting Depth	Type Of Cement	Number of Sacks Used	Type and Percent Additives
Surface	17.5	13.375	48	261	60/40 poz	300	774lb CaCl; 75lb celloflake
Production	7.875	5.5	15.5	4735	AA2	155	1sk 60/40 poz; 39# celloflake; 730#gypsum; 930# gilsonite; 843# salt

BASIC ENERGY SERVICES
PRESSURE PUMPING & WIRELINE

10244 NE Hwy. 61
P.O. Box 8613
Pratt, Kansas 67124
Phone 620-672-1201

TTMH 37

FIELD SERVICE TICKET

1718 17943 A

DATE TICKET NO.

DATE OF JOB 6-1-19 DISTRICT Pratt	NEW WELL ☑ OLD WELL ☐ PROD ☐ INJ ☐ WDW ☐ CUSTOMER ORDER NO.:
CUSTOMER Indian Oil Company	LEASE Reta WELL NO. 1
ADDRESS	COUNTY Barber STATE KS
CITY STATE	SERVICE CREW Mattal Mcgee Marquez
AUTHORIZED BY	JOB TYPE: 2-42 13 3/8 ~~Prod~~ Surface

EQUIPMENT#	HRS	EQUIPMENT#	HRS	EQUIPMENT#	HRS
70420	5				
19413	5				

	DATE	AM/PM	TIME
TRUCK CALLED	5-31-19	AM PM	6:30
ARRIVED AT JOB		AM PM	8:15
START OPERATION		AM PM	12:45
FINISH OPERATION		AM PM	1:15
RELEASED		AM PM	3:15
MILES FROM STATION TO WELL			20

CONTRACT CONDITIONS: (This contract must be signed before the job is commenced or merchandise is delivered).
The undersigned is authorized to execute this contract as an agent of the customer. As such, the undersigned agrees and acknowledges that this contract for services, materials, products, and/or supplies includes all of and only those terms and conditions appearing on the front and back of this document. No additional or substitute terms and/or conditions shall become a part of this contract without the written consent of an officer of Basic Energy Services LP.

SIGNED: X Richard A. Barnes
(WELL OWNER, OPERATOR, CONTRACTOR OR AGENT)

ITEM/PRICE REF. NO.	MATERIAL, EQUIPMENT AND SERVICES USED	UNIT	QUANTITY	UNIT PRICE	$ AMOUNT
Dc 132	60/40 POZ	SK	300		2,511 00
CC 109	CALCIUM CHLORIDE	lb	774		278 64
CC 109	CELLOFLAKE	lb	75		108 00
Mc 101	LIGHT VEH MILES	mi	2		36 00
Mc 102	HEAVY EQ MILES	mi	40		115 20
CC 1	DEPTH 0-1000'	hr	1		432 00
CE 240	BLEND & MIX	SK	300		151 20
Be 143	SUPERVISOR	EA	1		75 00
Be 144	DRIVER	EA	2		70 00

SUB TOTAL

CHEMICAL / ACID DATA:			

SERVICE & EQUIPMENT	%TAX ON $	
MATERIALS	%TAX ON $	
	TOTAL	

SERVICE REPRESENTATIVE M. Mc Mattal

THE ABOVE MATERIAL AND SERVICE ORDERED BY CUSTOMER AND RECEIVED BY: X Richard A. Barnes
(WELL OWNER OPERATOR CONTRACTOR OR AGENT)

FIELD SERVICE ORDER NO.

CLOUD LITHO - Abilene, TX

BASIC energy services, L.P.

TREATMENT REPORT

Customer: Indian Oil Company	Lease No.	Date: 6-1-19	
Lease: Reed	Well #: 1		
Field Order #: 17943	Station	Casing: 13 3/8	Depth: 261'
County: Davis	State: KS		
Type Job: Z-42 13 3/8 Surface	Formation	Legal Description: 17-32S-13W	

PIPE DATA		PERFORATING DATA		FLUID USED	TREATMENT RESUME		
Casing Size: 13 3/8	Tubing Size	Shots/Ft		Acid: Cmt 300 sx.	RATE: 6.0/6.0T	PRESS	ISIP
Depth: 261	Depth	From	To	Pre Pad: 3 bbls	Max		5 Min.
Volume: 39.7	Volume	From	To	Pad: 25 bbls	Min		10 Min.
Max Press: 300	Max Press	From	To	Frac	Avg		15 Min.
Well Connection: SV	Annulus Vol.	From	To		HHP Used		Annulus Pressure
Plug Depth: 241	Packer Depth	From	To	Flush: 36.5	Gas Volume		Total Load

Customer Representative: Anthony Ramirez			Station Manager: Wes Gilman			Treater: Matthew					
Service Units	8335		5495C	20270		19959	19715				
Driver Names	Matthew		Mauricio			McGlaun					

Time	Casing Pressure	Tubing Pressure	Bbls. Pumped	Rate	Service Log
8:15					On location / safety meeting
11:25					Run 13 3/8 csng
12:45					rig up on bottom
12:55					Hook to csng / break circ w. Rig
12:46	175		65	5.5	Mix 300 sx. 60/40 poz
1:20	200		-	3	Start displacement
1:17	200		36.5		Plug down / shut in well
					Complete job
					Jobs complete
					Thank You
					Edmund & crew

Taylor Printing, Inc. 620-672-3656

DRILL STEM TEST REPORT

Indian Oil Co.,, Inc.

PO Box 209
Medicine Lodge Ks 67104

ATTN: Aaron Young

17 - 30 - 13W

Reta #1

Job Ticket: 65933 **DST#: 1**

Test Start: 2019.06.05 @ 10:34:00

GENERAL INFORMATION:

Formation: **marmaton**
Deviated: No Whipstock: ft (KB)
Time Tool Opened: 13:20:45
Time Test Ended: 19:00:30

Test Type: Conventional Bottom Hole (Initial)
Tester: Royal Fisher
Unit No: #77

Interval: 4310.00 ft (KB) To 4376.00 ft (KB) (TVD)
Total Depth: 4376.00 ft (KB) (TVD)
Hole Diameter: 7.88 inches Hole Condition: Fair

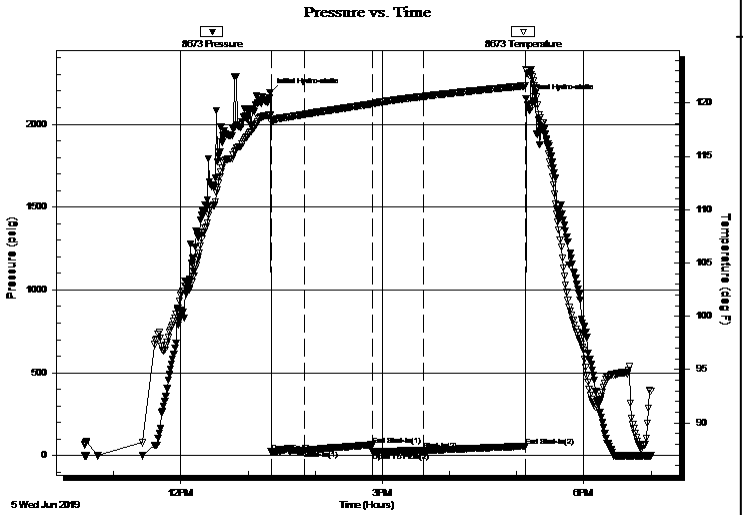
Reference Elevations: 1846.00 ft (KB)
1834.00 ft (CF)
KB to GR/CF: 12.00 ft

Serial #: 8673 **Outside**

Press@RunDepth: 29.29 psig @ 4311.00 ft (KB)
Start Date: 2019.06.05 End Date: 2019.06.05
Start Time: 10:34:05 End Time: 19:00:29

Capacity: 8000.00 psig
Last Calib.: 2019.06.05
Time On Btm: 2019.06.05 @ 13:20:00
Time Off Btm: 2019.06.05 @ 17:08:30

TEST COMMENT: 30 - IFP - Surface blow built up to 3/4"
60 - ISI - No Return
45 - FFP - Surface blow stayed at a w eak blow throughout
90 - FSI - No Return



PRESSURE SUMMARY

Time (Min.)	Pressure (psig)	Temp (deg F)	Annotation
0	2190.91	118.86	Initial Hydro-static
1	22.84	118.26	Open To Flow (1)
31	30.75	118.92	Shut-In(1)
91	65.08	119.89	End Shut-In(1)
92	22.98	119.90	Open To Flow (2)
137	29.29	120.60	Shut-In(2)
228	57.53	121.59	End Shut-In(2)
229	2153.91	123.13	Final Hydro-static

Recovery

Length (ft)	Description	Volume (bbl)
10.00	OSM - Oil Spots - 100%m	0.05

Gas Rates

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

DRILL STEM TEST REPORT

Indian Oil Co.,, Inc.

PO Box 209
Medicine Lodge Ks 67104

ATTN: Aaron Young

17 - 30 - 13W

Reta #1

Job Ticket: 65933 **DST#: 1**

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Unit No: #77

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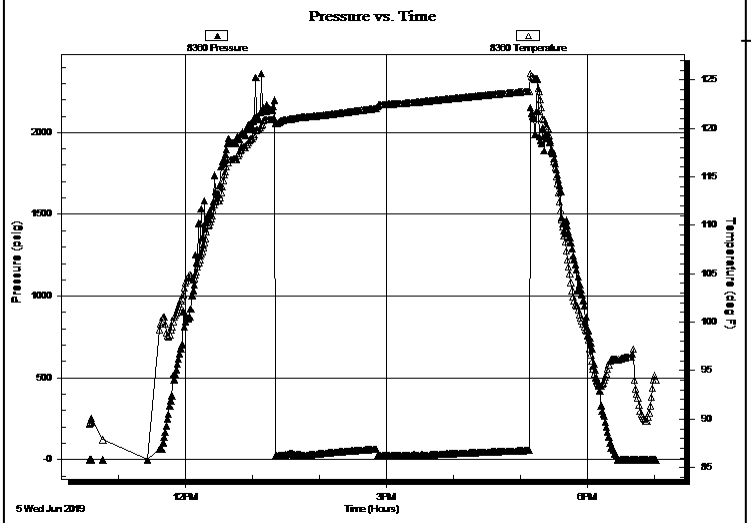
Total Depth: 4376.00 ft (KB) (TVD)
Hole Diameter: 7.88 inches Hole Condition: Fair

Reference Elevations: 1846.00 ft (KB)
1834.00 ft (CF)
KB to GR/CF: 12.00 ft

Serial #: 8360 **Inside**
Press@RunDepth: psig @ 4311.00 ft (KB)
Start Date: 2019.06.05 End Date: 2019.06.05
Start Time: 10:34:05 End Time: 19:00:44

Capacity: 8000.00 psig
Last Calib.: 2019.06.05
Time On Btm:
Time Off Btm:

TEST COMMENT: 30 - IFP - Surface blow built up to 3/4"
60 - ISI - No Return
45 - FFP - Surface blow stayed at a w eak blow throughout
90 - FSI - No Return



PRESSURE SUMMARY

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

Recovery

Length (ft)	Description	Volume (bbl)
10.00	OSM - Oil Spots - 100%m	0.05

Gas Rates

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

DRILL STEM TEST REPORT

FLUID SUMMARY

Indian Oil Co.,, Inc.

PO Box 209
Medicine Lodge Ks 67104

ATTN: Aaron Young

17 - 30 - 13W

Reta #1

Job Ticket: 65933 **DST#: 1**

Test Start: 2019.06.05 @ 10:34:00

Mud and Cushion Information

Mud Type:	Gel Chem	Cushion Type:		Oil API:	deg API
Mud Weight:	9.00 lb/gal	Cushion Length:	ft	Water Salinity:	ppm
Viscosity:	75.00 sec/qt	Cushion Volume:	bbl		
Water Loss:	8.79 in³	Gas Cushion Type:			
Resistivity:	ohm.m	Gas Cushion Pressure:	psig		
Salinity:	4000.00 ppm				
Filter Cake:	1.00 inches				

Recovery Information

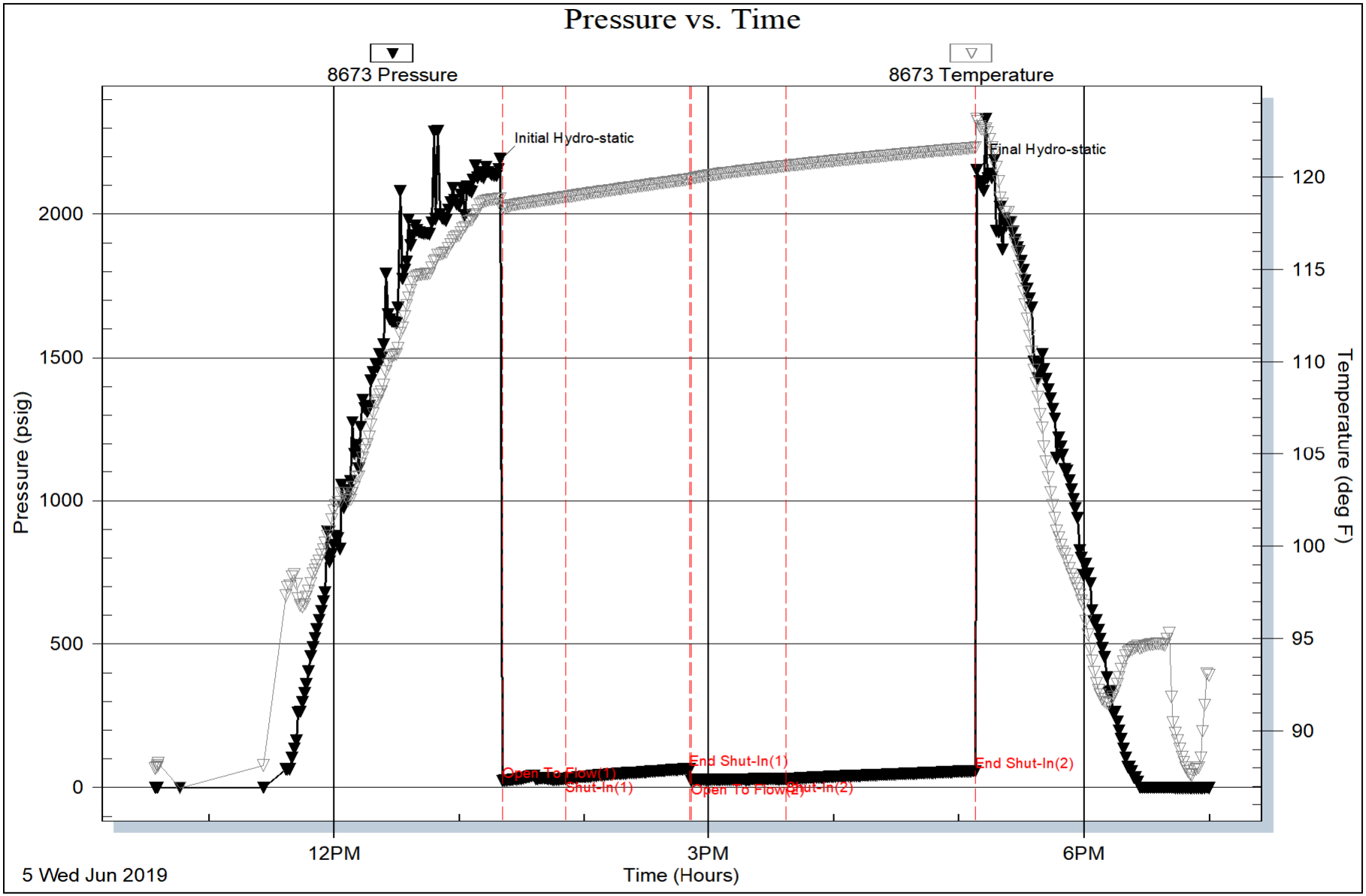
Recovery Table

Length ft	Description	Volume bbl
10.00	OSM - Oil Spots - 100%m	0.049

Total Length: 10.00 ft Total Volume: 0.049 bbl

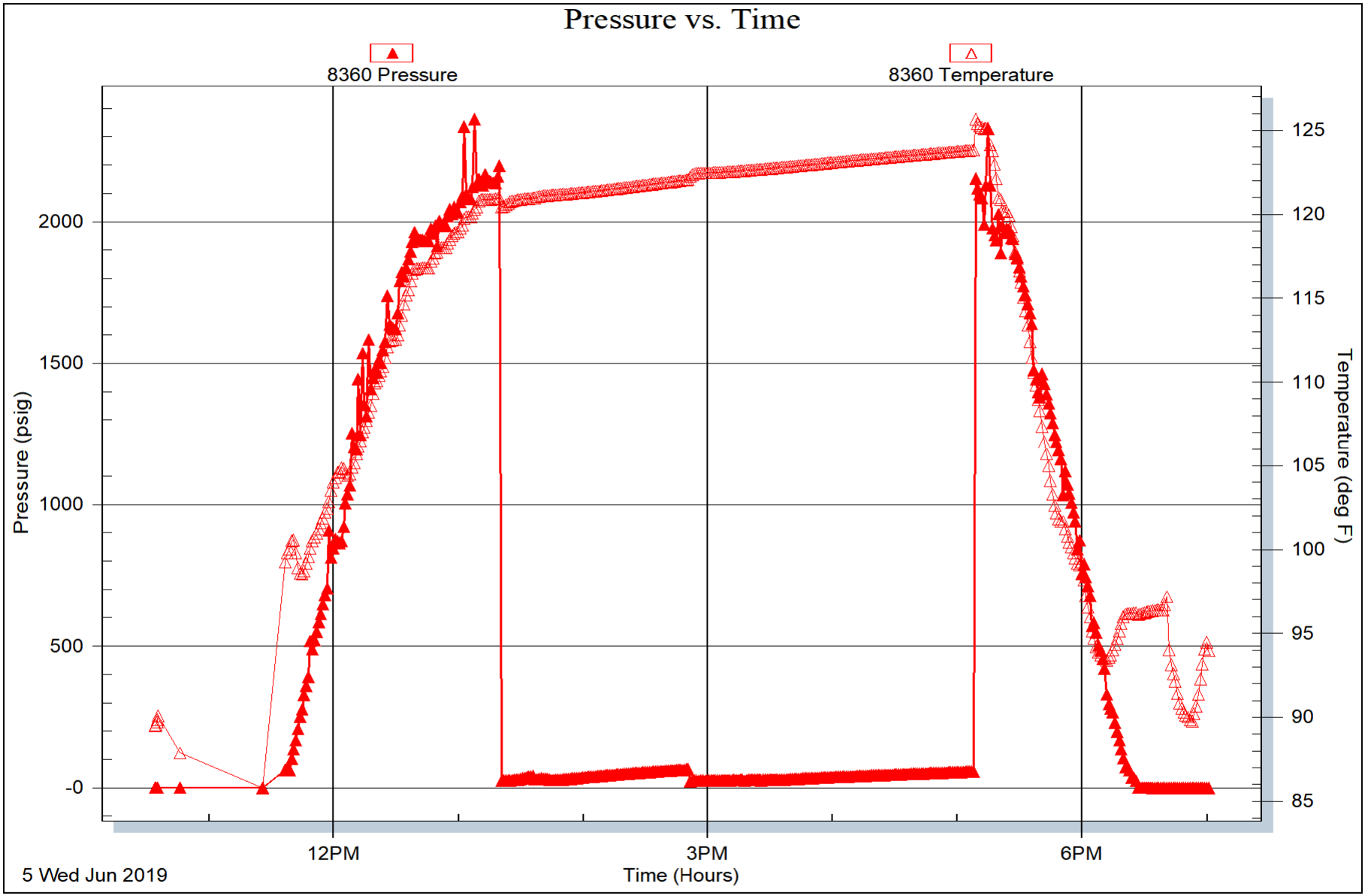
Num Fluid Samples: 0 Num Gas Bombs: 0 Serial #:
Laboratory Name: Laboratory Location:
Recovery Comments:

Serial #: 8673 **Outside** Indian Oil Co.,, Inc. Reta #1 DST Test Number: 1



Trilobite Testing, Inc Ref. No: 65933 Printed: 2019.06.05 @ 21:22:14

Serial #: 8360 **Inside** Indian Oil Co.,, Inc. Reta #1 DST Test Number: 1



Trilobite Testing, Inc Ref. No: 65933 Printed: 2019.06.05 @ 21:22:14

DRILL STEM TEST REPORT

Indian Oil Co.,, Inc.

PO Box 209
Medicine Lodge Ks 67104

ATTN: Aaron Young

17 - 30 - 13W

Reta #1

Job Ticket: 65934 **DST#: 2**

Test Start: 2019.06.06 @ 17:47:00

GENERAL INFORMATION:

Formation: **Viola**
Deviated: No Whipstock: ft (KB)
Time Tool Opened: 19:58:00
Time Test Ended: 01:49:15

Test Type: Conventional Bottom Hole (Initial)
Tester: Royal Fisher
Unit No: #77

Interval: 4484.00 ft (KB) To 4516.00 ft (KB) (TVD)
Total Depth: 4516.00 ft (KB) (TVD)
Hole Diameter: 7.88 inches Hole Condition: Fair

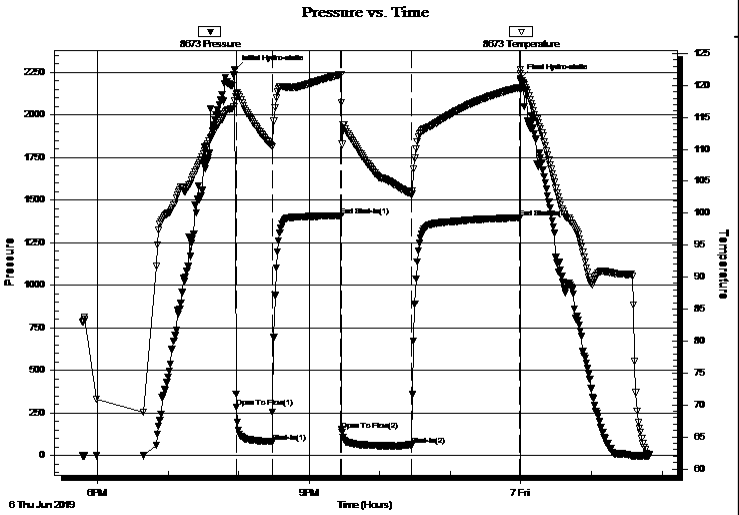
Reference Elevations: 1846.00 ft (KB)
1834.00 ft (CF)
KB to GR/CF: 12.00 ft

Serial #: 8673 **Outside**

Press@RunDepth: 63.68 psig @ 4485.00 ft (KB)
Start Date: 2019.06.06 End Date: 2019.06.07
Start Time: 17:47:05 End Time: 01:49:14

Capacity: 8000.00 psig
Last Calib.: 2019.06.07
Time On Btm: 2019.06.06 @ 19:57:00
Time Off Btm: 2019.06.06 @ 23:59:30

TEST COMMENT: 30 - IFP - Surface blow built to B.o.B within a min.
60 - ISI - No Return
60 - FFP - Surface blow built to B. o. B. immediatly
90 - FSI - No Return



PRESSURE SUMMARY

Time (Min.)	Pressure (psig)	Temp (deg F)	Annotation
0	2267.80	117.56	Initial Hydro-static
1	285.59	118.64	Open To Flow (1)
32	81.28	110.36	Shut-In(1)
90	1408.36	121.70	End Shut-In(1)
91	150.94	117.28	Open To Flow (2)
151	63.68	102.96	Shut-In(2)
242	1396.25	119.68	End Shut-In(2)
243	2212.03	122.50	Final Hydro-static

Recovery

Length (ft)	Description	Volume (bbl)
5.00	Mud - 100%m	0.02
0.00	Gas to Surface	0.00

Gas Rates

	Choke (inches)	Pressure (psig)	Gas Rate (Mcf/d)
First Gas Rate	0.38	25.30	145.43
Last Gas Rate	0.25	32.76	74.81
Max. Gas Rate	0.25	32.76	74.81

DRILL STEM TEST REPORT

Indian Oil Co.,, Inc.

PO Box 209
Medicine Lodge Ks 67104

ATTN: Aaron Young

17 - 30 - 13W

Reta #1

Job Ticket: 65934 **DST#: 2**

Test Start: 2019.06.06 @ 17:47:00

GENERAL INFORMATION:

Formation: **Viola**
Deviated: No Whipstock: ft (KB)
Time Tool Opened: 19:58:00
Time Test Ended: 01:49:15

Test Type: Conventional Bottom Hole (Initial)
Tester: Royal Fisher
Unit No: #77

Interval: 4484.00 ft (KB) To 4516.00 ft (KB) (TVD)
Total Depth: 4516.00 ft (KB) (TVD)
Hole Diameter: 7.88 inches Hole Condition: Fair

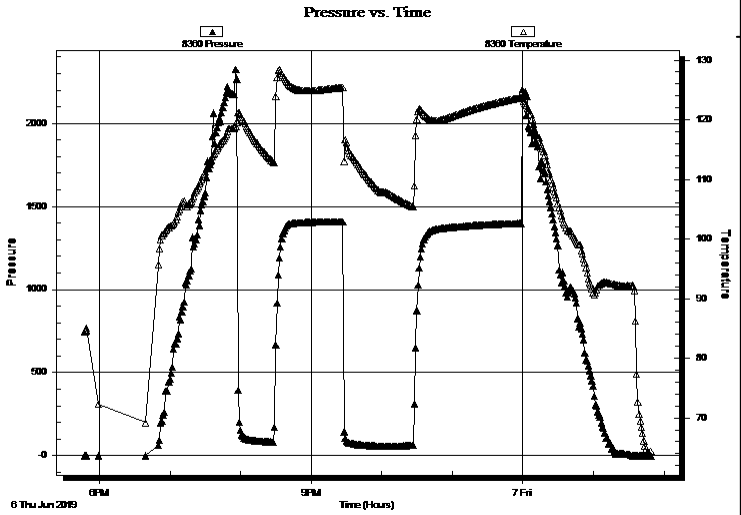
Reference Elevations: 1846.00 ft (KB)
1834.00 ft (CF)
KB to GR/CF: 12.00 ft

Serial #: 8360 **Inside**

Press@RunDepth: psig @ 4485.00 ft (KB)
Start Date: 2019.06.06 End Date: 2019.06.07
Start Time: 17:47:05 End Time: 01:49:29

Capacity: 8000.00 psig
Last Calib.: 2019.06.07
Time On Btm:
Time Off Btm:

TEST COMMENT: 30 - IFP - Surface blow built to B.o.B within a min.
60 - ISI - No Return
60 - FFP - Surface blow built to B. o. B. immediatly
90 - FSI - No Return



PRESSURE SUMMARY

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

Recovery

Length (ft)	Description	Volume (bbl)
5.00	Mud - 100%m	0.02
0.00	Gas to Surface	0.00

Gas Rates

	Choke (inches)	Pressure (psig)	Gas Rate (Mcf/d)
First Gas Rate	0.38	25.30	145.43
Last Gas Rate	0.25	32.76	74.81
Max. Gas Rate	0.25	32.76	74.81

DRILL STEM TEST REPORT

FLUID SUMMARY

Indian Oil Co.,, Inc.

PO Box 209
Medicine Lodge Ks 67104

ATTN: Aaron Young

17 - 30 - 13W

Reta #1

Job Ticket: 65934 **DST#: 2**

Test Start: 2019.06.06 @ 17:47:00

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:	bbl		
Water Loss:	9.58 in³	Gas Cushion Type:			
Resistivity:	ohm.m	Gas Cushion Pressure:	psig		
Salinity:	5000.00 ppm				
Filter Cake:	1.00 inches				

Recovery Information

Recovery Table

Length ft	Description	Volume bbl
5.00	Mud - 100%m	0.025
0.00	Gas to Surface	0.000

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:

DRILL STEM TEST REPORT

GAS RATES

Indian Oil Co.,, Inc.

PO Box 209
Medicine Lodge Ks 67104

ATTN: Aaron Young

17 - 30 - 13W

Reta #1

Job Ticket: 65934 **DST#: 2**

Test Start: 2019.06.06 @ 17:47:00

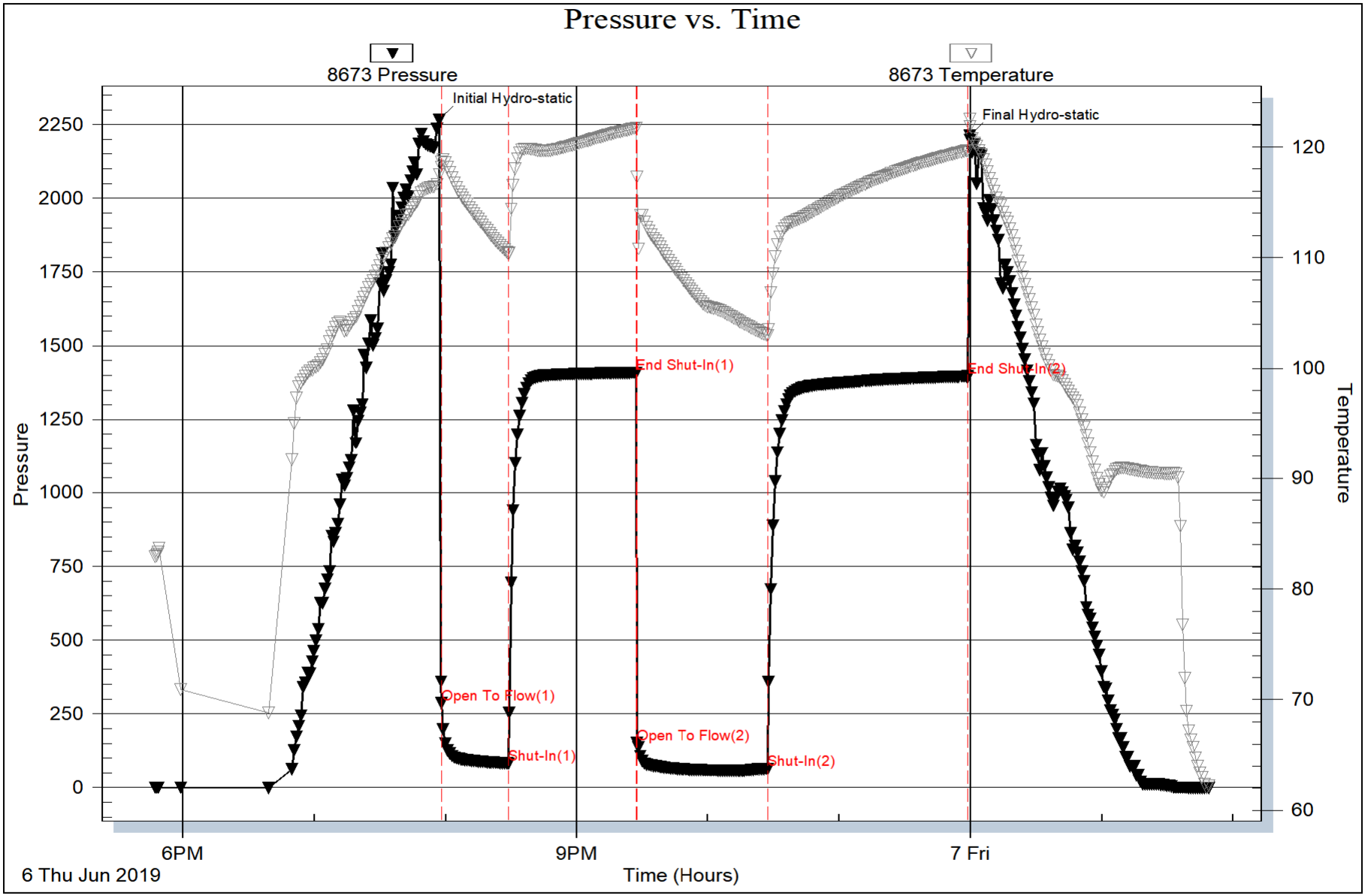
Gas Rates Information

Temperature: 59 (deg F)
Relative Density: 0.65
Z Factor: 0.8

Gas Rates Table

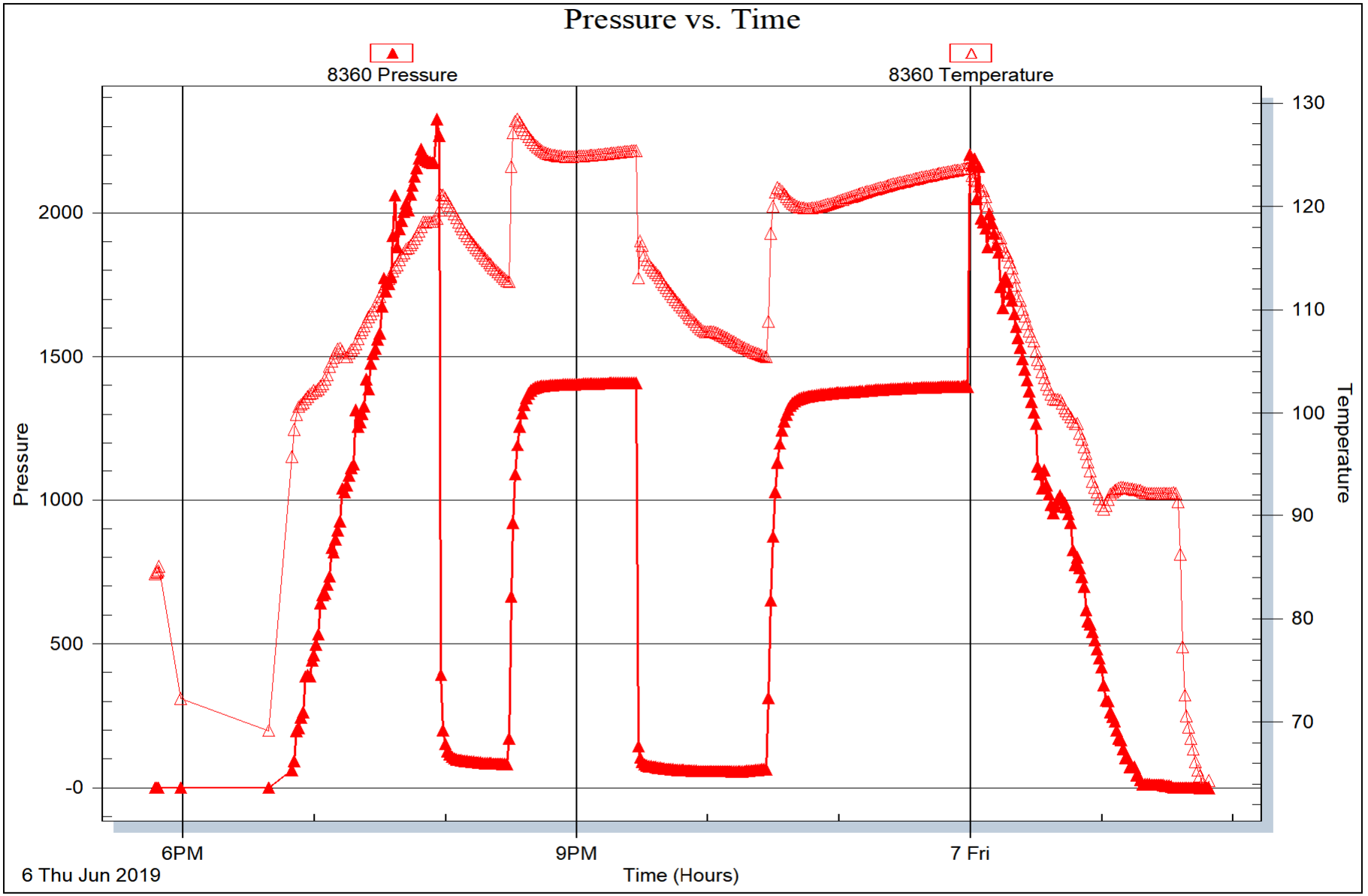
Flow Period	Elapsed Time	Choke (inches)	Pressure (psig)	Gas Rate (Mcf/d)
1	15	0.38	25.30	145.43
1	30	0.38	20.54	127.99
2	10	0.38	26.47	149.72
2	20	0.38	23.54	138.98
2	30	0.38	20.97	129.57
2	40	0.38	20.24	126.89
2	50	0.25	25.15	62.74
2	60	0.25	32.76	74.81

Serial #: 8673 **Outside** Indian Oil Co.,, Inc. Reta #1 DST Test Number: 2



Trilobite Testing, Inc Ref. No: 65934 Printed: 2019.06.07 @ 05:51:49

Serial #: 8360 **Inside** Indian Oil Co.,, Inc. Reta #1 DST Test Number: 2



Trilobite Testing, Inc Ref. No: 65934 Printed: 2019.06.07 @ 05:51:49

DRILL STEM TEST REPORT

Indian Oil Co.,, Inc.

PO Box 209
Medicine Lodge Ks 67104

ATTN: Aaron Young

17 - 30 - 13W

Reta #1

Job Ticket: 65935 **DST#: 3**

Test Start: 2019.06.07 @ 13:04:00

GENERAL INFORMATION:

Formation: **Viola**
Deviated: No Whipstock: ft (KB)
Time Tool Opened: 16:22:30
Time Test Ended: 21:18:30

Test Type: Conventional Bottom Hole (Initial)
Tester: Royal Fisher
Unit No: #77

Interval: 4516.00 ft (KB) To 4572.00 ft (KB) (TVD)
Total Depth: 4572.00 ft (KB) (TVD)
Hole Diameter: 7.88 inches Hole Condition: Fair

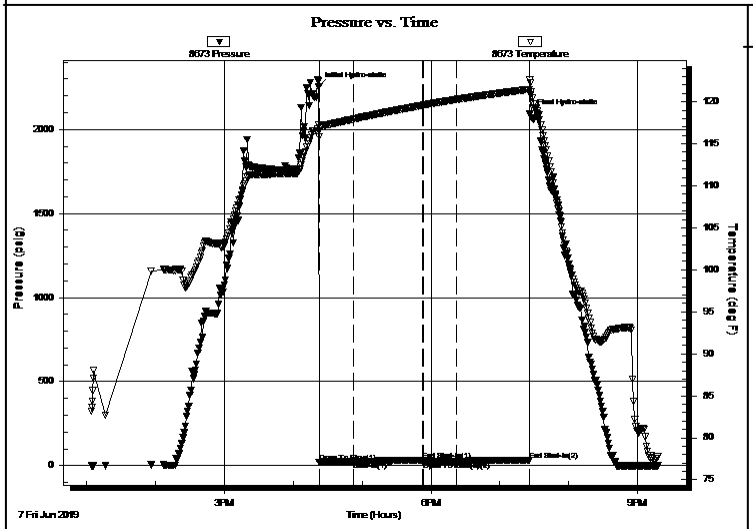
Reference Elevations: 1846.00 ft (KB)
1834.00 ft (CF)
KB to GR/CF: 12.00 ft

Serial #: 8673 **Outside**

Press@RunDepth: 26.95 psig @ 4517.00 ft (KB)
Start Date: 2019.06.07 End Date: 2019.06.07
Start Time: 13:04:05 End Time: 21:18:29

Capacity: 8000.00 psig
Last Calib.: 2019.06.07
Time On Btm: 2019.06.07 @ 16:22:15
Time Off Btm: 2019.06.07 @ 19:26:15

TEST COMMENT: 30 - IFP - Surface blow built up to 1/4" then died to a w eak blow
60 - ISI - No Return
30 - FFP - No Surface blow
60 - FSI - No Return



PRESSURE SUMMARY

Time (Min.)	Pressure (psig)	Temp (deg F)	Annotation
0	2254.09	117.21	Initial Hydro-static
1	20.34	115.86	Open To Flow (1)
31	23.57	117.93	Shut-In(1)
90	33.21	119.56	End Shut-In(1)
91	24.42	119.59	Open To Flow (2)
121	26.95	120.27	Shut-In(2)
184	33.17	121.48	End Shut-In(2)
184	2094.79	122.65	Final Hydro-static

Recovery

Length (ft)	Description	Volume (bbl)
2.00	Mud - 100%m	0.01

Gas Rates

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

DRILL STEM TEST REPORT

Indian Oil Co.,, Inc.

PO Box 209
Medicine Lodge Ks 67104

ATTN: Aaron Young

17 - 30 - 13W

Reta #1

Job Ticket: 65935 **DST#: 3**

Test Start: 2019.06.07 @ 13:04:00

GENERAL INFORMATION:

Formation: **Viola**
Deviated: No Whipstock: ft (KB)
Time Tool Opened: 16:22:30
Time Test Ended: 21:18:30

Test Type: Conventional Bottom Hole (Initial)
Tester: Royal Fisher
Unit No: #77

Interval: 4516.00 ft (KB) To 4572.00 ft (KB) (TVD)
Total Depth: 4572.00 ft (KB) (TVD)
Hole Diameter: 7.88 inches Hole Condition: Fair

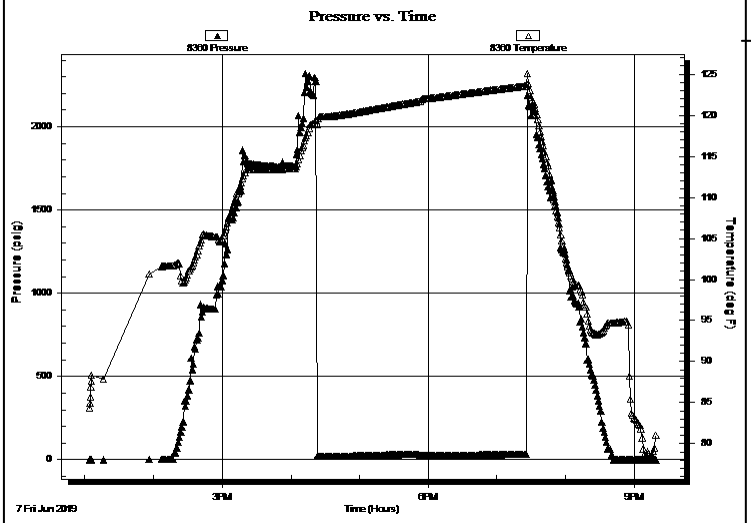
Reference Elevations: 1846.00 ft (KB)
1834.00 ft (CF)
KB to GR/CF: 12.00 ft

Serial #: 8360 **Inside**

Press@RunDepth: psig @ 4517.00 ft (KB)
Start Date: 2019.06.07 End Date: 2019.06.07
Start Time: 13:04:05 End Time: 21:18:44

Capacity: 8000.00 psig
Last Calib.: 2019.06.07
Time On Btm:
Time Off Btm:

TEST COMMENT: 30 - IFP - Surface blow built up to 1/4" then died to a w eak blow
60 - ISI - No Return
30 - FFP - No Surface blow
60 - FSI - No Return



PRESSURE SUMMARY

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

Recovery

Length (ft)	Description	Volume (bbl)
2.00	Mud - 100%m	0.01

Gas Rates

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

DRILL STEM TEST REPORT

FLUID SUMMARY

Indian Oil Co.,, Inc.

PO Box 209
Medicine Lodge Ks 67104

ATTN: Aaron Young

17 - 30 - 13W

Reta #1

Job Ticket: 65935 **DST#: 3**

Test Start: 2019.06.07 @ 13:04:00

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:	50.00 sec/qt	Cushion Volume:	bbl		
Water Loss:	9.59 in³	Gas Cushion Type:			
Resistivity:	ohm.m	Gas Cushion Pressure:	psig		
Salinity:	4000.00 ppm				
Filter Cake:	1.00 inches				

Recovery Information

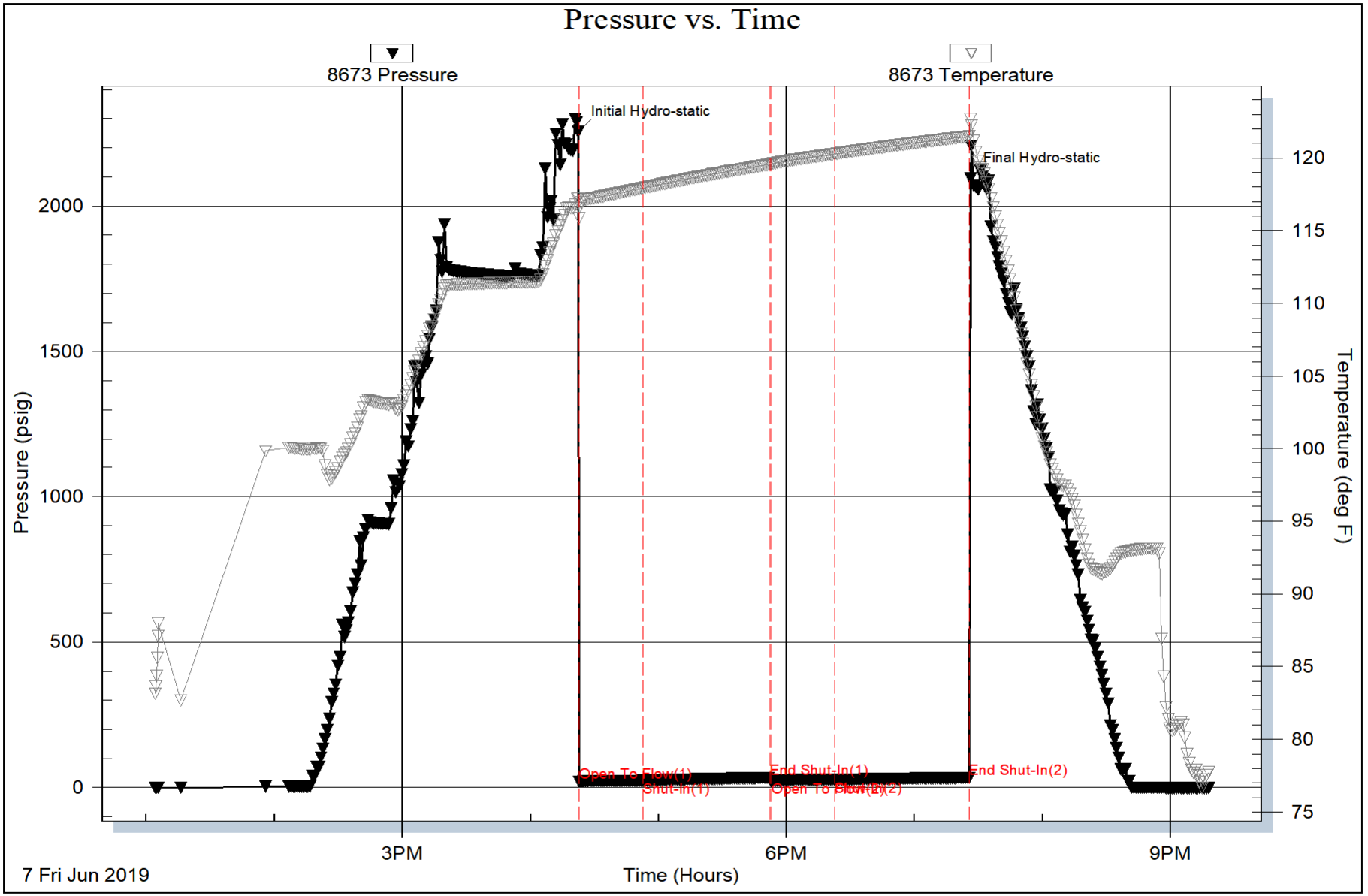
Recovery Table

Length ft	Description	Volume bbl
2.00	Mud - 100%m	0.010

Total Length: 2.00 ft Total Volume: 0.010 bbl

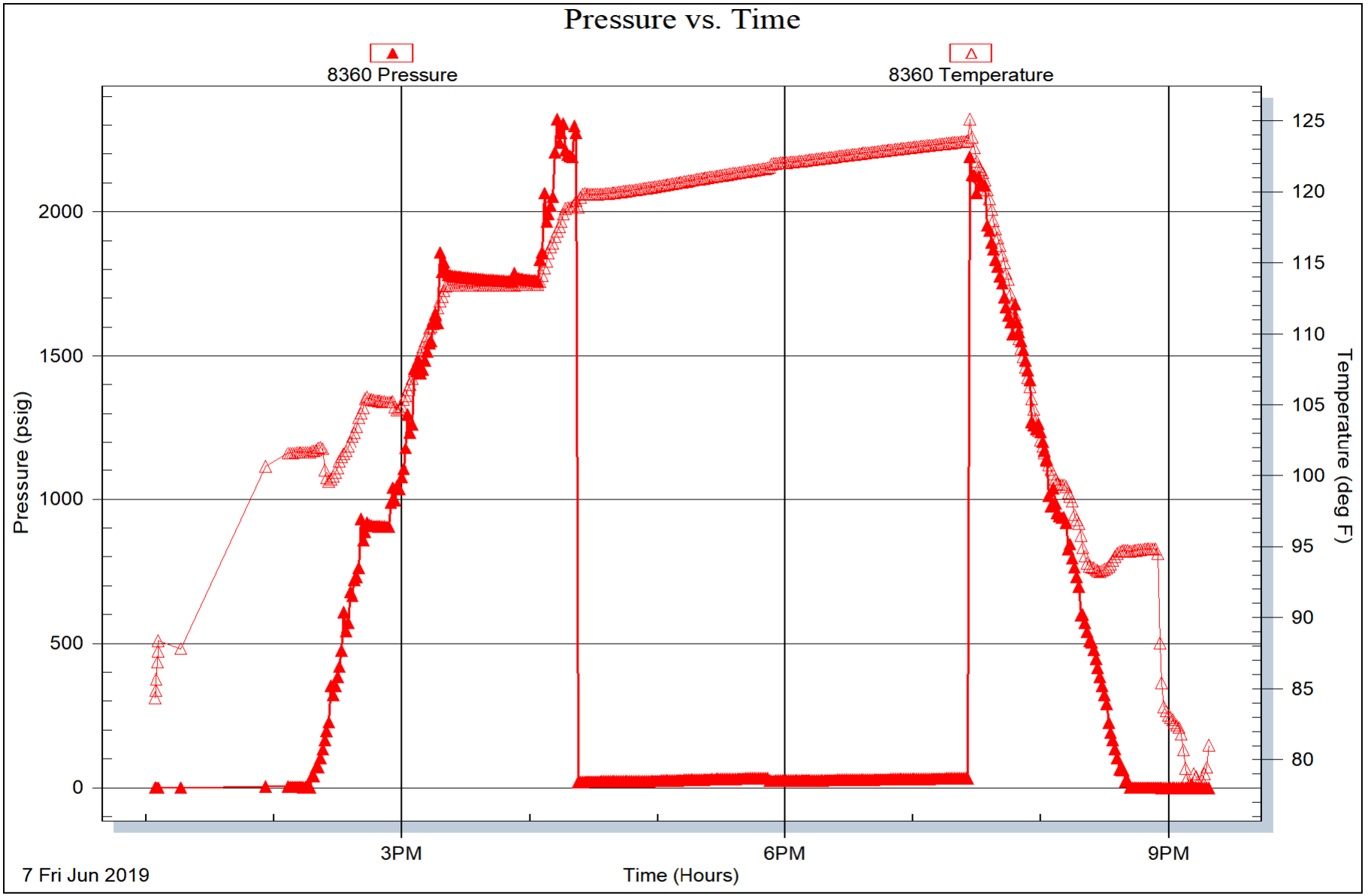
Num Fluid Samples: 0 Num Gas Bombs: 0 Serial #:
Laboratory Name: Laboratory Location:
Recovery Comments:

Serial #: 8673 **Outside** Indian Oil Co.,, Inc. Reta #1 DST Test Number: 3



Trilobite Testing, Inc Ref. No: 65935 Printed: 2019.06.08 @ 08:02:08

Serial #: 8360 **Inside** Indian Oil Co.,, Inc. Reta #1 DST Test Number: 3



Trilobite Testing, Inc Ref. No: 65935 Printed: 2019.06.08 @ 08:02:08

DRILL STEM TEST REPORT

Indian Oil Co.,, Inc.

PO Box 209
Medicine Lodge Ks 67104

ATTN: Aaron Young

17 - 30 - 13W

Reta #1

Job Ticket: 65936 **DST#: 4**

Test Start: 2019.06.08 @ 06:06:05

GENERAL INFORMATION:

Formation: **Simpson Sand**
Deviated: No Whipstock: ft (KB)
Time Tool Opened: 08:28:45
Time Test Ended: 13:41:00

Test Type: Conventional Bottom Hole (Initial)
Tester: Royal Fisher
Unit No: #77

Interval: 4572.00 ft (KB) To 4606.00 ft (KB) (TVD)
Total Depth: 4606.00 ft (KB) (TVD)
Hole Diameter: 7.88 inches Hole Condition: Fair

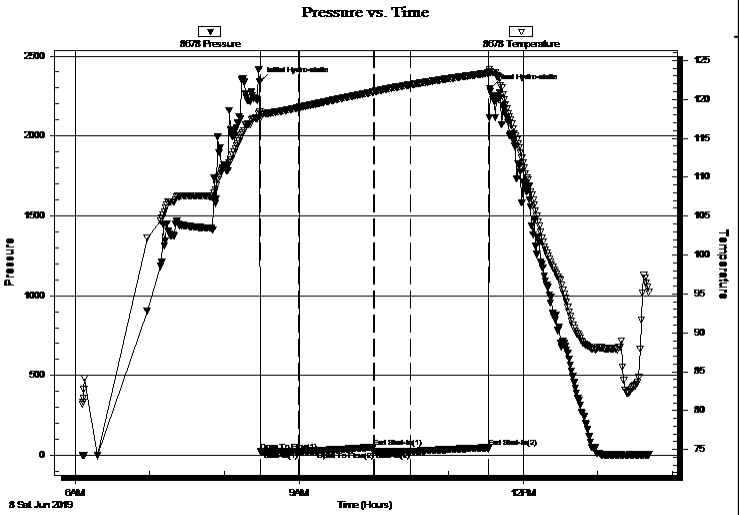
Reference Elevations: 1846.00 ft (KB)
1834.00 ft (CF)
KB to GR/CF: 12.00 ft

Serial #: 8678 **Outside**

Press@RunDepth: 26.13 psig @ 4573.00 ft (KB)
Start Date: 2019.06.08 End Date: 2019.06.08
Start Time: 06:06:05 End Time: 13:40:59

Capacity: 8000.00 psig
Last Calib.: 2019.06.08
Time On Btm: 2019.06.08 @ 08:28:30
Time Off Btm: 2019.06.08 @ 11:33:29

TEST COMMENT: 30 - IFP - Surface blow stayed at a w eak blow
60 - ISI - No Return
30 - FFP - No Surface blow
60 - FSI - No Return



PRESSURE SUMMARY

Time (Min.)	Pressure (psig)	Temp (deg F)	Annotation
0	2340.38	118.37	Initial Hydro-static
1	26.16	117.58	Open To Flow (1)
32	24.82	118.95	Shut-In(1)
91	50.74	120.94	End Shut-In(1)
92	26.29	120.97	Open To Flow (2)
122	26.13	121.89	Shut-In(2)
184	47.92	123.38	End Shut-In(2)
185	2294.55	123.61	Final Hydro-static

Recovery

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

Gas Rates

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

DRILL STEM TEST REPORT

Indian Oil Co.,, Inc.

PO Box 209
Medicine Lodge Ks 67104

ATTN: Aaron Young

17 - 30 - 13W

Reta #1

Job Ticket: 65936 **DST#: 4**

Test Start: 2019.06.08 @ 06:06:05

GENERAL INFORMATION:

Formation: **Simpson Sand**
Deviated: No Whipstock: ft (KB)
Time Tool Opened: 08:28:45
Time Test Ended: 13:41:00

Test Type: Conventional Bottom Hole (Initial)
Tester: Royal Fisher
Unit No: #77

Interval: 4572.00 ft (KB) To 4606.00 ft (KB) (TVD)
Total Depth: 4606.00 ft (KB) (TVD)
Hole Diameter: 7.88 inches Hole Condition: Fair

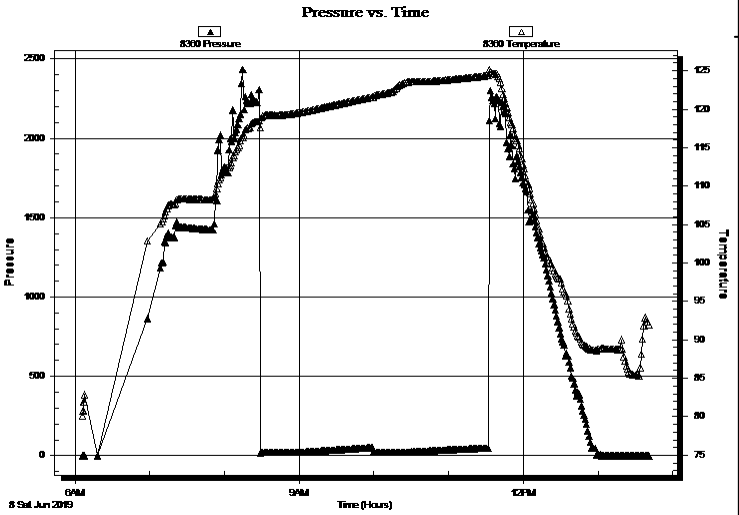
Reference Elevations: 1846.00 ft (KB)
1834.00 ft (CF)
KB to GR/CF: 12.00 ft

Serial #: 8360 **Inside**

Press@RunDepth: psig @ 4573.00 ft (KB)
Start Date: 2019.06.08 End Date: 2019.06.08
Start Time: 06:06:05 End Time: 13:40:59

Capacity: 8000.00 psig
Last Calib.: 2019.06.08
Time On Btm:
Time Off Btm:

TEST COMMENT: 30 - IFP - Surface blow stayed at a weak blow
60 - ISI - No Return
30 - FFP - No Surface blow
60 - FSI - No Return



PRESSURE SUMMARY

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

Recovery

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

Gas Rates

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

DRILL STEM TEST REPORT

FLUID SUMMARY

Indian Oil Co.,, Inc.

PO Box 209
Medicine Lodge Ks 67104

ATTN: Aaron Young

17 - 30 - 13W

Reta #1

Job Ticket: 65936 **DST#: 4**

Test Start: 2019.06.08 @ 06:06:05

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:	62.00 sec/qt	Cushion Volume:	bbl		
Water Loss:	10.39 in³	Gas Cushion Type:			
Resistivity:	ohm.m	Gas Cushion Pressure:	psig		
Salinity:	4500.00 ppm				
Filter Cake:	1.00 inches				

Recovery Information

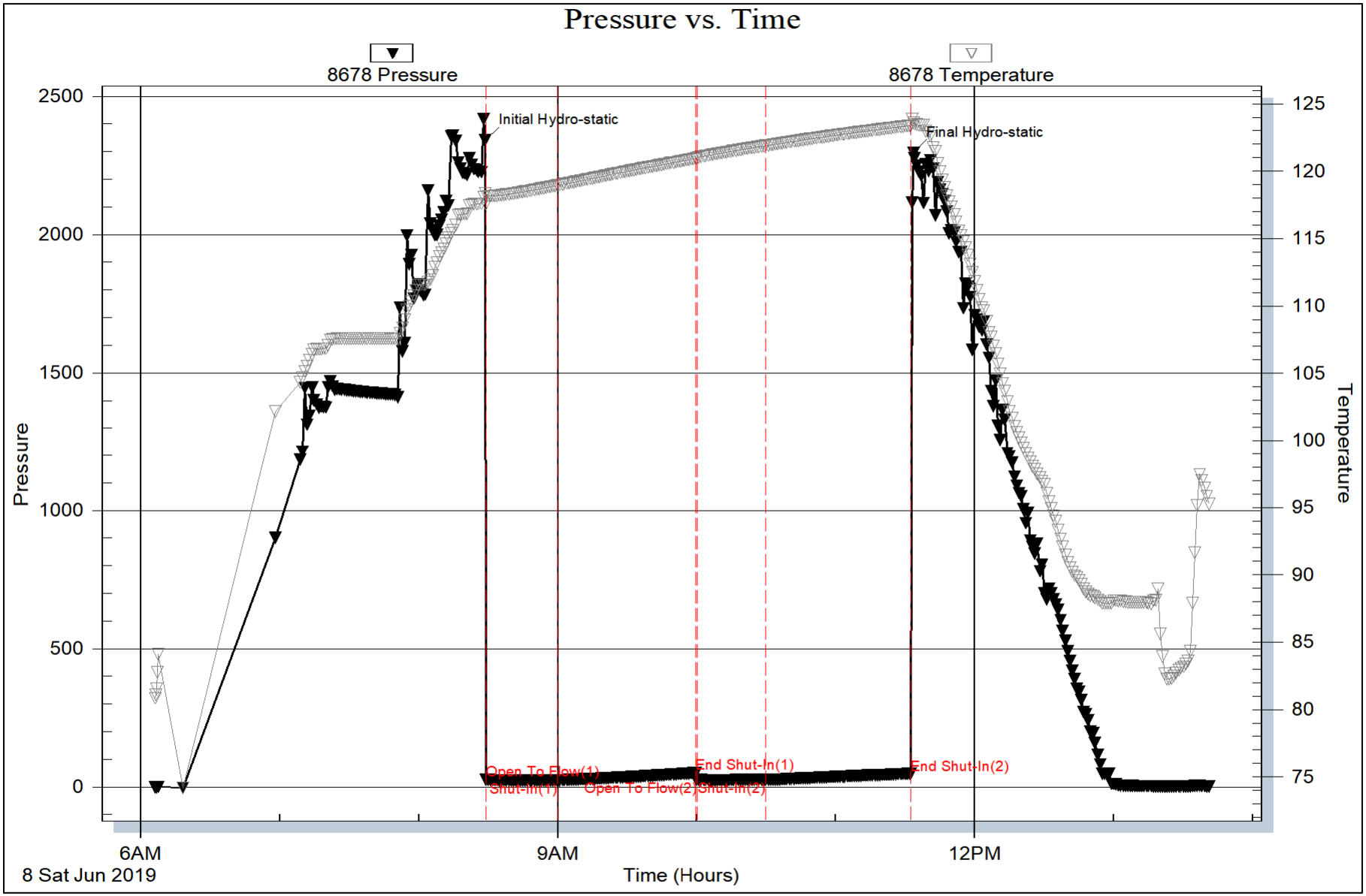
Recovery Table

Length ft	Description	Volume bbl
3.00	Mud - 100%m	0.015

Total Length: 3.00 ft Total Volume: 0.015 bbl

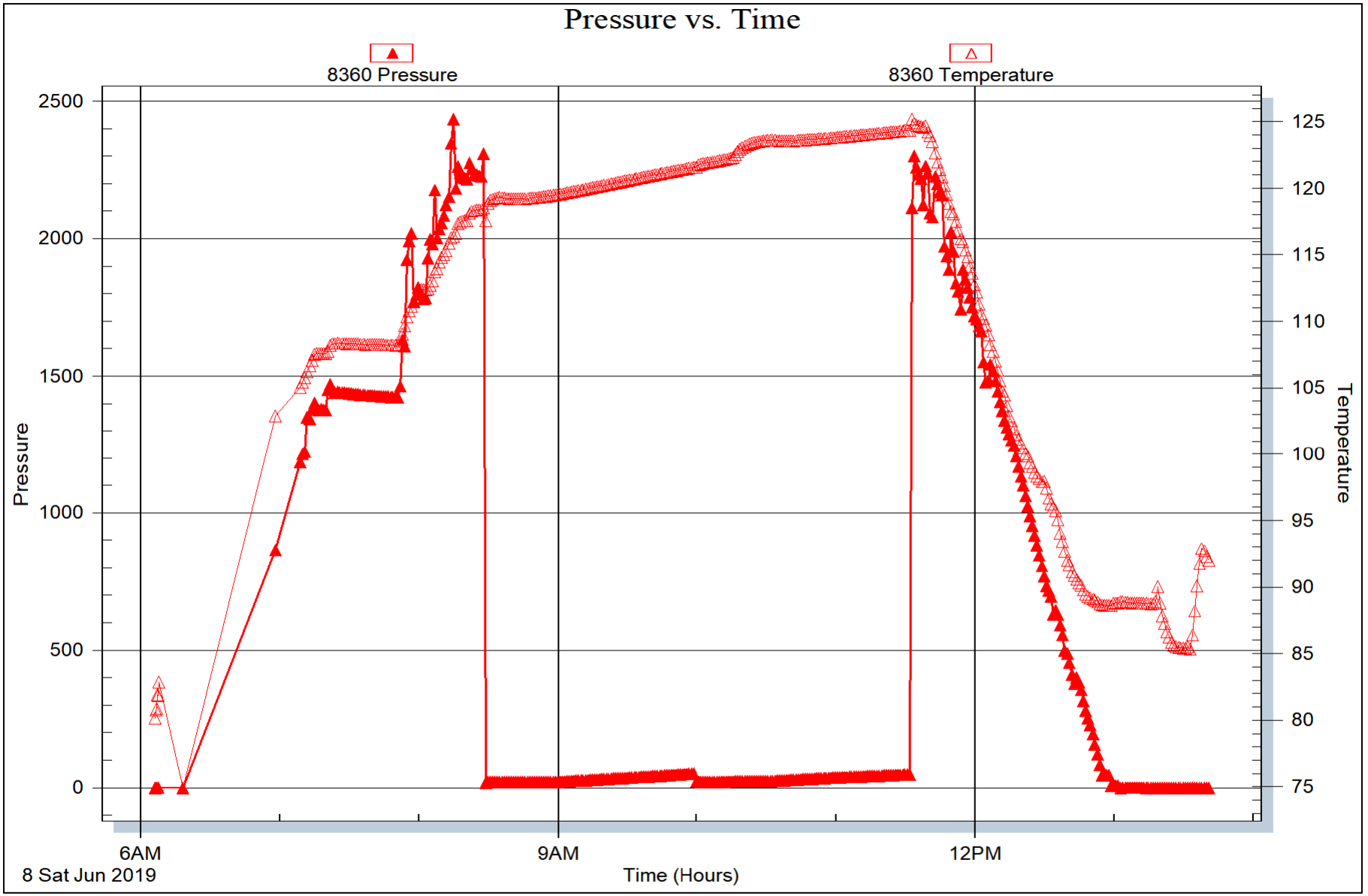
Num Fluid Samples: 0 Num Gas Bombs: 0 Serial #:
Laboratory Name: Laboratory Location:
Recovery Comments:

Serial #: 8678 **Outside** Indian Oil Co.,, Inc. Reta #1 DST Test Number: 4



Trilobite Testing, Inc Ref. No: 65936 Printed: 2019.06.08 @ 15:35:12

Serial #: 8360 **Inside** Indian Oil Co.,, Inc. Reta #1 DST Test Number: 4



Trilobite Testing, Inc Ref. No: 65936 Printed: 2019.06.08 @ 15:35:12

DRILL STEM TEST REPORT

Indian Oil Co.,, Inc.

PO Box 209
Medicine Lodge Ks 67104

ATTN: Aaron Young

17 - 30 - 13W

Reta #1

Job Ticket: 65937 **DST#: 5**

Test Start: 2019.06.09 @ 08:13:00

GENERAL INFORMATION:

Formation: **Miss**
Deviated: No Whipstock: ft (KB)
Time Tool Opened: 10:37:30
Time Test Ended: 19:08:30

Test Type: Conventional Straddle (Initial)
Tester: Royal Fisher
Unit No: #77

Interval: 4376.00 ft (KB) To 4424.00 ft (KB) (TVD)
Total Depth: 4758.00 ft (KB) (TVD)
Hole Diameter: 7.88 inches Hole Condition: Fair

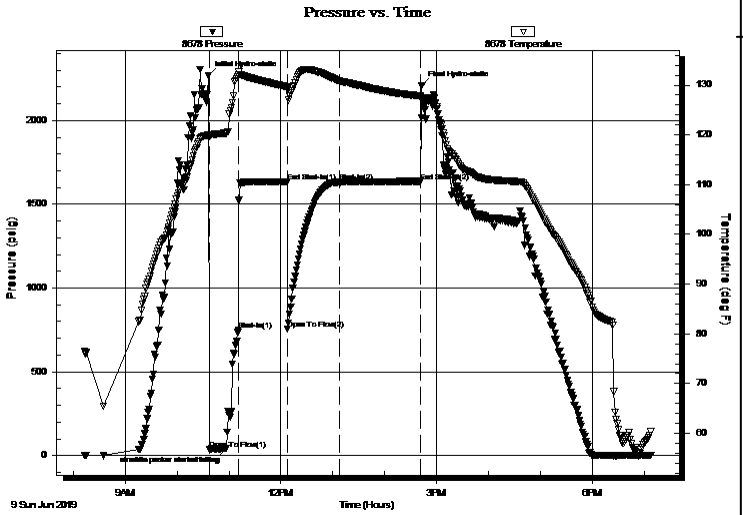
Reference Elevations: 1846.00 ft (KB)
1834.00 ft (CF)
KB to GR/CF: 12.00 ft

Serial #: 8678 **Inside**

Press@RunDepth: 1632.44 psig @ 4377.00 ft (KB)
Start Date: 2019.06.09 End Date: 2019.06.09
Start Time: 08:13:05 End Time: 19:08:30

Capacity: 8000.00 psig
Last Calib.: 2019.06.09
Time On Btm: 2019.06.09 @ 10:36:30
Time Off Btm: 2019.06.09 @ 14:43:00

TEST COMMENT: 30 - IFP - Surface blow built to B.o.B. in 25 mins. straddle packer failed 20 minutes into initial flow
60 - ISI - No Return
60 - FFP - Surface blow built to B.o.B. in 2 mins.
90 - FSI - No Return



PRESSURE SUMMARY

Time (Min.)	Pressure (psig)	Temp (deg F)	Annotation
0	2267.09	120.01	Initial Hydro-static
1	37.67	119.69	Open To Flow (1)
21	42.09	120.34	straddle packer started failing
35	749.70	132.13	Shut-In(1)
91	1635.34	129.61	End Shut-In(1)
92	756.41	129.02	Open To Flow (2)
151	1632.44	130.80	Shut-In(2)
246	1636.42	127.78	End Shut-In(2)
247	2207.53	127.38	Final Hydro-static

Recovery

Length (ft)	Description	Volume (bbl)
551.00	WM - 10%w - 90%m	5.01
630.00	WM - 45%w - 55%m	6.46
1260.00	MW - 30%m - 70%w	12.93
940.00	MW - 10%m - 90%w	9.65

Gas Rates

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

DRILL STEM TEST REPORT

Indian Oil Co.,, Inc.

PO Box 209
Medicine Lodge Ks 67104

ATTN: Aaron Young

17 - 30 - 13W

Reta #1

Job Ticket: 65937 **DST#: 5**

Test Start: 2019.06.09 @ 08:13:00

GENERAL INFORMATION:

Formation: **Miss**
Deviated: No Whipstock: ft (KB)
Time Tool Opened: 10:37:30
Time Test Ended: 19:08:30

Test Type: Conventional Straddle (Initial)
Tester: Royal Fisher
Unit No: #77

Interval: 4376.00 ft (KB) To 4424.00 ft (KB) (TVD)
Total Depth: 4758.00 ft (KB) (TVD)
Hole Diameter: 7.88 inches Hole Condition: Fair

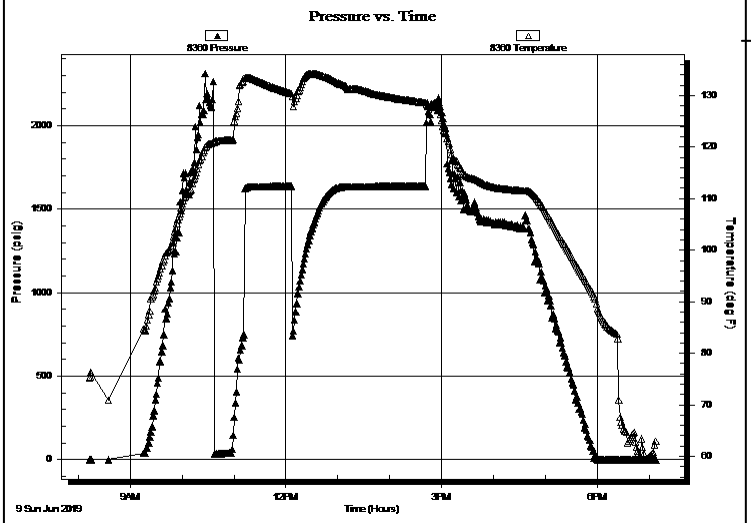
Reference Elevations: 1846.00 ft (KB)
1834.00 ft (CF)
KB to GR/CF: 12.00 ft

Serial #: 8360 **Outside**

Press@RunDepth: psig @ 4377.00 ft (KB)
Start Date: 2019.06.09 End Date: 2019.06.09
Start Time: 08:13:05 End Time: 19:08:45

Capacity: 8000.00 psig
Last Calib.: 2019.06.09
Time On Btm:
Time Off Btm:

TEST COMMENT: 30 - IFP - Surface blow built to B.o.B. in 25 mins. straddle packer failed 20 minutes into initial flow
60 - ISI - No Return
60 - FFP - Surface blow built to B.o.B. in 2 mins.
90 - FSI - No Return



PRESSURE SUMMARY

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

Recovery

Length (ft)	Description	Volume (bbl)
551.00	WM - 10%w - 90%m	5.01
630.00	WM - 45%w - 55%m	6.46
1260.00	MW - 30%m - 70%w	12.93
940.00	MW - 10%m - 90%w	9.65

Gas Rates

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

DRILL STEM TEST REPORT

Indian Oil Co.,, Inc.

PO Box 209
Medicine Lodge Ks 67104

ATTN: Aaron Young

17 - 30 - 13W

Reta #1

Job Ticket: 65937 **DST#: 5**

Test Start: 2019.06.09 @ 08:13:00

GENERAL INFORMATION:

Formation: **Miss**
Deviated: No Whipstock: ft (KB)
Time Tool Opened: 10:37:30
Time Test Ended: 19:08:30

Test Type: Conventional Straddle (Initial)
Tester: Royal Fisher
Unit No: #77

Interval: 4376.00 ft (KB) To 4424.00 ft (KB) (TVD)
Total Depth: 4758.00 ft (KB) (TVD)
Hole Diameter: 7.88 inches Hole Condition: Fair

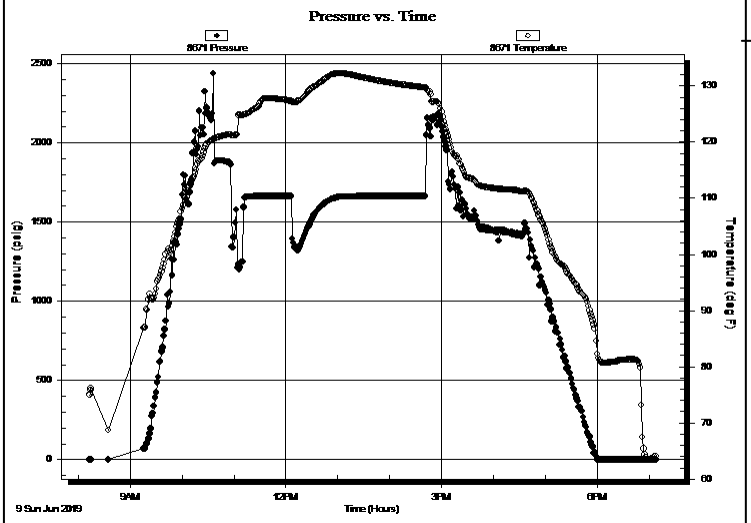
Reference Elevations: 1846.00 ft (KB)
1834.00 ft (CF)
KB to GR/CF: 12.00 ft

Serial #: 8671 **Inside**

Press@RunDepth: psig @ 4442.00 ft (KB)
Start Date: 2019.06.09 End Date: 2019.06.09
Start Time: 08:13:05 End Time: 19:08:30

Capacity: 8000.00 psig
Last Calib.: 2019.06.09
Time On Btm:
Time Off Btm:

TEST COMMENT: 30 - IFP - Surface blow built to B.o.B. in 25 mins. straddle packer failed 20 minutes into initial flow
60 - ISI - No Return
60 - FFP - Surface blow built to B.o.B. in 2 mins.
90 - FSI - No Return



PRESSURE SUMMARY

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

Recovery

Length (ft)	Description	Volume (bbl)
551.00	WM - 10%w - 90%m	5.01
630.00	WM - 45%w - 55%m	6.46
1260.00	MW - 30%m - 70%w	12.93
940.00	MW - 10%m - 90%w	9.65

Gas Rates

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

DRILL STEM TEST REPORT

FLUID SUMMARY

Indian Oil Co.,, Inc.

PO Box 209
Medicine Lodge Ks 67104

ATTN: Aaron Young

17 - 30 - 13W

Reta #1

Job Ticket: 65937 **DST#: 5**

Test Start: 2019.06.09 @ 08:13:00

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:	52000 ppm
Viscosity:	56.00 sec/qt	Cushion Volume:	bbl		
Water Loss:	9.59 in³	Gas Cushion Type:			
Resistivity:	ohm.m	Gas Cushion Pressure:	psig		
Salinity:	5000.00 ppm				
Filter Cake:	1.00 inches				

Recovery Information

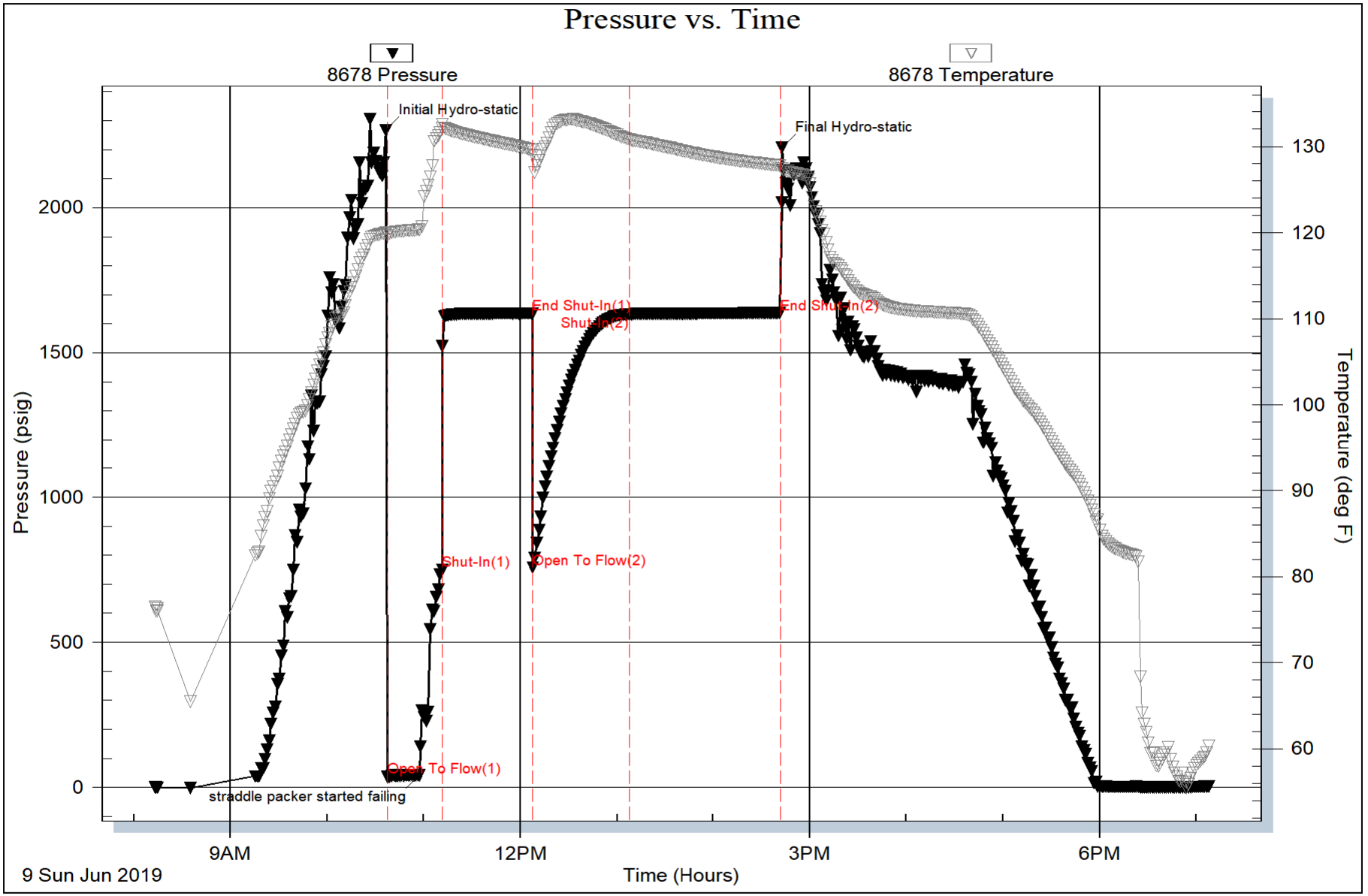
Recovery Table

Length ft	Description	Volume bbl
551.00	WM - 10%w - 90%m	5.006
630.00	WM - 45%w - 55%m	6.464
1260.00	MW - 30%m - 70%w	12.928
940.00	MW - 10%m - 90%w	9.645

Total Length: 3381.00 ft Total Volume: 34.043 bbl

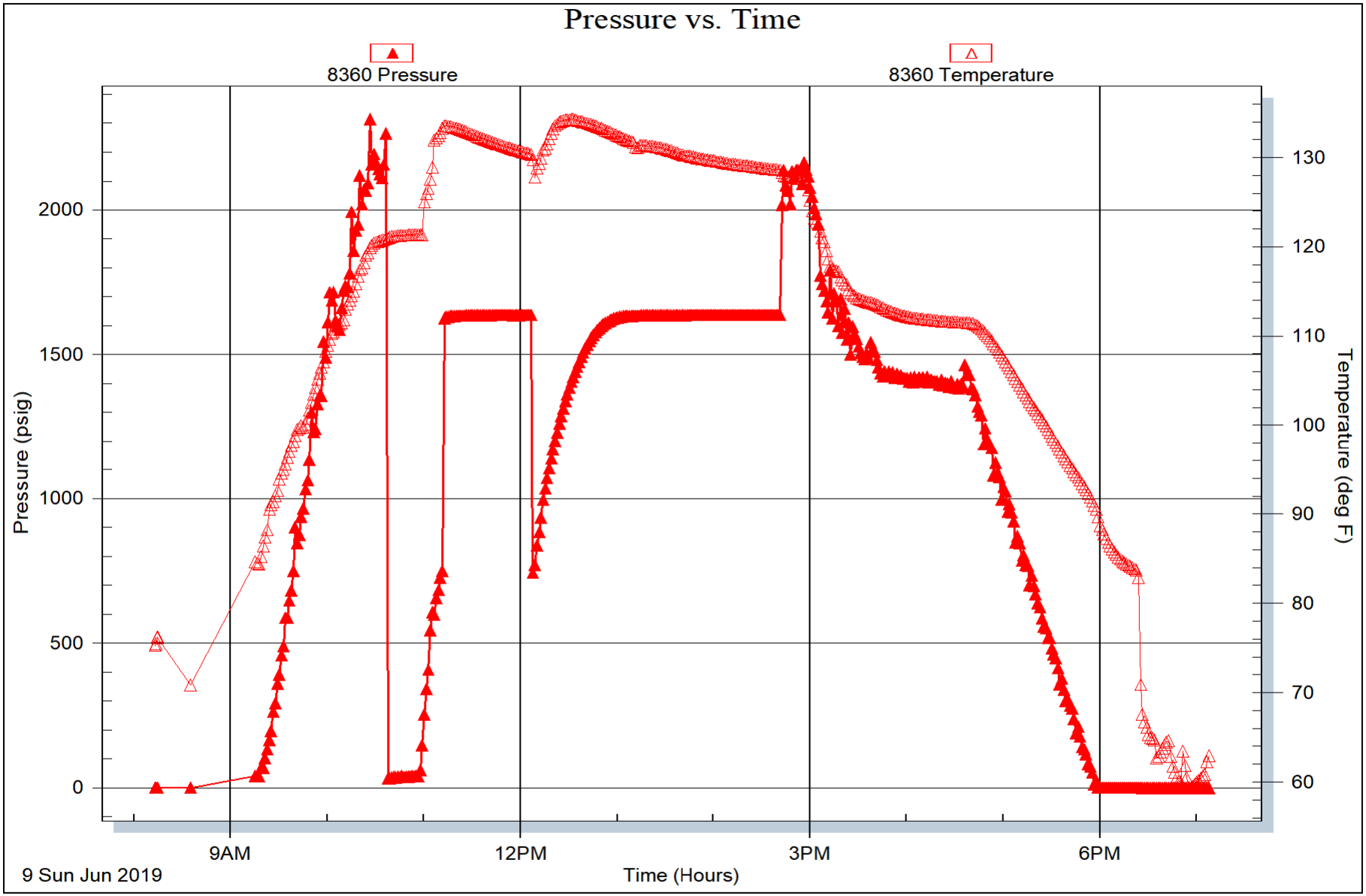
Num Fluid Samples: 0 Num Gas Bombs: 0 Serial #:
Laboratory Name: Laboratory Location:
Recovery Comments:

Serial #: 8678 **Inside** Indian Oil Co.,, Inc. Reta #1 DST Test Number: 5



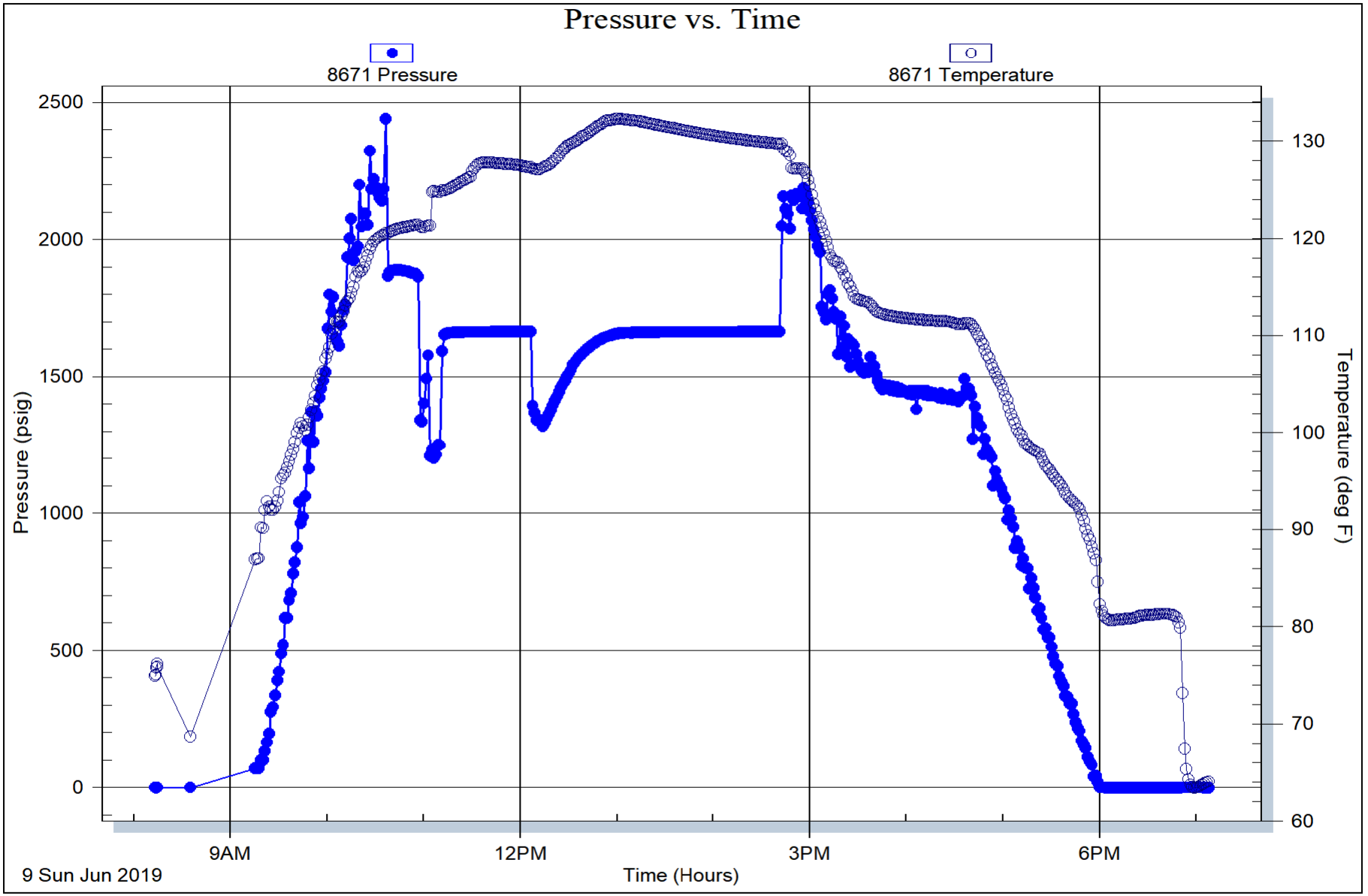
Trilobite Testing, Inc Ref. No: 65937 Printed: 2019.06.09 @ 22:13:47

Serial #: 8360 **Outside** Indian Oil Co.,, Inc. Reta #1 DST Test Number: 5



Trilobite Testing, Inc Ref. No: 65937 Printed: 2019.06.09 @ 22:13:47

Serial #: 8671 **Inside** Indian Oil Co.,, Inc. Reta #1 DST Test Number: 5



Trilobite Testing, Inc Ref. No: 65937 Printed: 2019.06.09 @ 22:13:47

Fracture Start Date/Time:	**8/6/19 11:23**
Fracture End Date/Time:	**8/6/19 13:01**
State:	**Kansas**
County:	**Barber**
API Number:	
Operator Number:	
Well Name:	**Reta #1**
Federal Well:	**No**
Tribal Well:	**No**
Longitude:	
Latitude:	
Long/Lat Projection:	**NAD83**
True Vertical Depth (TVD):	
Total Clean Fluid Volume* (gal):	**199,865**

FracFocus Chemical Disclosure Registry

(e.g. XX-XXX-XXXXX-0000)

3.0

Additive	*Specific Gravity*	*Additive Quantity*	*Mass (lbs)*	
WATER	1.00	**199,865**	*1,667,873*	*gal*
30/50 Premium Sand		**70,000**	*70,000*	*lb*
20/40 Garnet Resin Sand		**10,000**	*10,000*	*lb*
Dry Biocide/Bio-Clear 1000		**22**	*22*	*lb*
LG-1 Liquid Gel	1.04	**143**	*1,241*	*gal*
W-11 NE/Surfactant	0.95	**196**	*1,549*	*gal*
Breaker LE	1.10	**9**	*83*	*gal*
KCL	1.08	**196**	*1,766*	*gal*
XL-B Plexbor 101	1.30	**57**	*618*	*gal*
				gal
				gal
				gal
				gal
				gal
				gal
				gal
				gal
				gal
				gal
			Total Slurry Mass (Lbs)	
			1,753,153	

Ingredients Section:

Trade Name	Supplier	Purpose	Ingredients	Chemical Abstract Service Number (CAS #)	Maximum Ingredient Concentration in Additive (% bv mass)**	Mass per Component (LBS)	Maximum Ingredient Concentration in HF Fluid (% bv mass)**	Comments	Claimant Company	Claimant First Name	Claimant Last Name	Claimant Email	Claimant Phone (nnn-nnn-nnnn)
Water	Indian Oil Company	Carrier/Base Fluid	Water	7732-18-5	100.00%	*1,667,873*	*95.13565%*						
30/50 Premium Sand	SPS	Propping Agent	Crystalline Silica	14808-60-7	100.00%	*70,000*	*3.99281%*						
20/40 Garnet Resin Sand	SPS	Propping Agent	Crystalline Silica	14808-60-7	99.00%	*9,900*	*0.56470%*						
Dry Biocide/Bio-Clear 1000	SPS	Bio Control	2,2-Dibromo-3-Nitrilopropionamide	10222-01-2	97.60%	*21*	*0.00122%*						
LG-1 Liquid Gel	SPS	Gellent	Petroleum distillates	64742-47-8	50.00%	*621*	*0.03540%*						
			Oreanophilic Clav	71011-26-2	2.00%	*25*	*0.00142%*						
			Crystalline Silica	14808-60-7	0.06%	*1*	*0.00004%*						
			Alcohol ethoxylate	34398-01-1	1.00%	*12*	*0.00071%*						
			Guar Gum	9000-30-0	50.00%	*621*	*0.03540%*						
W-11 NE/Surfactant	SPS	NE/Surfactant	Methanol	67-56-1	30.00%	*465*	*0.02651%*						
			Nonyl Phenol Exthoxylated	127087-87-0	30.00%	*465*	*0.02651%*						
			Water	7732-18-5	40.00%	*620*	*0.03534%*						
Breaker LE	SPS	Liquid Enzyme Breaker	Non-Hazardous Ingredients	Not Assigned	100.00%	*83*	*0.00471%*		Chemplex	Marvin	Misak	Marvin.Misak@solvay.com	352-573-7300
KCL	SPS	Temporary Clay Stabilizer	Ethanaminium 2-hydroxy-N,N,N-trimrthyl-, chloride	67-48-1	50.00%	*883*	*0.05038%*						
			Water	7732-18-5	50.00%	*883*	*0.05038%*						
XL-B Plexbor 101	SPS	Complexer and Buffering Agent	Ethylene Glycol	107-21-1	10.00%	*62*	*0.00353%*						
			Potassium Hydroxide	1310-58-3	3.15%	*19*	*0.00111%*						
			Diethylene Gvkol	111-46-6	0.50%	*3*	*0.00018%*						
			Potassium Metaborate	13709-94-9	25.00%	*155*	*0.00882%*						

*Total Water Volume sources may include fresh water, produced water, and/or recycled water
** Information is based on the maximum potential for concentration and thus the total may be over 100%
All component information

Fracture Start Date/Time:	**8/6/19 11:23**
Fracture End Date/Time:	**8/6/19 13:01**
State:	**Kansas**
County:	**Barber**
API Number:	
Operator Number:	
Well Name:	**Reta #1**
Federal Well:	**No**
Tribal Well:	**No**
Longitude:	
Latitude:	
Long/Lat Projection:	**NAD83**
True Vertical Depth (TVD):	
Total Clean Fluid Volume* (gal):	**199,865**

FracFocus Chemical Disclosure Registry

(e.g. XX-XXX-XXXXX-0000)

Total Slurry Mass (Lbs)
1,753,153

Ingredients Section:

Trade Name	Supplier	Purpose	Ingredients	Chemical Abstract Service Number (CAS #)	Maximum Ingredient Concentration in Additive (% by mass)**	Mass per Component (LBS)	Maximum Ingredient Concentration in HF Fluid (% by mass)**	Comments	Claimant Company	Claimant First Name	Claimant Last Name	Claimant Email	Claimant Phone (nnn-nnn-nnnn)
Water	Indian Oil Company	Carrier/Base Fluid	Water	7732-18-5	100.00%	***1,667,873***	***95.13565%***						
30/50 Premium Sand	SPS	Propping Agent		Listed Below									
20/40 Garnet Resin Sand	SPS	Propping Agent		Listed Below									
Dry Biocide/Bio-Clear 1000	SPS	Bio Control		Listed Below									
LG-1 Liquid Gel	SPS	Gellent		Listed Below									
W-11 NE/Surfactant	SPS	NE/Surfactant		Listed Below									
Breaker LE	SPS	Liquid Enzyme Breaker		Listed Below									
KCL	SPS	Temporary Clay Stabilizer		Listed Below									
XL-B Plexbor 101	SPS	Complexer and Buffering Agent		Listed Below									
			Crystalline Silica	14808-60-7	100.00%	***70,000***	***3.99281%***						
			Crystalline Silica	14808-60-7	99.00%	***9,900***	***0.56470%***						
			2,2-Dibromo-3-Nitrilopropionamide	10222-01-2	97.60%	***21***	***0.00122%***						
			Petroleum distillates	64742-47-8	50.00%	***621***	***0.03540%***						
			Organophilic Clay	71011-26-2	2.00%	***25***	***0.00142%***						
			Crystalline Silica	14808-60-7	0.06%	***1***	***0.00004%***						
			Alcohol ethoxylate	34398-01-1	1.00%	***12***	***0.00071%***						
			Guar Gum	9000-30-0	50.00%	***621***	***0.03540%***						
			Methanol	67-56-1	30.00%	***465***	***0.02651%***						
			Nonyl Phenol Exthoxylated	127087-87-0	30.00%	***465***	***0.02651%***						
			Water	7732-18-5	40.00%	***620***	***0.03534%***						
			Non-Hazardous Ingredients	Not Assigned	100.00%	***83***	***0.00471%***		Chemplex	Marvin	Misak	Marvin.Misak@solvay.com	352-573-7300
			Ethanaminium 2-hydroxy-N,N,N-trimrthyl-, chloride	67-48-1	50.00%	***883***	***0.05038%***						
			Water	7732-18-5	50.00%	***883***	***0.05038%***						
			Ethylene Glycol	107-21-1	10.00%	***62***	***0.00353%***						
			Potassium Hydroxide	1310-58-3	3.15%	***19***	***0.00111%***						
			Diethylene Gykol	111-46-6	0.50%	***3***	***0.00018%***						
			Potassium Metaborate	13709-94-9	25.00%	***155***	***0.00882%***						

*Total Water Volume sources may include fresh water, produced water, and/or recycled water
** Information is based on the maximum potential for concentration and thus the total may be over 100%
All component information

Geologic Report

Aaron L. Young

Drilling Time and Sample Log

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

Well Name:	**Reta #1**		
API:	**15-007-24351**		
Location:	**Section 17 - T30S - R13W**		
License Number:	**31938**	**Region:**	**Barber Co., KS**
Spud Date:	**05/31/2019**	**Drilling Completed:**	**06/08/2019**
Surface Coordinates:	**330' FNL and 330' FEL**		
Bottom Hole Coordinates:			
Ground Elevation (ft):	**1834'**	**K.B. Elevation (ft):**	**1846'**
Logged Interval (ft):	**3700' To: 4755'**	**Total Depth (ft):**	**4755'**
Formation:	**Arbuckle**		
Type of Drilling Fluid:	**Chemical - MudCo**		

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

OPERATOR

Company: Indian Oil Co., Inc
Address: PO Box 209
Medicine Lodge, KS 67104-0209

GEOLOGIST

Name: Aaron L. Young, M.S.
Company: Young Consulting LLC
Address: 100 S Main, Suite 505
Wichita, Kansas 67202

General Info

CONTRACTOR: Fossil Drilling Rig #3

BIT RECORD:

No.	Size	Make	Jets	Out	Feet	Hours
1	17-2/4	Milltooth RR	16-16-16	263'	263'	3.5
2	7-7/8	HTC DP506	16-16-16	4421'	4158'	66.5
3	7-7/8	HTC DP606X	3x14s 3x14s	4755'	334'	9.75

GENERAL DRILLING AND PUMP INFORMATION:
Drilling with 12,000-14,000 lbs. on bit and approx 110 RPM.
Running 10 stands of collars; 609.11'
Pumping approx 850-950 psi at standpipe @ 57-60 SPM

Daily Status

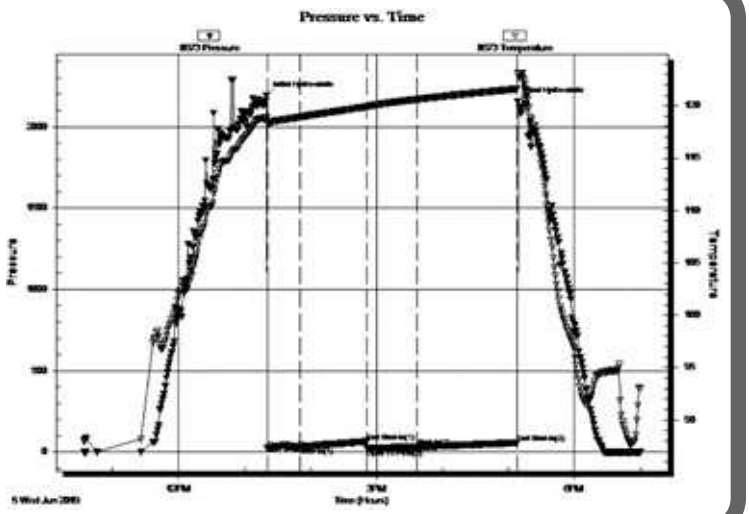
05/31/19 Spud @ 345pm
06/01/19 WOC at 263' Drilled 263' 17-1/2" hole. Ran 261" of 13-3/8" surface casing. Pumped 300 sx 60/40 Poz cement. 3% calcium, 1/4# cellflake.
06/02/19 Drilling @ 1705'
06/03/19 Drilling @ 2625'
06/04/19 Drilling @ 3657'
06/05/19 CFS @ 4376' DST #1
06/06/19 TIH w/ bit #3 @ 4421', DST #2, DST #3
06/07/19 Drilling @ 4548'
06/08/19 TIH w/ DST #4 @ 4606'
06/09/19 Logging, RTD @ 4755', Straddle DST #5. Ran 117 jts of 5 1/2" 15.5# production casing set @ 4735'

DST #1
Marmaton 4310'-4376'
30-60-45-90

IF: Surface blow built to 3/4"
ISI: No return
FF: Surface blow stayed weak throughout
FSI: No return

Rec'd: 10' OSM (100% M)

SIP: 65-58#
FP: 23-31#, 23-30#
HP: 2191-2154#

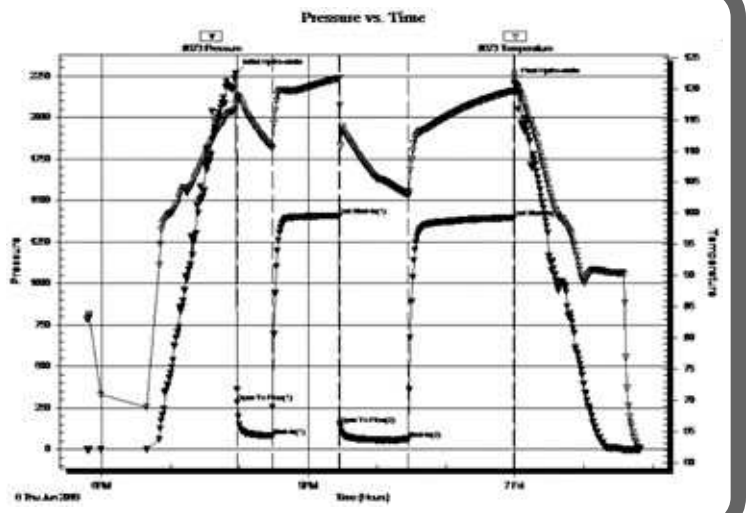


DST #2 Viola 4484'-4516'
30-60-60-90

IF: Surface blow built to BOB <1min
ISI: No return
FF: Surface blow BOB immediately
FSI: No return

Rec'd: 5' M (100% M)
GTS: Mas rate 145 mcf/d
Final rate 75 mcf/d

SIP: 1408-1396#
FP: 286-81#, 151-64#
HP: 2268-2212#

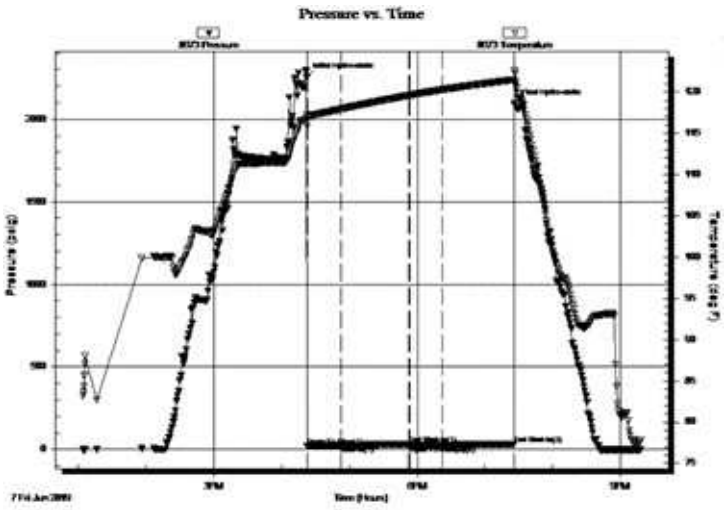


DST #3
Viola 4516'-4572'
30-60-30-60

IF: Surface blow built to 1/4", died to weak blow
ISI: No return
FF: No surface blow
FSI: No return

Rec'd: 2' M (100% M)

SIP: 33-33#
FP: 20-24#, 27-33#
HP: 2254-2095#

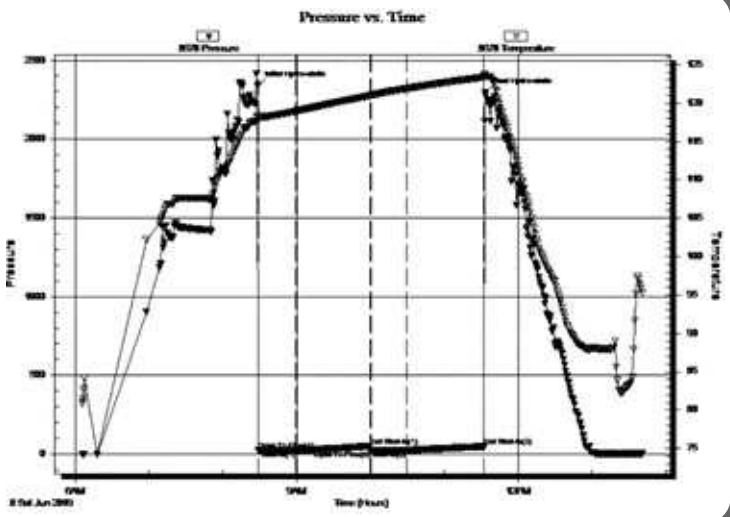


DST #4
Simpson Sand 4572'-4606'
30-60-30-60

IF: Surface blow stayed at weak blow
SI: No return
FF: No surface blow
FSI: No return

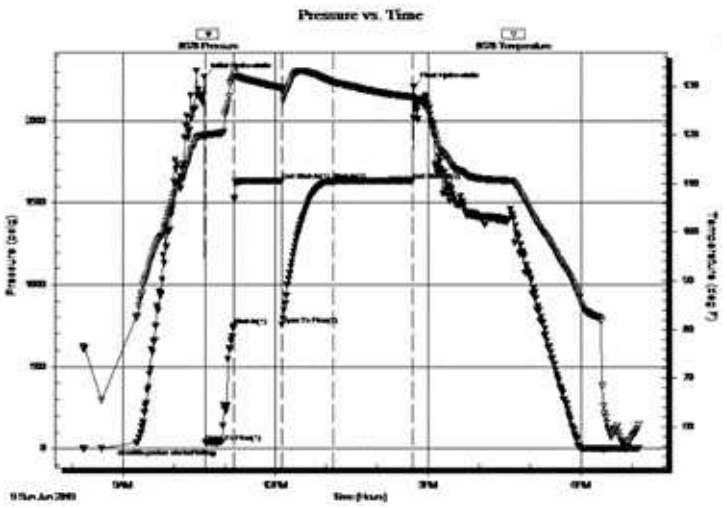
Rec'd: 3' M (100% M)

SIP: 25-26#
FP: 26-24#, 26-26#
HP: 2340-2295#



DST #5 Straddle Test
MISS
4376'-4424'

Packer Failure - Bottom packer split and recovered 3381' MW



ROCK TYPES

- Anhy
- Bent
- Brec
- Cht
- Clyst
- Coal
- Congl
- Dol
- Gyp
- Igne
- Lmst
- Meta
- Mrlst
- Salt
- Shale
- Shcol
- Shgy
- Sltst
- Ss
- Till
- Carb sh
- Dol
- Dtd
- Gry sh
- Sandylms
- Shale
- Sltstn
- Shlyslts
- Sltysh
- Lms

ACCESSORIES

MINERAL
- Anhy
- Arggrn
- Arg
- Bent
- Bit
- Brecfrag
- Calc
- Carb
- Chtdk
- Chtlt
- Dol
- Feldspar
- Ferrpel
- Ferr
- Glau
- Gyp
- Hvymin
- Kaol
- Marl
- Minxl
- Nodule
- Phos
- Pyr
- Salt
- Sandy
- Silt
- Sil
- Sulphur
- Tuff
- Chlorite
- Dol
- Sand
- Slty

FOSSIL
- Algae
- Amph
- Belm
- Bioclst
- Brach
- Bryozoa
- Cephal
- Coral
- Crin
- Echin
- Fish
- Foram
- Fossil
- Gastro
- Oolite
- Ostra
- Pelec
- Pellet
- Pisolite
- Plant
- Strom
- Fuss
- Oomold

STRINGER
- Anhy
- Arg
- Bent
- Coal
- Dol
- Gyp
- Ls
- Mrst
- Sltstrg
- Ssstrg
- Carbsh
- Clystn
- Dol
- Grysh
- Gryslt
- Lms
- Sandylms
- Sh
- Sltstn

TEXTURE
- Boundst
- Chalky
- Cryxln
- Earthy
- Finexln
- Grainst
- Lithogr
- Microxln
- Mudst
- Packst
- Wackest

OTHER SYMBOLS

POROSITY TYPE
- Earthy
- Fenest
- Fracture
- Inter
- Moldic
- Organic
- Pinpoint
- Vuggy

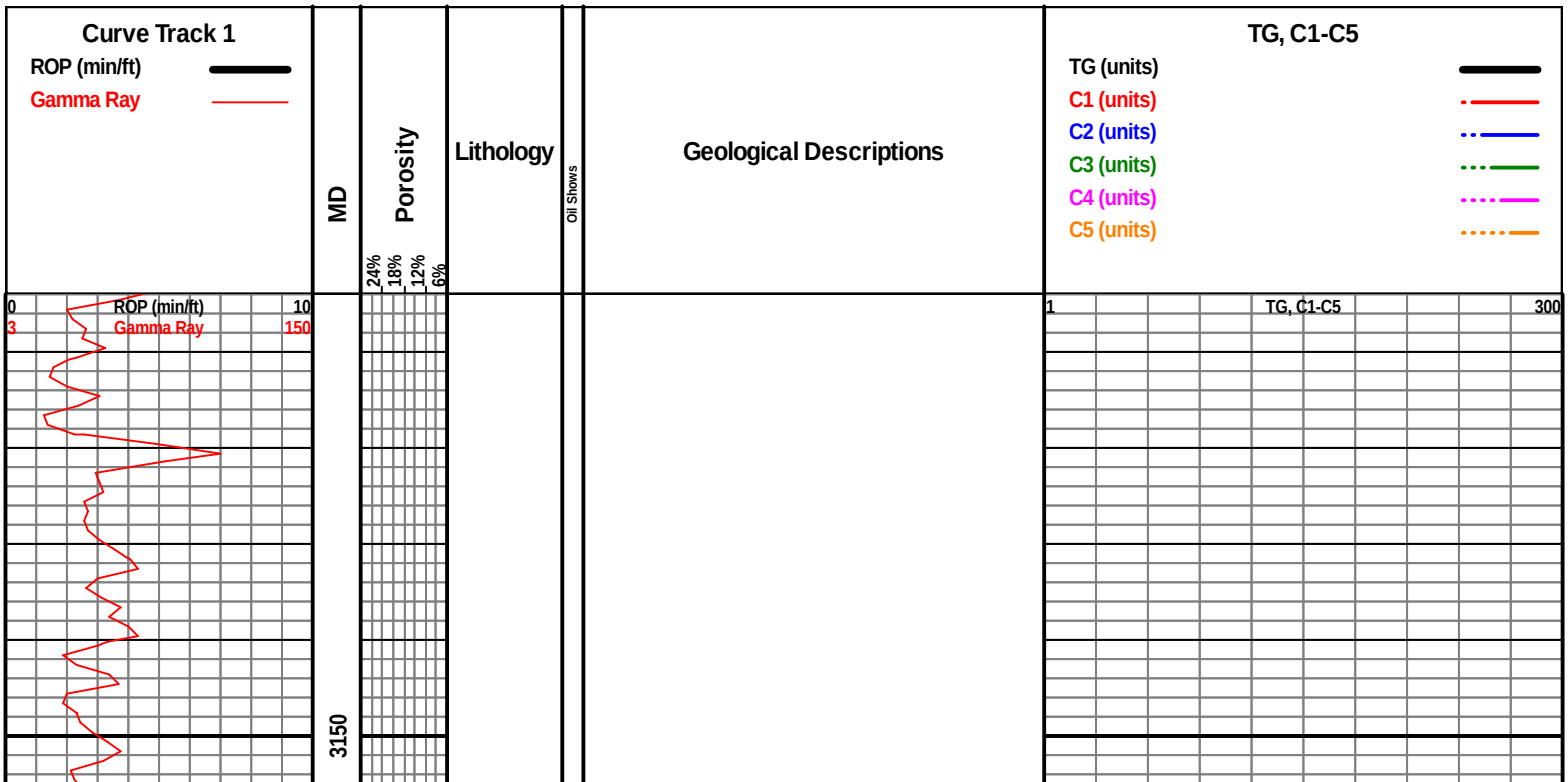
SORTING
- Well
- Moderate
- Poor

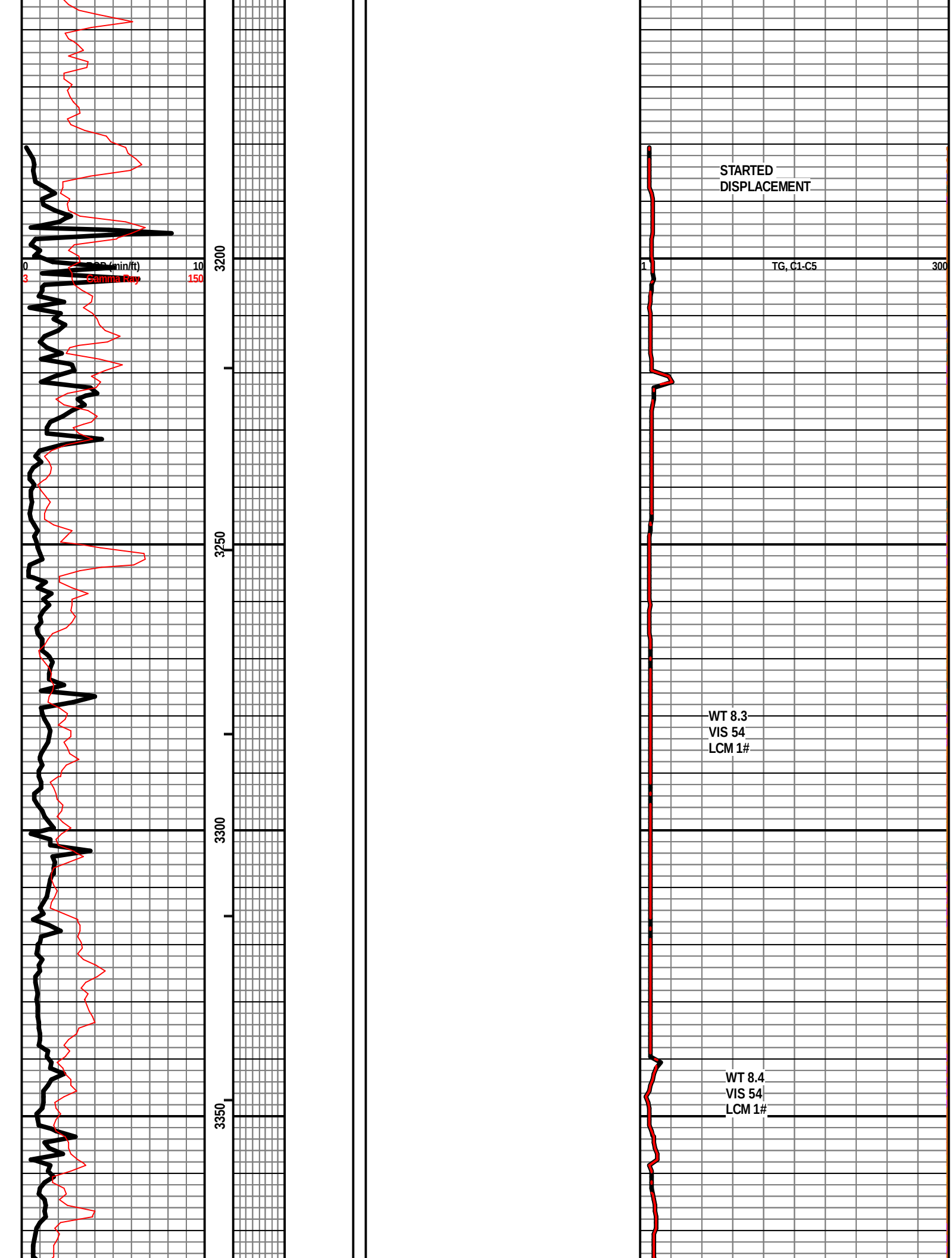
ROUNDING
- Rounded
- Subrnd
- Subang
- Angular

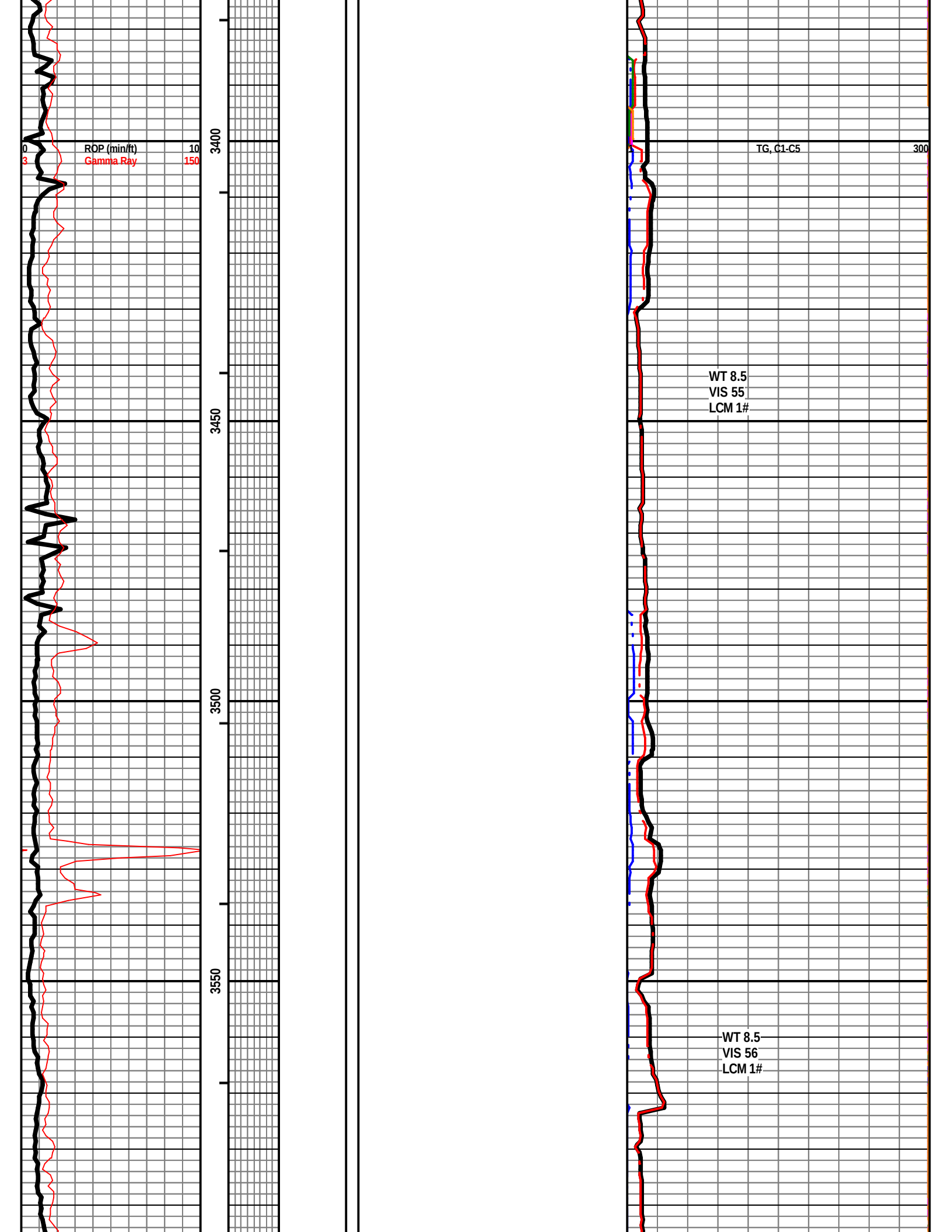
OIL SHOWS
- Even
- Spotted
- Ques
- Dead
- Gas show

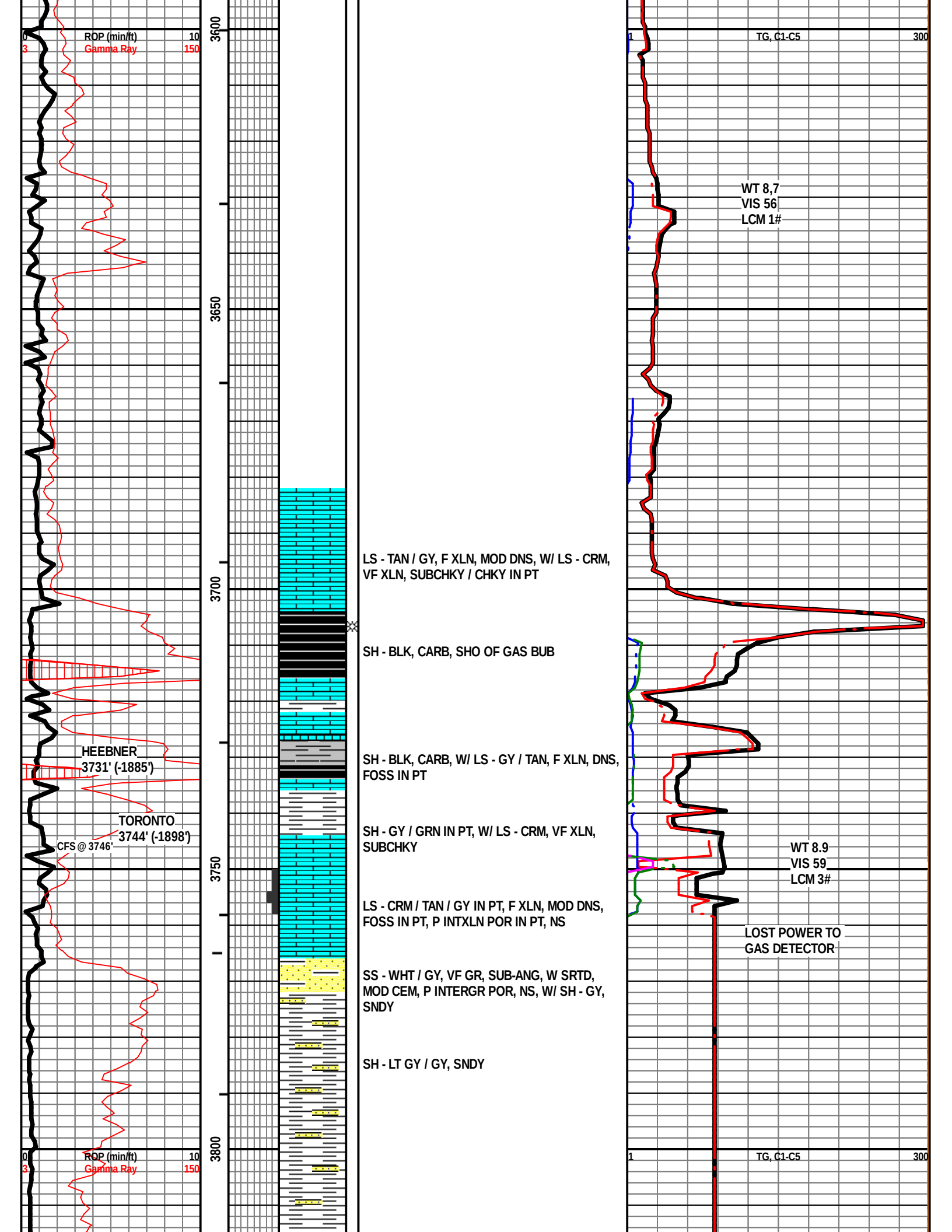
INTERVALS
- Core
- Dst
- Dst

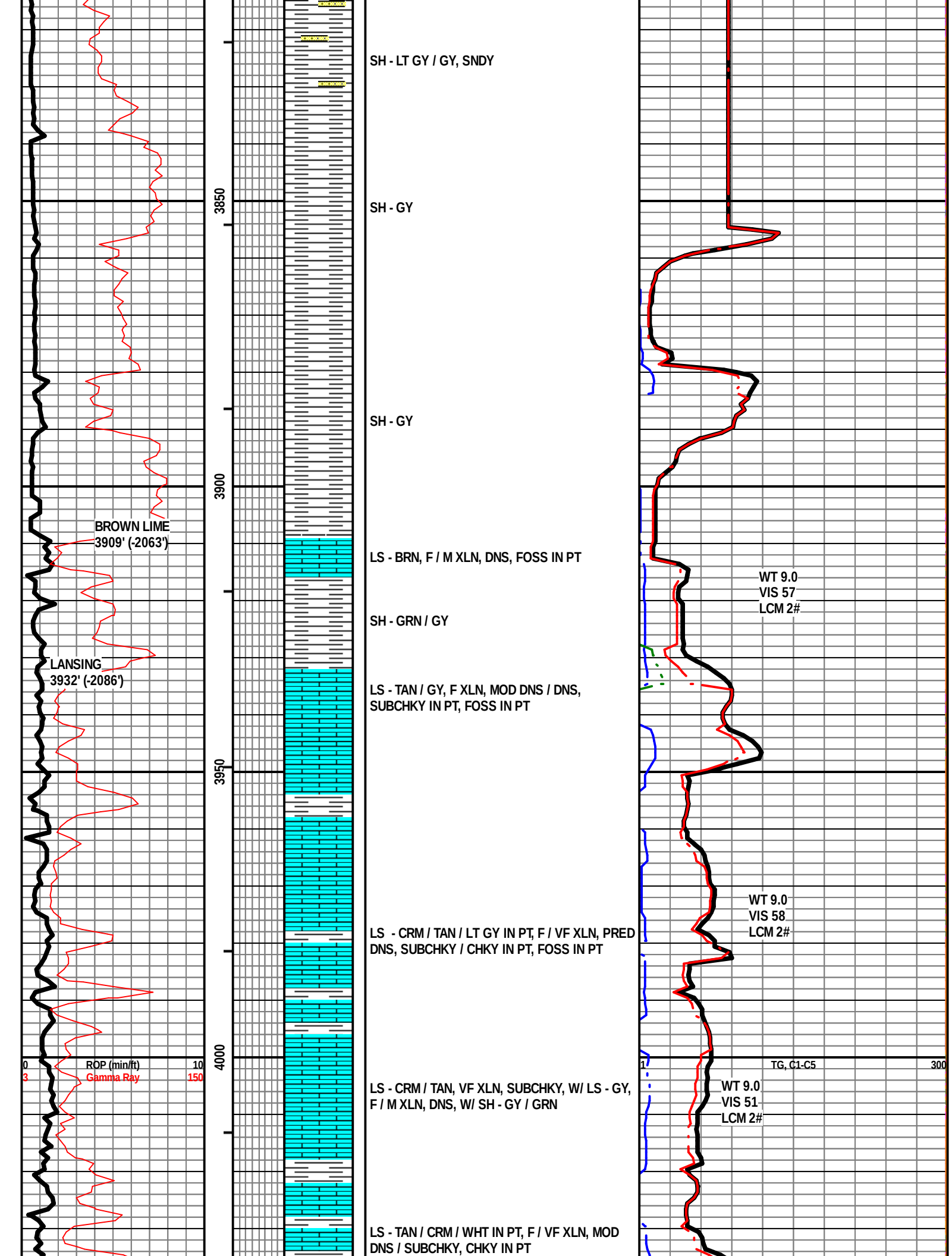
EVENTS
- Rft
- Sidewall
- Conn

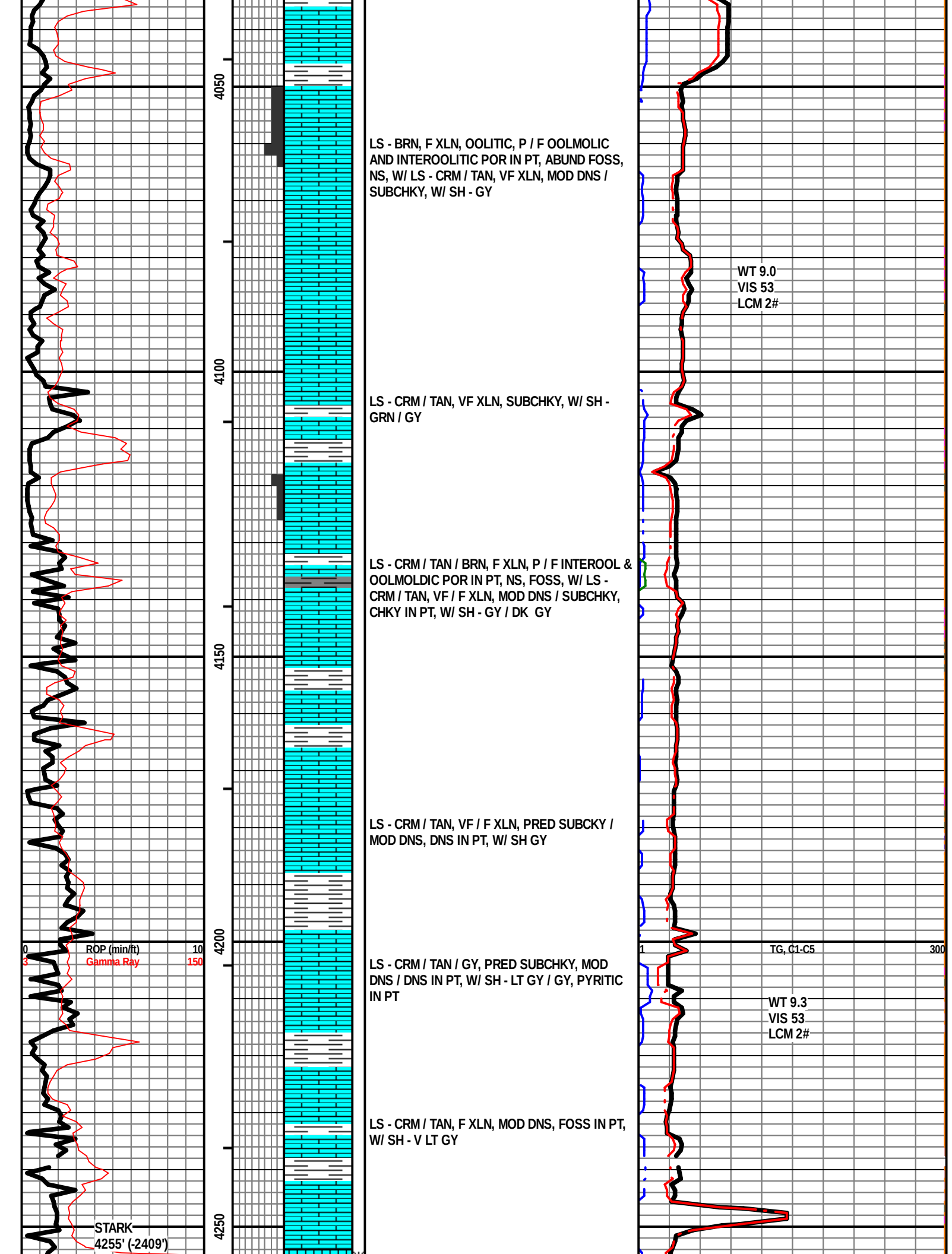


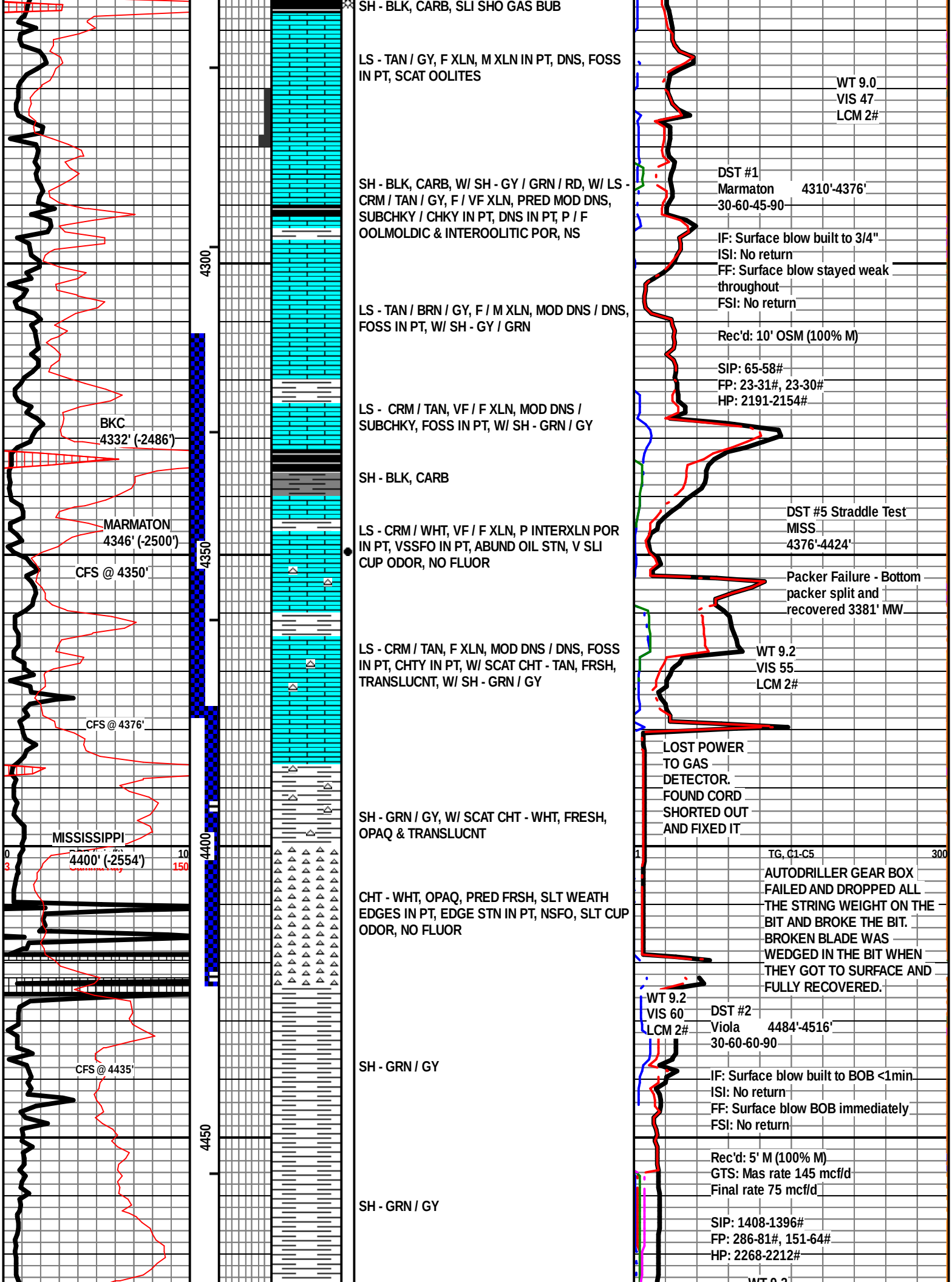

0
ROP (min/ft)
10
3
Gamma Ray
150
3200
3250
3300
3350
1
TG, C1-C5
300
STARTED
DISPLACEMENT
WT 8.3
VIS 54
LCM 1#
WT 8.4
VIS 54
LCM 1#

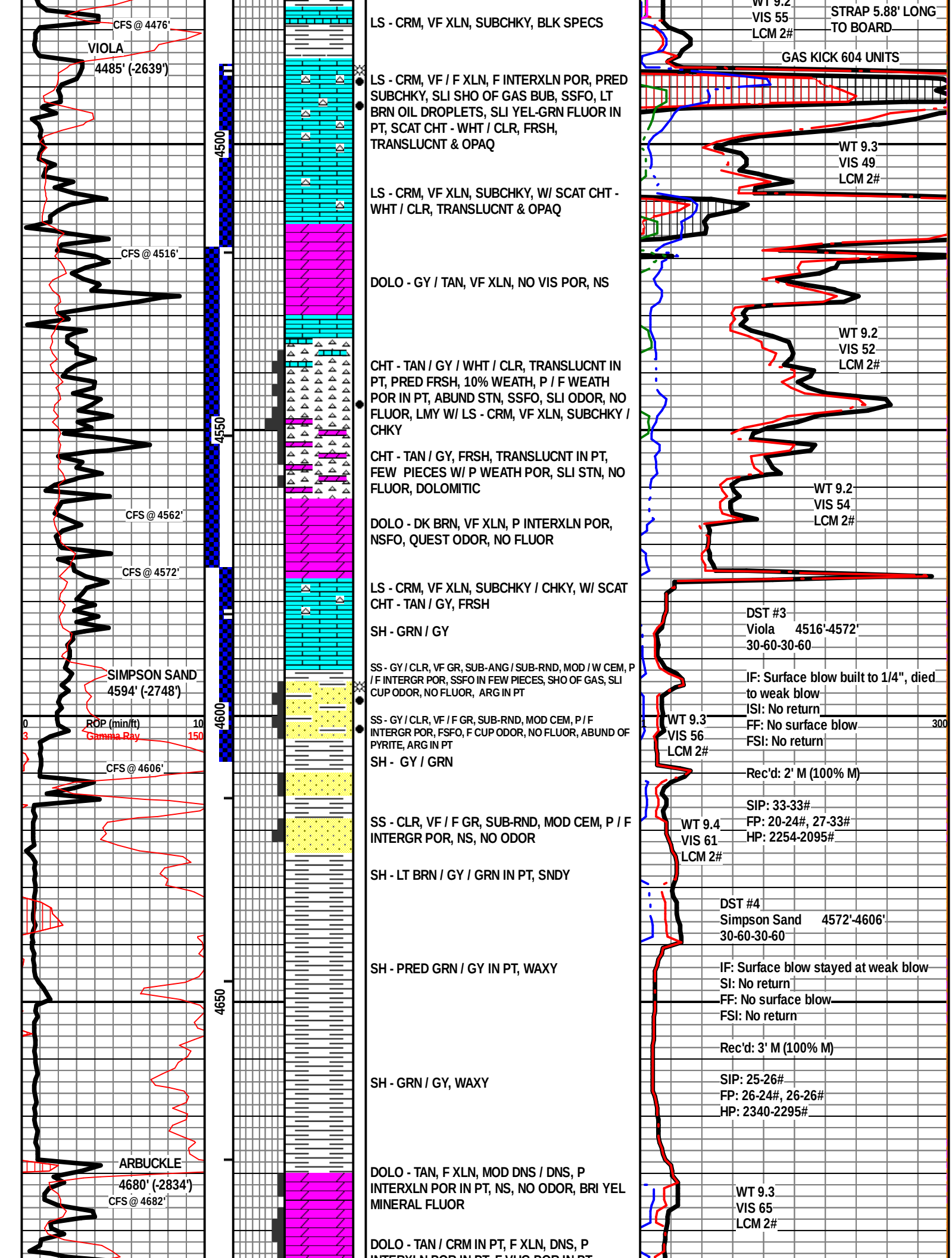

0
ROP (min/ft)
10
3
Gamma Ray
150
3400
3450
3500
3550
TG, C1-C5
300
WT 8.5
VIS 55
LCM 1#
WT 8.5
VIS 56
LCM 1#

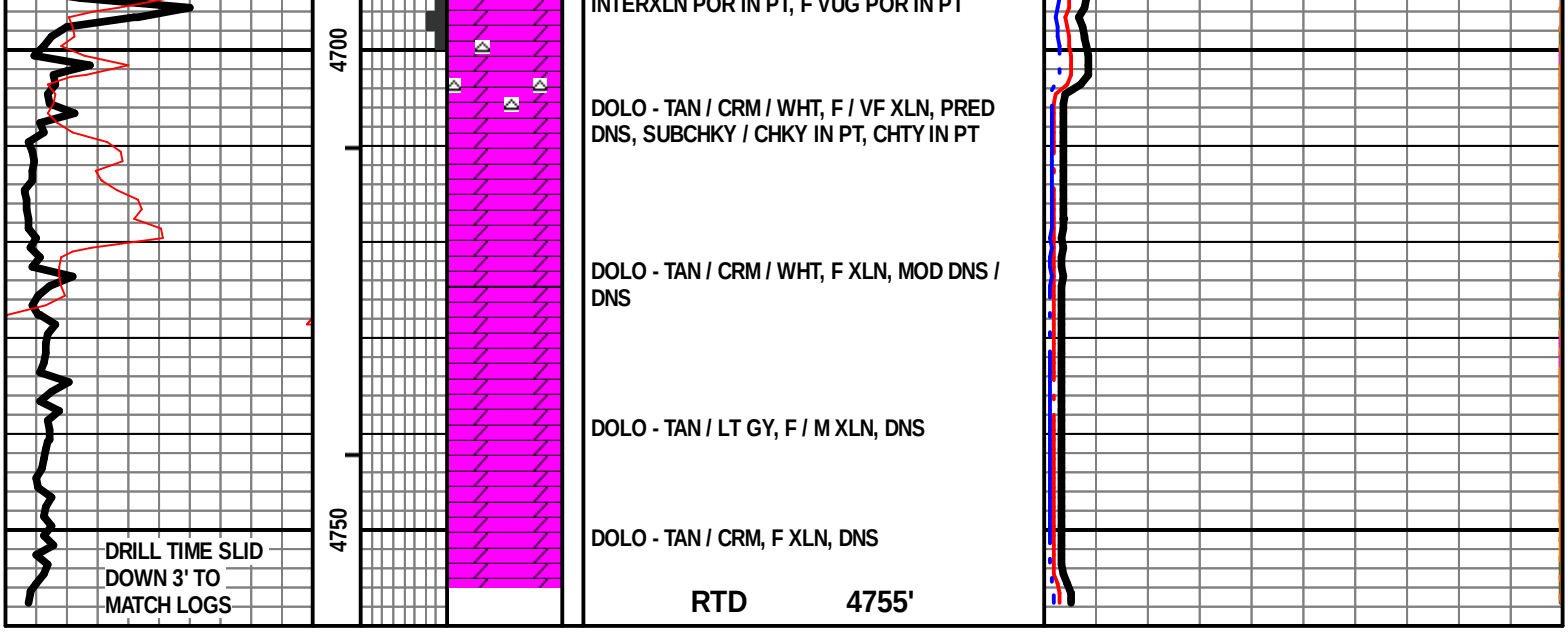

0
3
ROP (min/ft)
Gamma Ray
10
150
3600
3650
3700
3750
3800
1
TG, C1-C5
300
WT 8,7
VIS 56
LCM 1#
LS - TAN / GY, F XLN, MOD DNS, W/ LS - CRM, VF XLN, SUBCHKY / CHKY IN PT
SH - BLK, CARB, SHO OF GAS BUB
HEEBNER
3731' (-1885')
SH - BLK, CARB, W/ LS - GY / TAN, F XLN, DNS, FOSS IN PT
TORONTO
3744' (-1898')
CFS @ 3746'
SH - GY / GRN IN PT, W/ LS - CRM, VF XLN, SUBCHKY
WT 8.9
VIS 59
LCM 3#
LS - CRM / TAN / GY IN PT, F XLN, MOD DNS, FOSS IN PT, P INTXLN POR IN PT, NS
LOST POWER TO GAS DETECTOR
SS - WHT / GY, VF GR, SUB-ANG, W SRTD, MOD CEM, P INTERGR POR, NS, W/ SH - GY, SNDY
SH - LT GY / GY, SNDY


SH - LT GY / GY, SNDY
SH - GY
SH - GY
LS - BRN, F / M XLN, DNS, FOSS IN PT
SH - GRN / GY
LS - TAN / GY, F XLN, MOD DNS / DNS, SUBCHKY IN PT, FOSS IN PT
LS - CRM / TAN / LT GY IN PT, F / VF XLN, PRED DNS, SUBCHKY / CHKY IN PT, FOSS IN PT
LS - CRM / TAN, VF XLN, SUBCHKY, W/ LS - GY, F / M XLN, DNS, W/ SH - GY / GRN
LS - TAN / CRM / WHT IN PT, F / VF XLN, MOD DNS / SUBCHKY, CHKY IN PT
BROWN LIME
3909' (-2063')
LANSING
3932' (-2086')
3850
3900
3950
4000
WT 9.0
VIS 57
LCM 2#
WT 9.0
VIS 58
LCM 2#
WT 9.0
VIS 51
LCM 2#
0
3
ROP (min/ft)
Gamma Ray
10
150
1
TG, C1-C5
300


4050
4100
4150
4200
4250
LS - BRN, F XLN, OOLITIC, P / F OOLMOLIC AND INTEROOLITIC POR IN PT, ABUND FOSS, NS, W/ LS - CRM / TAN, VF XLN, MOD DNS / SUBCHKY, W/ SH - GY
WT 9.0
VIS 53
LCM 2#
LS - CRM / TAN, VF XLN, SUBCHKY, W/ SH - GRN / GY
LS - CRM / TAN / BRN, F XLN, P / F INTEROOL & OOLMOLDIC POR IN PT, NS, FOSS, W/ LS - CRM / TAN, VF / F XLN, MOD DNS / SUBCHKY, CHKY IN PT, W/ SH - GY / DK GY
LS - CRM / TAN, VF / F XLN, PRED SUBCKY / MOD DNS, DNS IN PT, W/ SH GY
0
ROP (min/ft)
10
3
Gamma Ray
150
1
TG, C1-C5
300
LS - CRM / TAN / GY, PRED SUBCHKY, MOD DNS / DNS IN PT, W/ SH - LT GY / GY, PYRITIC IN PT
WT 9.3
VIS 53
LCM 2#
LS - CRM / TAN, F XLN, MOD DNS, FOSS IN PT, W/ SH - V LT GY
STARK
4255' (-2409')


SH - BLK, CARB, SLI SHO GAS BUB
LS - TAN / GY, F XLN, M XLN IN PT, DNS, FOSS IN PT, SCAT OOLITES
WT 9.0
VIS 47
LCM 2#
SH - BLK, CARB, W/ SH - GY / GRN / RD, W/ LS - CRM / TAN / GY, F / VF XLN, PRED MOD DNS, SUBCHKY / CHKY IN PT, DNS IN PT, P / F OOLMOLDIC & INTEROOLITIC POR, NS
DST #1
Marmaton 4310'-4376'
30-60-45-90
IF: Surface blow built to 3/4"
ISI: No return
FF: Surface blow stayed weak throughout
FSI: No return
Rec'd: 10' OSM (100% M)
SIP: 65-58#
FP: 23-31#, 23-30#
HP: 2191-2154#
4300
LS - TAN / BRN / GY, F / M XLN, MOD DNS / DNS, FOSS IN PT, W/ SH - GY / GRN
BKC
4332' (-2486')
LS - CRM / TAN, VF / F XLN, MOD DNS / SUBCHKY, FOSS IN PT, W/ SH - GRN / GY
SH - BLK, CARB
DST #5 Straddle Test
MISS
4376'-4424'
MARMATON
4346' (-2500')
LS - CRM / WHT, VF / F XLN, P INTERXLN POR IN PT, VSSFO IN PT, ABUND OIL STN, V SLI CUP ODOR, NO FLUOR
4350
CFS @ 4350'
Packer Failure - Bottom packer split and recovered 3381' MW
LS - CRM / TAN, F XLN, MOD DNS / DNS, FOSS IN PT, CHTY IN PT, W/ SCAT CHT - TAN, FRSH, TRANSLUCNT, W/ SH - GRN / GY
WT 9.2
VIS 55
LCM 2#
CFS @ 4376'
LOST POWER TO GAS DETECTOR. FOUND CORD SHORTED OUT AND FIXED IT
MISSISSIPPI
4400' (-2554')
4400
SH - GRN / GY, W/ SCAT CHT - WHT, FRESH, OPAQ & TRANSLUCNT
0
3
10
150
1
TG, C1-C5
300
CHT - WHT, OPAQ, PRED FRSH, SLT WEATH EDGES IN PT, EDGE STN IN PT, NSFO, SLT CUP ODOR, NO FLUOR
AUTODRILLER GEAR BOX FAILED AND DROPPED ALL THE STRING WEIGHT ON THE BIT AND BROKE THE BIT. BROKEN BLADE WAS WEDGED IN THE BIT WHEN THEY GOT TO SURFACE AND FULLY RECOVERED.
WT 9.2
VIS 60
LCM 2#
DST #2
Viola 4484'-4516'
30-60-60-90
CFS @ 4435'
SH - GRN / GY
IF: Surface blow built to BOB <1min
ISI: No return
FF: Surface blow BOB immediately
FSI: No return
4450
Rec'd: 5' M (100% M)
GTS: Mas rate 145 mcf/d
Final rate 75 mcf/d
SH - GRN / GY
SIP: 1408-1396#
FP: 286-81#, 151-64#
HP: 2268-2212#


CFS @ 4476'
VIOLA
4485' (-2639')
CFS @ 4516'
CFS @ 4562'
CFS @ 4572'
SIMPSON SAND
4594' (-2748')
CFS @ 4606'
ARBUCKLE
4680' (-2834')
CFS @ 4682'
4500
4550
4600
4650
0
ROP (min/ft)
10
3
Gamma Ray
150
LS - CRM, VF XLN, SUBCHKY, BLK SPECS
LS - CRM, VF / F XLN, F INTERXLN POR, PRED SUBCHKY, SLI SHO OF GAS BUB, SSFO, LT BRN OIL DROPLETS, SLI YEL-GRN FLUOR IN PT, SCAT CHT - WHT / CLR, FRSH, TRANSLUCNT & OPAQ
LS - CRM, VF XLN, SUBCHKY, W/ SCAT CHT - WHT / CLR, TRANSLUCNT & OPAQ
DOLO - GY / TAN, VF XLN, NO VIS POR, NS
CHT - TAN / GY / WHT / CLR, TRANSLUCNT IN PT, PRED FRSH, 10% WEATH, P / F WEATH POR IN PT, ABUND STN, SSFO, SLI ODOR, NO FLUOR, LMY W/ LS - CRM, VF XLN, SUBCHKY / CHKY
CHT - TAN / GY, FRSH, TRANSLUCNT IN PT, FEW PIECES W/ P WEATH POR, SLI STN, NO FLUOR, DOLOMITIC
DOLO - DK BRN, VF XLN, P INTERXLN POR, NSFO, QUEST ODOR, NO FLUOR
LS - CRM, VF XLN, SUBCHKY / CHKY, W/ SCAT CHT - TAN / GY, FRSH
SH - GRN / GY
SS - GY / CLR, VF GR, SUB-ANG / SUB-RND, MOD / W CEM, P / F INTERGR POR, SSFO IN FEW PIECES, SHO OF GAS, SLI CUP ODOR, NO FLUOR, ARG IN PT
SS - GY / CLR, VF / F GR, SUB-RND, MOD CEM, P / F INTERGR POR, FSFO, F CUP ODOR, NO FLUOR, ABUND OF PYRITE, ARG IN PT
SH - GY / GRN
SS - CLR, VF / F GR, SUB-RND, MOD CEM, P / F INTERGR POR, NS, NO ODOR
SH - LT BRN / GY / GRN IN PT, SNDY
SH - PRED GRN / GY IN PT, WAXY
SH - GRN / GY, WAXY
DOLO - TAN, F XLN, MOD DNS / DNS, P INTERXLN POR IN PT, NS, NO ODOR, BRI YEL MINERAL FLUOR
DOLO - TAN / CRM IN PT, F XLN, DNS, P
WT 9.2
VIS 55
LCM 2#
STRAP 5.88' LONG
TO BOARD
GAS KICK 604 UNITS
WT 9.3
VIS 49
LCM 2#
WT 9.2
VIS 52
LCM 2#
WT 9.2
VIS 54
LCM 2#
DST #3
Viola 4516'-4572'
30-60-30-60
IF: Surface blow built to 1/4", died to weak blow
ISI: No return
FF: No surface blow
FSI: No return
Rec'd: 2' M (100% M)
SIP: 33-33#
FP: 20-24#, 27-33#
HP: 2254-2095#
WT 9.3
VIS 56
LCM 2#
WT 9.4
VIS 61
LCM 2#
DST #4
Simpson Sand 4572'-4606'
30-60-30-60
IF: Surface blow stayed at weak blow
SI: No return
FF: No surface blow
FSI: No return
Rec'd: 3' M (100% M)
SIP: 25-26#
FP: 26-24#, 26-26#
HP: 2340-2295#
WT 9.3
VIS 65
LCM 2#
300


INTERXLN POR IN PT, F VUG POR IN PT
DOLO - TAN / CRM / WHT, F / VF XLN, PRED DNS, SUBCHKY / CHKY IN PT, CHTY IN PT
DOLO - TAN / CRM / WHT, F XLN, MOD DNS / DNS
DOLO - TAN / LT GY, F / M XLN, DNS
DOLO - TAN / CRM, F XLN, DNS
RTD 4755'
4700
4750
DRILL TIME SLID DOWN 3' TO MATCH LOGS