

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	Petroleum Development Company
Well Name	RICE 1-16
Doc ID	1435845

All Electric Logs Run

Microresistivity Log
Borehole Compensated Sonic Log
Dual Induction Log
Dual Comp Porosity Log



CEMENT TREATMENT REPORT

Customer: Petroleum Development Co	Well: Rice 1-16	Ticket: ICT 1639
City, State:	County: Kearny	Date: 12/7/2018
Field Rep:	S-T-R: 16-22-35w	Service: Medicine Lodge Ks

Downhole Information	
Hole Size:	12 1/4"
Hole Depth:	1854'
Casing Size:	8 5/8"
Casing Depth:	1854'
Tubing / Liner:	in
Depth:	ft
Tool / Packer:	
Depth:	ft
Displacement:	bbls

Slurry	
Weight:	14.5 # / sx
Water / Sx:	7 4/5 gal / sx
Yield:	1 5/9 ft ³ / sx
Bbls / Ft.:	
Depth:	ft
Volume:	136 bbls
Excess:	99% %
Total Slurry:	271 bbls
Total Sacks:	985 sx

Cement Blend		
Product	%	#
Class A		
Gel	4	
CaCl	3	
Metso		
KolSeal		
PhenoSeal		
Salt		
H-325		
Total		-

TIME	RATE	PSI	BBLs	REMARKS	TIME	RATE	PSI	BBLs	REMARKS
1:30 PM				on location with float equipment					
3:30 PM				trucks on location					
				have safety meeting					
7:00 PM				rig up while running casing					
				pipe on bottom					
11:25 PM				drop ball + rig up to casing					
11:26 PM				break circulation with rig					
				circulate for 35 minutes					
12:10 AM			5.0	pump 5 Bbls freshwater					
	4.0	300.0	271.0	Mix + pump 985 sx cement					
1:10 AM				stop pumps + release Plug					
1:10 AM	6.0	150.0		start displacement					
	6.0	250.0		steady rate + pressure					
	4.0	600.0	85.0	slow rate					
	3.0	750.0	105.0	slow rate again					
1:35 AM	3.0	1,350.0	115.0	land plug 600 over lift pressure					
1:40 AM				release pressure + float held					
				Cement did circulate to surface					

CREW		UNIT	SUMMARY		
Cementer:	Carl Balding	28.0	Average Rate	Average Pressure	Total Fluid
Pump Operator:	Joe Halcomb	230.0	4.333333 bpm	566.67 psi	581.00 bbls
Bulk #1:	Cale	176-250			
Bulk #2:	Lupe	180-254			



**TRILOBITE
TESTING, INC.**

DRILL STEM TEST REPORT

Petroleum Development Co.

16/22/36

401 S Boston Ave STE 1850
Tulsa, OK 74103

Rice 1-16

ATTN: Austin Garner

Job Ticket: 64058

DST#: 1

Test Start: 2018.12.12 @ 18:30:00

GENERAL INFORMATION:

Formation: **Marmaton**

Deviated: No Whipstock: 3102.00 ft (KB)

Time Tool Opened: 21:04:55

Time Test Ended: 03:20:10

Test Type: Conventional Bottom Hole (Initial)

Tester: Chris Hagman

Unit No: 75

Interval: **4375.00 ft (KB) To 4400.00 ft (KB) (TVD)**

Total Depth: 4400.00 ft (KB) (TVD)

Hole Diameter: 7.88 inches Hole Condition: Good

Reference Elevations: 3102.00 ft (KB)

3091.00 ft (CF)

KB to GR/CF: 11.00 ft

Serial #: 8289

Inside

Press@RunDepth: 148.02 psig @ 4377.00 ft (KB)

Start Date: 2018.12.12

End Date:

2018.12.13

Start Time: 18:30:00

End Time:

03:20:10

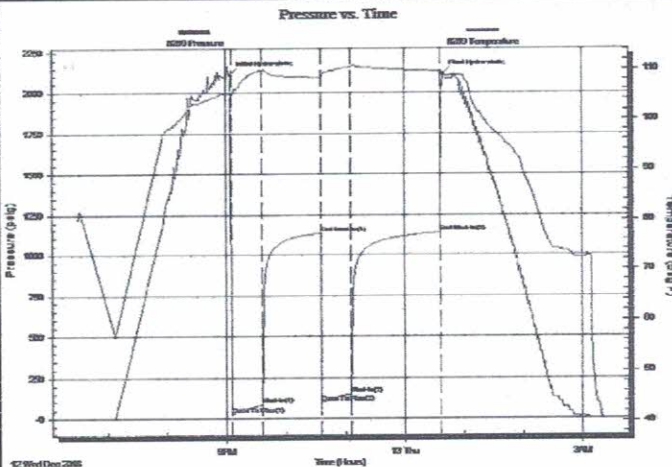
Capacity: 8000.00 psig

Last Calib.: 1899.12.30

Time On Btm: 2018.12.12 @ 21:04:10

Time Off Btm: 2018.12.13 @ 00:39:05

TEST COMMENT: IF: Fair building blow, 4.5 inches in 30 min.
IS: No blow back
FF: Fair building blow, 3.5 inches in 30 min.
FS: No blow back



PRESSURE SUMMARY

Time (Min.)	Pressure (psig)	Temp (deg F)	Annotation
0	2113.13	105.25	Initial Hydro-static
1	23.68	104.74	Open To Flow (1)
32	84.73	109.71	Shut-in(1)
92	1132.74	108.33	End Shut-In(1)
92	96.92	108.04	Open To Flow (2)
122	148.02	110.44	Shut-in(2)
213	1134.98	109.58	End Shut-In(2)
215	2111.15	109.57	Final Hydro-static

Recovery

Length (ft)	Description	Volume (bbl)
272.00	oil spotted w water 100%W	1.34

Gas Rates

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



**TRILOBITE
TESTING, INC.**

DRILL STEM TEST REPORT

TOOL DIAGRAM

Petroleum Development Co.

16/22/36

401 S Boston Ave STE 1850
Tulsa, OK 74103

Rice 1-16

Job Ticket: 64058

DST#: 1

ATTN: Austin Garner

Test Start: 2018.12.12 @ 18:30:00

Tool Information

Drill Pipe:	Length: 4080.00 ft	Diameter: 3.80 inches	Volume: 57.23 bbl	Tool Weight: 2000.00 lb
Heavy Wt. Pipe:	Length: 0.00 ft	Diameter: 0.00 inches	Volume: 0.00 bbl	Weight set on Packer: 20000.00 lb
Drill Collar:	Length: 272.00 ft	Diameter: 2.25 inches	Volume: 1.34 bbl	Weight to Pull Loose: 80000.00 lb
			<u>Total Volume: 58.57 bbl</u>	Tool Chased 0.00 ft
Drill Pipe Above KB:	7.00 ft			String Weight: Initial 76000.00 lb
Depth to Top Packer:	4375.00 ft			Final 77000.00 lb
Depth to Bottom Packer:	ft			
Interval between Packers:	25.00 ft			
Tool Length:	55.00 ft			
Number of Packers:	2	Diameter: 6.75 inches		

Tool Comments:

Tool Description	Length (ft)	Serial No.	Position	Depth (ft)	Accum. Lengths
Shut In Tool	5.00			4350.00	
Sampler	3.00			4353.00	
Hydraulic tool	5.00			4358.00	
Jars	5.00			4363.00	
Safety Joint	3.00			4366.00	
Packer	5.00			4371.00	30.00 Bottom Of Top Packer
Packer	4.00			4375.00	
Stubb	1.00			4376.00	
Perforations	1.00			4377.00	
Recorder	0.00	8289	Inside	4377.00	
Recorder	0.00	6672	Outside	4377.00	
Perforations	20.00			4397.00	
Bullnose	3.00			4400.00	25.00 Bottom Packers & Anchor

Total Tool Length: 55.00

Serial #: 8289

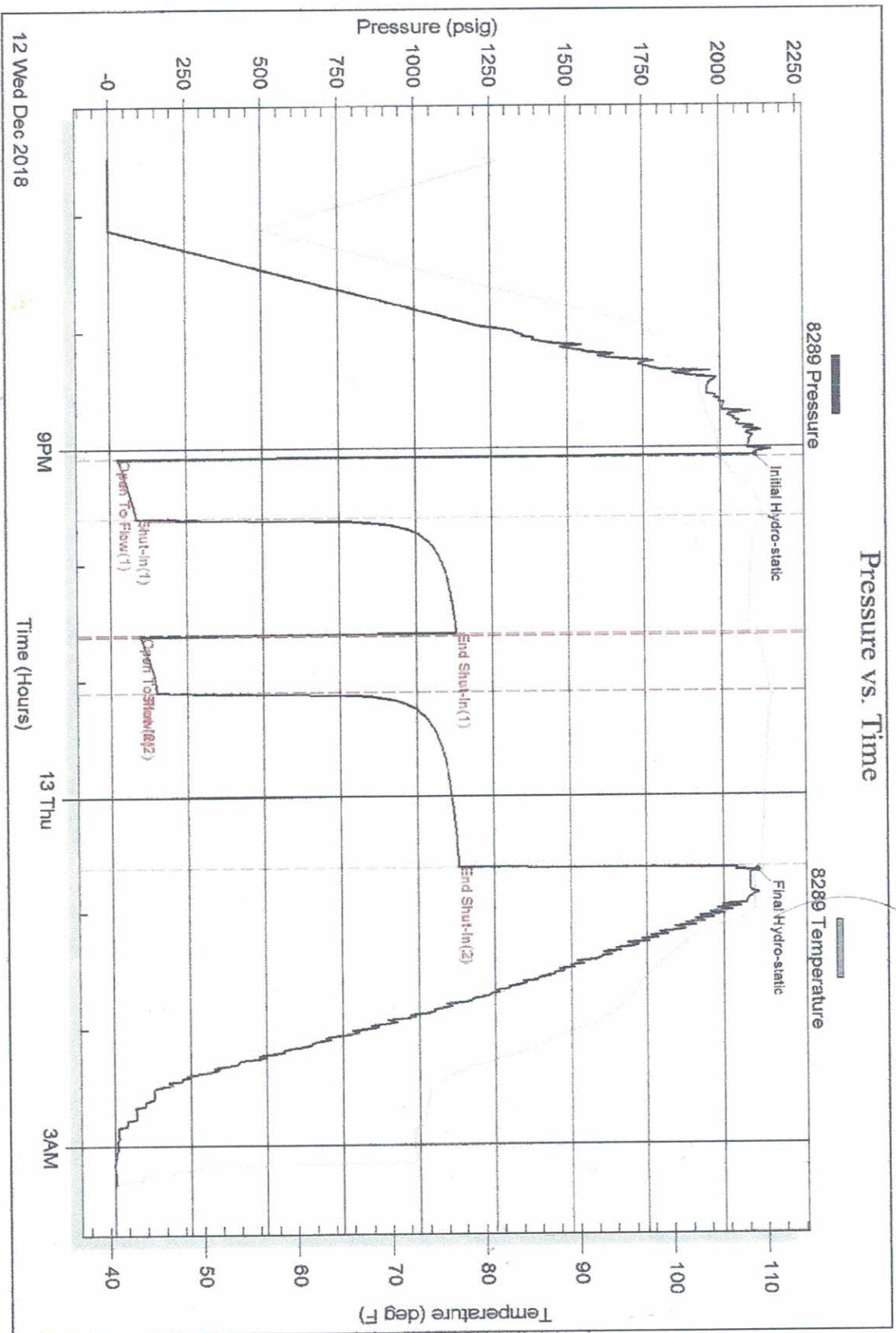
Inside

Petroleum Development Co.

Rice 1-16

DST Test Number: 1

Pressure vs. Time



Tribbrite Testing, Inc

Ref. No: 64058

Printed: 2018.12.13 @ 03:54:08



TRILOBITE TESTING INC.

1515 Commerce Parkway • Hays, Kansas 67601

Test Ticket

NO. 64058

Well Name & No. Rice 1-16 Test No. 1 Date 12-12-18
 Company Petroleum Development Co. Elevation 3102 KB 3091 GL
 Address 401 S Boston Ave STE 1850 Tulsa, OK 74103
 Co. Rep / Geo. Austin Garner Rig Murphy #21
 Location: Sec. 16 Twp 22 Rge. 36 Co. Keokuk State KS

Interval Tested 4375-4400 Zone Tested Marmaton
 Anchor Length 25' Drill Pipe Run 4080 Mud Wt. 9.2
 Top Packer Depth 4370 Drill Collars Run 272 Vis 47
 Bottom Packer Depth 4375 Wt. Pipe Run W.A. WL 6.4
 Total Depth 4400 Chlorides 3800 ppm System LCM 4#

Blow Description IF: Fair building blow, 4.5 inches in 30 min.
ISB: No blow back
EF: Fair building blow, 3.5 inches in 30 min.
FSD: No blow back

Rec	Feet of	%gas	%oil	%water	%mud
<u>272</u>	<u>oil spotted water</u>		<u>Spot</u>	<u>100</u>	
Rec	Feet of	%gas	%oil	%water	%mud
Rec	Feet of	%gas	%oil	%water	%mud
Rec	Feet of	%gas	%oil	%water	%mud
Rec	Feet of	%gas	%oil	%water	%mud

Rec Total 272 BHT 110 Gravity _____ API RW .171 @ 50 °F Chlorides 68000 ppm

(A) Initial Hydrostatic 2113 Test conv. T-On Location 1830
 (B) First Initial Flow 24 Jars _____ T-Started 1845
 (C) First Final Flow 85 Safety Joint _____ T-Open 2105
 (D) Initial Shut-In 1133 Circ Sub _____ T-Pulled 0035
 (E) Second Initial Flow 97 Hourly Standby _____ T-Out 0315
 (F) Second Final Flow 148 Mileage 150 Comments logs on @ 1830
 (G) Final Shut-In 1135 Sampler _____
 (H) Final Hydrostatic 2111 Straddle _____ Ruined Shale Packer _____

Initial Open 30 Extra Packer _____ Extra Copies _____
 Initial Shut-In 60 Extra Recorder _____ Sub Total _____
 Final Flow 30 Day Standby _____ Total _____
 Final Shut-In 90 Accessibility _____ MP/DST Disc't _____
 Sub Total _____

Approved By Austin Garner Our Representative Chris Hagan

TriLOBITE Testing Inc. shall not be liable for damaged of any kind of the property or personnel of the one for whom a test is made, or for any loss suffered or sustained, directly or indirectly, through the use of its equipment, or its statements or opinion concerning the results of any test, tools lost or damaged in the hole shall be paid for at cost by the party for whom the test is made.



TRILOBITE TESTING, INC.

P.O. Box 362 • Hays, Kansas 67601

FLUID SAMPLER DATA

Ticket No. 64058 Date 12-12-18

Company Name Petroleum Development Co.

Lease Rice 1-16 Test No. 1

County Keosauqua, KS Sec. 16 Twp. 22 Rng. 36

SAMPLER RECOVERY

Gas _____ ML
 Oil Spotted _____ ML
 Mud _____ ML
 Water 2000 _____ ML
 Other _____ ML
 Pressure 680# _____ ML
 Total 2000 _____ ML

PIT MUD ANALYSIS

Chlorides 3800 _____ ppm.
 Resistivity _____ ohms @ _____ F
 Viscosity 47 _____
 Mud Weight 9.2 _____
 Filtrate 6.4 _____
 Other 4th LCA _____

SAMPLER ANALYSIS

Resistivity 171 ohms @ 50 F
 Chlorides 68,000 ppm.
 Gravity _____ corrected @60F

PIPE RECOVERY

TOP
 Resistivity _____ ohms @ _____ F
 Chlorides _____ ppm.
MIDDLE
 Resistivity _____ ohms @ _____ F
 Chlorides _____ ppm.
BOTTOM
 Resistivity _____ ohms @ _____ F
 Chlorides _____ ppm.



**TRILOBITE
TESTING, INC.**

DRILL STEM TEST REPORT

Petroleum Development Co.
401 S Boston Ave STE 1850
Tulsa, OK 74103
ATTN: Austin Garner

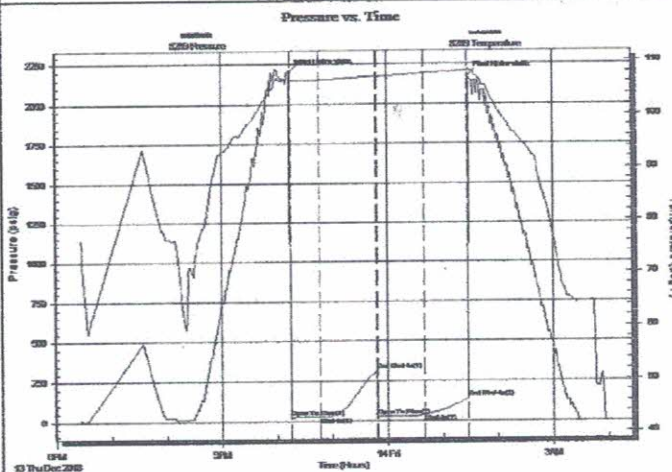
16/22/36
Rice 1-16
Job Ticket: 64059 **DST#: 2**
Test Start: 2018.12.13 @ 18:27:00

GENERAL INFORMATION:

Formation: **Ft. Scott**
Deviated: No Whipstock: 3102.00 ft (KB)
Time Tool Opened: 22:15:00
Time Test Ended: 03:57:04
Test Type: Conventional Bottom Hole (Initial)
Tester: Chris Hagman
Unit No: 75
Interval: **4476.00 ft (KB) To 4505.00 ft (KB) (TVD)**
Total Depth: 4505.00 ft (KB) (TVD)
Hole Diameter: 7.88 inches Hole Condition: Good
Reference Elevations: 3102.00 ft (KB)
3091.00 ft (CF)
KB to GR/CF: 11.00 ft

Serial #: **8289** Inside
Press@RunDepth: 36.81 psig @ 4478.00 ft (KB)
Start Date: 2018.12.13 End Date: 2018.12.14
Start Time: 18:27:00 End Time: 03:57:04
Capacity: 8000.00 psig
Last Calib.: 1899.12.30
Time On Btm: 2018.12.13 @ 22:14:35
Time Off Btm: 2018.12.14 @ 01:28:45

TEST COMMENT: IF: Weak surface blow, died 7 min
IS: No blow back
FF: No blow
FS: No blow back



PRESSURE SUMMARY

Time (Min.)	Pressure (psig)	Temp (deg F)	Annotation
0	2201.00	106.89	Initial Hydro-static
1	20.31	105.89	Open To Flow (1)
33	26.18	106.49	Shut-In(1)
94	315.13	107.22	End Shut-In(1)
95	25.85	107.16	Open To Flow (2)
146	36.81	107.71	Shut-In(2)
193	142.90	108.14	End Shut-In(2)
195	2175.17	108.62	Final Hydro-static

Recovery

Length (ft)	Description	Volume (bbl)
5.00	oil spotted mud 100%M	0.02

Gas Rates

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



**TRILOBITE
TESTING, INC.**

DRILL STEM TEST REPORT

FLUID SUMMARY

Petroleum Development Co.

16/22/36

401 S Boston Ave STE 1850
Tulsa, OK 74103

Rice 1-16

Job Ticket: 64059

DST#: 2

ATTN: Austin Garner

Test Start: 2018.12.13 @ 18:27:00

Mud and Cushion Information

Mud Type: Gel Chem

Mud Weight: 9.00 lb/gal

Viscosity: 51.00 sec/qt

Water Loss: 6.40 in³

Resistivity: ohm.m

Salinity: 4000.00 ppm

Filter Cake: inches

Cushion Type:

Cushion Length: ft

Cushion Volume: bbl

Gas Cushion Type:

Gas Cushion Pressure: psig

Oil API:

Water Salinity: deg API

deg API

ppm

Recovery Information

Recovery Table

Length ft	Description	Volume bbl
5.00	oil spotted mud 100%M	0.025

Total Length: 5.00 ft Total Volume: 0.025 bbl

Num Fluid Samples: 0

Num Gas Bombs: 0

Serial #:

Laboratory Name:

Laboratory Location:

Recovery Comments:



TRILOBITE
TESTING, INC.

DRILL STEM TEST REPORT

TOOL DIAGRAM

Petroleum Development Co.

16/22/36

401 S Boston Ave STE 1850
Tulsa, OK 74103

Rice 1-16

ATTN: Austin Garner

Job Ticket: 64059

DST#: 2

Test Start: 2018.12.13 @ 18:27:00

Tool Information

Drill Pipe:	Length: 4178.00 ft	Diameter: 3.80 inches	Volume: 58.61 bbl	Tool Weight: 2000.00 lb
Heavy Wt. Pipe:	Length: 0.00 ft	Diameter: 0.00 inches	Volume: 0.00 bbl	Weight set on Packer: 20000.00 lb
Drill Collar:	Length: 272.00 ft	Diameter: 2.25 inches	Volume: 1.34 bbl	Weight to Pull Loose: 80000.00 lb
			<u>Total Volume: 59.95 bbl</u>	Tool Chased 0.00 ft
Drill Pipe Above KB:	4.00 ft			String Weight: Initial 76000.00 lb
Depth to Top Packer:	4476.00 ft			Final 76000.00 lb
Depth to Bottom Packer:	ft			
Interval between Packers:	29.00 ft			
Tool Length:	59.00 ft			
Number of Packers:	2	Diameter: 6.75 inches		

Tool Comments:

Tool Description	Length (ft)	Serial No.	Position	Depth (ft)	Accum. Lengths
Shut In Tool	5.00			4451.00	
Sampler	3.00			4454.00	
Hydraulic tool	5.00			4459.00	
Jars	5.00			4464.00	
Safety Joint	3.00			4467.00	
Packer	5.00			4472.00	30.00 Bottom Of Top Packer
Packer	4.00			4476.00	
Stubb	1.00			4477.00	
Perforations	1.00			4478.00	
Recorder	0.00	8289	Inside	4478.00	
Recorder	0.00	6672	Outside	4478.00	
Perforations	24.00			4502.00	
Bullnose	3.00			4505.00	29.00 Bottom Packers & Anchor

Total Tool Length: 59.00



TRILOBITE TESTING INC.

1515 Commerce Parkway - Hays, Kansas 67601

Test Ticket

NO. 64059

Well Name & No. Rice 1-16 Test No. 2 Date 12-13-18
 Company Petroleum Development Co. Elevation 3102 KB 3091 GL
 Address 401 S Boston Ave STE 1850 Tulsa, OK 74103
 Co. Rep / Geo. Austin Garner Rig Murphy 21
 Location: Sec. 16 Twp 22 Rge. 36 Co. Kearny State KS

Interval Tested 4476-4505 Zone Tested FT. SCOTT
 Anchor Length 29' Drill Pipe Run 4178 Mud Wt. 9.2 WT.
 Top Packer Depth 4471 Drill Collars Run 272 Vis 51
 Bottom Packer Depth 4476 Wt. Pipe Run N.A. WL 6.4
 Total Depth 4505 Chlorides 4000 ppm System LCM 3[#]
 Blow Description IP: work surface blow, died 7 min.
KB: No blow back
FF: No blow
FSD: No blow back

Rec	Feet of	%gas	%oil	%water	%mud
<u>S</u>	<u>oil spotted mud</u>	<u>500</u>			<u>100</u>
Rec	Feet of	%gas	%oil	%water	%mud
Rec	Feet of	%gas	%oil	%water	%mud
Rec	Feet of	%gas	%oil	%water	%mud
Rec	Feet of	%gas	%oil	%water	%mud

Rec Total 5 BHT 108 Gravity _____ API RW _____ @ _____ °F Chlorides _____ ppm

(A) Initial Hydrostatic 2201 Test CONV. T-On Location 1745
 (B) First Initial Flow 20 Jars _____ T-Started 1830
 (C) First Final Flow 26 Safety Joint _____ T-Open 2215
 (D) Initial Shut-In 315 Circ Sub _____ T-Pulled 0115
 (E) Second Initial Flow 26 Hourly Standby _____ T-Out 0400
 (F) Second Final Flow 37 Mileage 150 Comments 625000 1875
 (G) Final Shut-In 143 Sampler _____
 (H) Final Hydrostatic 2175 Straddle _____ Ruined Shale Packer _____
 Shale Packer X1.0 Ruined Packer _____
 Extra Packer _____ Extra Copies _____
 Initial Open 30 Extra Recorder _____ Sub Total _____
 Initial Shut-In 60 Day Standby _____ Total _____
 Final Flow 30 Accessibility _____ MP/DST Disc't _____
 Final Shut-In 60 Sub Total _____

Approved By Austin Garner Our Representative Chris Hogan

TriLOBITE Testing Inc. shall not be liable for damaged of any kind of the property or personnel of the one for whom a test is made, or for any loss suffered or sustained, directly or indirectly, through the use of its equipment, or its statements or opinion concerning the results of any test, tools lost or damaged in the hole shall be paid for at cost by the party for whom the test is made.



TRILOBITE TESTING, INC.

P.O. Box 362 • Hays, Kansas 67601

FLUID SAMPLER DATA

Ticket No. 64059 Date 12-13-18

Company Name Petroleum Dev.

Lease Rice 1-16 Test No. 2

County Keosauqua, KS Sec. 16 Twp. 22 Rng. 36

SAMPLER RECOVERY

Gas _____ ML Chlorides 4000 ppm.

Oil spotted ML Resistivity _____ ohms @ _____ F

Mud 2000 ML Viscosity 51

Water _____ ML Mud Weight 9.2

Other _____ ML Filtrate 6.4

Pressure 125 # ML Other 3" LCM

Total 2000 ML _____

PIT MUD ANALYSIS

SAMPLER ANALYSIS

Resistivity _____ ohms @ _____ F

Chlorides _____ ppm.

Gravity _____ corrected @60F

PIPE RECOVERY

TOP
Resistivity _____ ohms @ _____ F

Chlorides _____ ppm.

MIDDLE
Resistivity _____ ohms @ _____ F

Chlorides _____ ppm.

BOTTOM
Resistivity _____ ohms @ _____ F

Chlorides _____ ppm.

MBC WELL LOGGING LLC

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

Well Name: RICE 1-16 AFE PETROLEUM DEVELOPMENT CO
 API: 15-093-21970-00
 Location: KEARNEY CO. KS USA
 License Number: 35628
 Spud Date: 12-05-18
 Surface Coordinates: 500'fsl, 1485' fwl SEC 156-T22S-R35W
 Bottom Hole Coordinates: PIONEER WLS -DIL/SP/GR CNL/CAL/PE/BHV SONIC SFC
 Ground Elevation (ft): 3091' K.B. Elevation (ft): 3102'
 Logged Interval (ft): 3800' To: 4960' Total Depth (ft): ELOG 4958
 Formation: MISS P/A
 Type of Drilling Fluid: MUDCO WBM TONY MAESTAS(316)-772-6679
 Region: WTR
 Drilling Completed: 12-15-2018

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



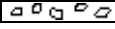

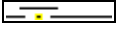




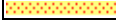

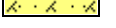






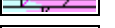
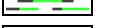


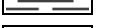

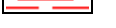
OPERATOR

Company: PETROLUEM DEVELOPMENT CO (405)659-0535
 Address: ATTN: COLE HINDS GEOLOGY
 401 S. BOSTON AVE STE 1850
 TULSA, OKLAH9MA 74103+4005

MUDLOGGER

Name: A. GARNER (620)655-2016
 Company: MBC WELL LOGGING LLC
 Address: 21156 RD 22
 MEADE, KANSAS 67864

ROCK TYPES

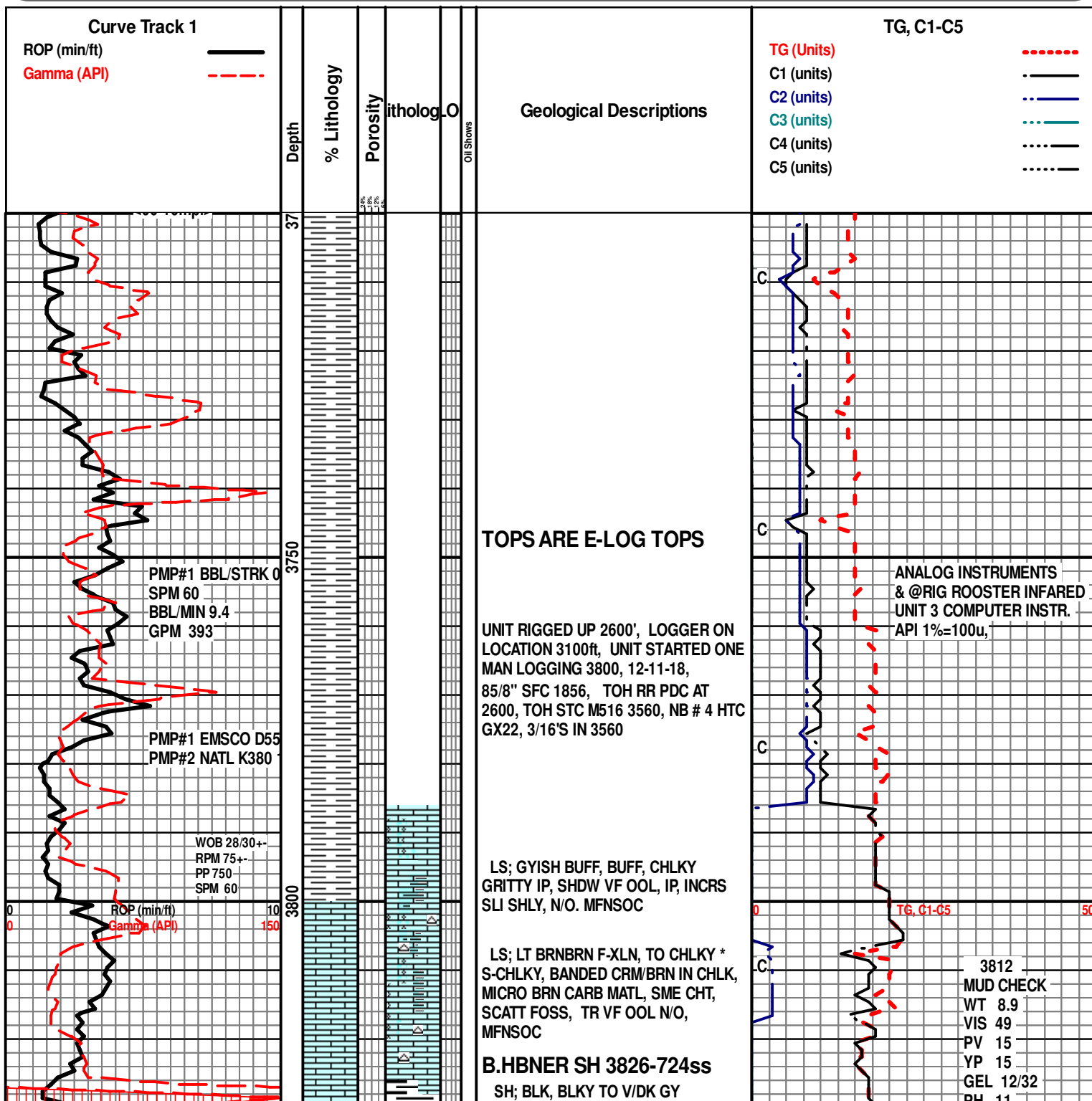
	Anhy		Stgensndy-arkos		Sltst-1		Stgensndy-arkos
	Brec		New ls-1		Sltly-shale		Sndy ool ls
	Cht		Carby shale		Lmy ss-1		Sndy-ls-1
	Coal		Lmy carby sh-3		Arkosic snd		Calc shale
	Congl		Carb sh		Ss		Granitewash
	New dolomite		Gyp		Grn sh strk		Ls shly-b
	Dolo new		Sltst		Lmy sh-2		Poor sortd ss
	Newdolo ls 2		Salt		Grn mott gy sh		Snd-ls-sh
	Ls & ooids		Sndy sh--red		Shale-1		
	Oolitic ls -1		Sndy sh		Red sh-1		

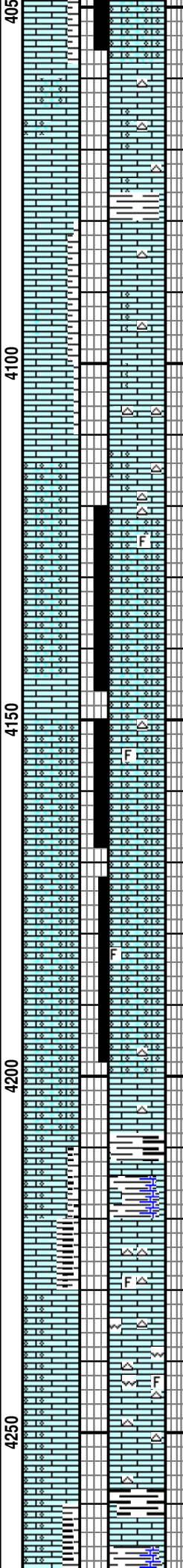
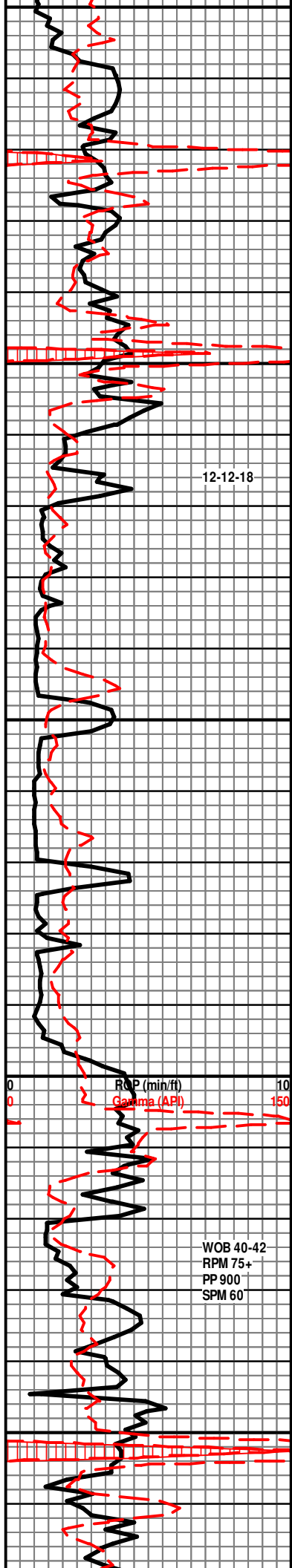
Comments

MURFIN RIG 21, CROWN CONSULTING, -CLINT ANDREWS
 TRILOBITE TESTING CHRIS HAGMEYER
 PIONEER WIRE LINE SERVICES, MUD-CO MUD TONY MASETAS ENG.
 12-11-18, 7AM 3804
 12-12-18 7AM 4286
 12-13-18 7AM 4412
 12-14-18 7AM 4405
 12-15-18 7AM 4860

DSTs

TRILOBITE TESTING 1-800-728-5369
 DST # 1 4375--4400 RECV 276' OILSPOTTED WATER
 DST # 2 4476--4505, RECVD 5' OIL SPOTTED MUD-V/TITE





PINK WH CHLK, N/O, MED YEL MFNSOC NO EVID HYDROCARBON

LS; CRM WH WEATHD APPR BRTL, SHDW VF OOL IP, ABDT MOTT TN BLU MICRO FOSS VIT CHT, FRAC, SME IMBD, TR LAM SH. N/O, MFNSOC

SH; LT GY TR BRNLMY

LS; GY HD DNS XLN LS, ABDT CHT

LT LT TN BRTL SPARRY VF OOL, TR SHALLOW OOLCAS, FREE CRS CRIN, ABDT CHLK PURPL TO PALE YEL MFNSOC N/O

LS; LT BUFF TN SUGARY APARTIC P/SRTD VF TO UPER FINE OOL, & OOLCAS, ELIP OIDS, THIN RIM COAT, CHLK FILL OIDS, FOSS DSEBRs & FOSS SHLTR, POR, CRM-WH CHLK, N/O, GOLD TO MED YEL MFNSOC

LS; LT BUFF, BUFF WH, SUGARY P/SRTD F TO CRS OOLCAS SME OIDS, THIN RIM COAT, SHELL PRINTS N/O BRITE TO DULL GOLD MFNSOC

LS; GY TN HD DNS XLN SLI SHLY FRAC, MFNSOC N/O

STARK SH 4210-1108ss
BLK CARB SH ABDT GY LMY RGH TXT

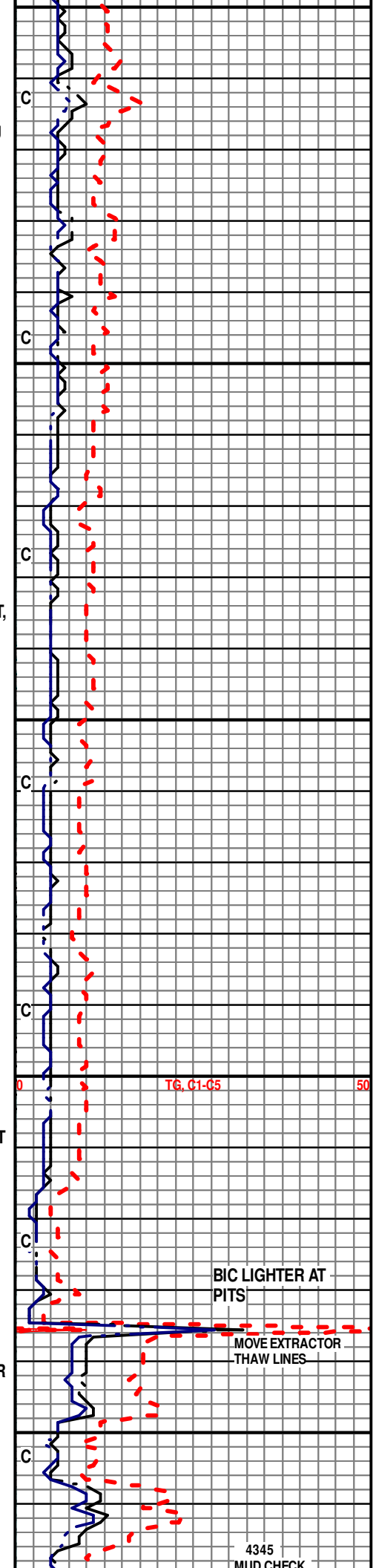
KC A 4214-1112ss

LS; LT TN WEATHD APPR F-OOL, & OOLCAS, N/O ABDT CHLK, GOLD MFNSOC N/O

LS; TN HD DNS INCRS TN GRITTY W/SILIC INCLUS & FOSS, SME OOL TR STYOLITIC NO SHOW

HUSHPUCKNEY SH
4251-1149ss

SH; BLK CARB, SME DK GY GRITTY LMY, PYR, INCRS DK GY GY HD DNSXLNSHLY LS & LMY SH

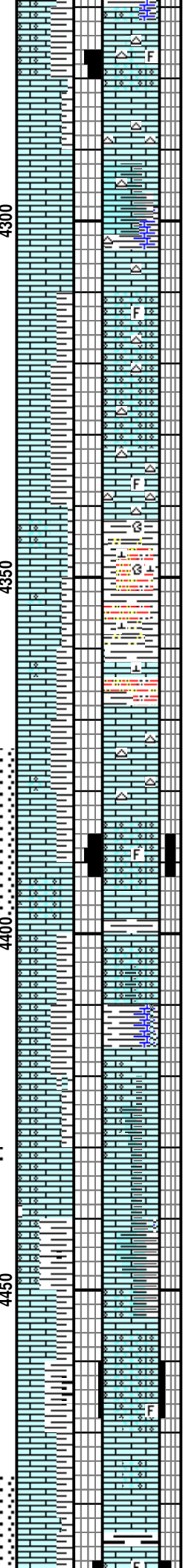
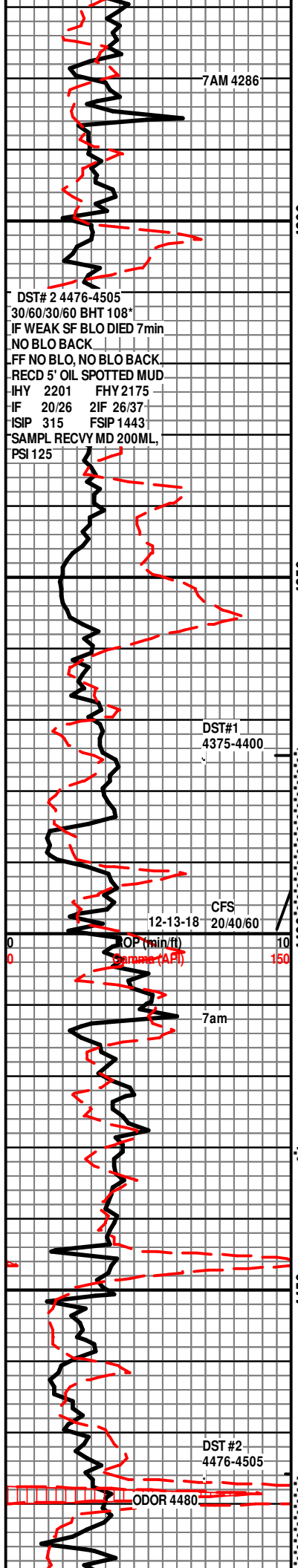


TG, C1-C5 50

BIC LIGHTER AT PITS

MOVE EXTRACTOR THAW LINES

4345
MUD CHECK



LS; GY TN HD DNS SPAR CMT F-OOL,
HEAVY RIM COAT, SH CNTR, SME
CRINOIAL, GOLD MFNSOC N/O

<< LS; CRM WH FOSS & OOL HASH
ABDT ACHT,M N/O MFNSOC

LS ; DK GY GY HD DNS SHLKY TO LMY
HD SH PYR

LS; TN FOSS FRGRTL W/OOL, CRM
WH CHLK, MFNSOC N/O

LS; TN WH HD DNS XLN SLI LSHLY,
INCRS FOSS CHT, MFNSOC N/O

PLEASANTON SH 4342-1240ss

SH; GY MED GY LMY, ABDT RUST
RED AREN MED TT LMY

RUST RED LMY AREN SH

MARMATON 4360-1258ss

LS; GY TN HD DNS XLN CHT INCLUS,
INCRS CRM BUFF, N/O, MFNSOC

LS; LT TN-BUFF, SME BUFF-WH, WEATHD
APPR, VF TO UPR MED OOLCAS & OOL, FOSS
MOLDS, SME FOSS/OOL HASH, TR FREE MED
CRIN, TR CHLK FILL, CRN-WH SME TR PINK
CHLK, GAS BUBLS AFTER 30mins+, FREE DK
BRN F- TO MED OIL, SPOTCY TO OVER-ALL DK
BRN STNG, SME VUG POR, STRONG ODOR,
FLASH MILKY CUT DRY

CIRC 30 min DRILL AHEAD

LS; GY TN BRTL TO HD DNS VF F OOL, SLI SHLY
INCRS DK GY SHLY W/VF GY PELL, F/GOLD TO
F/YEL MFNSOC

SH ;GY SFT LMY SME VF CAKLCITIC MICA

LS OFF WH WH BUFF DK BRN--P/SRTD OOL,
SME CRIN, PRED FOSS & OOL HASH CHJLKY
MFNSOC

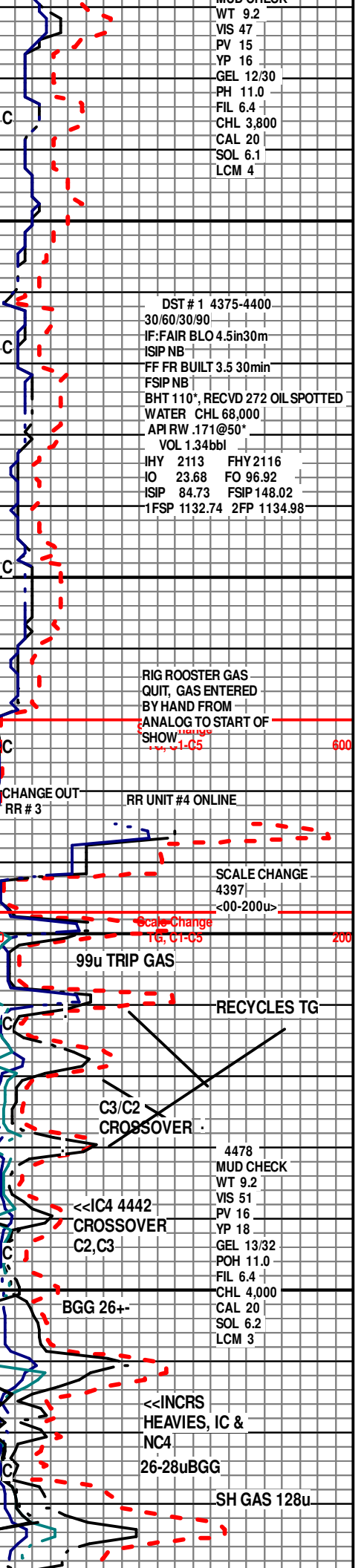
LS; VLT GY WH SME LT TN WH HD DNS SHLY

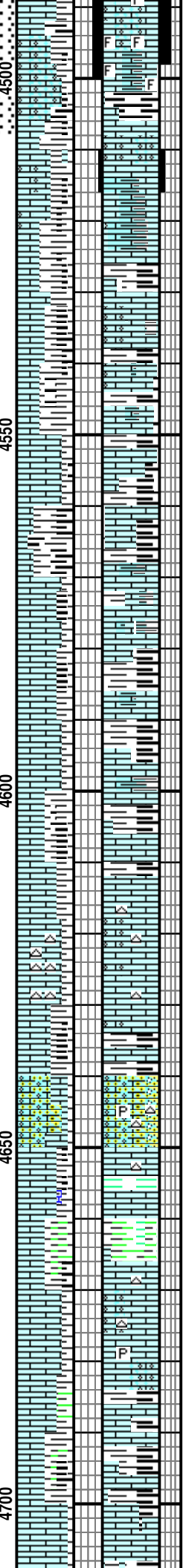
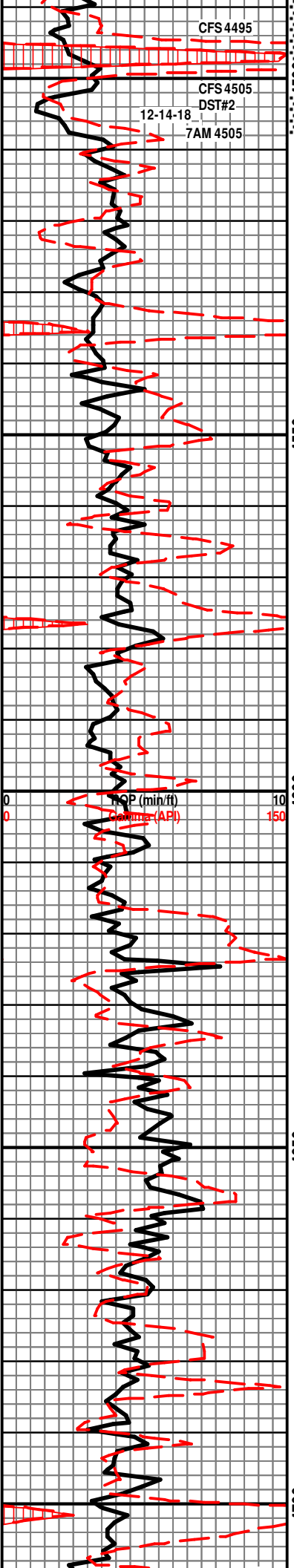
LS; GY DK GY HD DNS SHLY GRDS TO LMY SH,
PYR

<<<<LS; LT BUFF-TN F-OOL, SME
HEAVY RIM COAT, BRTL CMT, SME
PLUCKED POR, SME FOSS SHLTR,
SLI CHLKY, ABDT CRM-WH CHLK,
GOOD ODOR, INTR OOL & OVER-ALL
STNG, INTR OOL & XLT POR, PALE
YEL FLOR, FLASH SLO MILKY
<<<<<STGRMG CUT

FT SCOTT 4483*1381ss

(TR) LS; LT TN - SLI BUFF SLI WEATHD APPR,
FOSS & OOL HASH, SLI OOLCAS, INTR OOL &





FOSS POR, MED YEL FLOR FLASH MILKY STRMG CUT-----ABDT SLI CHLKY VF OOL & FOSS, ABDT CRM WH CHLK, FREE CHLK OODS, SME FOSS FRGS,

CHEROKEE

BLK BLKY CARB SH
 << LS; LT GYSH TN, SPARRY VF OOL, SME FOSS, SME INCRS DIRTY GY, YEL FLOR, POSS FAINT DISP ODOR, SLOW MILKY CUT

LS; TN WH HDD DNS WEATHD APPR, INCRS DIRTY GY BRN HD XLN SHLY

SH; DULL GY BLK, LMY GRDS TO SHLY LS,

LS; BUFF TN HD FRAC XLN, TR VF BIOSPARTIC/VF OOL, MFNSOC N/O INTBD CARBY SH

LS; TN WH WEATHD APPR, HD DNS SHDW FOSS, & SME VF OOL, MFNSOC N/O

LS; LT TN GY HD DNS FRAC XLN, SLI CHLKY EDGES

LS; GY LT GY HD DNS TO BRTL ERTY, INTBD CARBY SH

LS; LT TN WEATHD APPR, F XLN, MICRO BLKSPKS, & PELL, IP, TN TO BRN VIT CHT, TN VF F OOL, PRED DULL GOLD MFNSOC N/O

LS; LT TN GY FOSS SHLY TR WH SEMI TRIP OOL, CHT, SME OOL CLSTRS, INTBD GRN, BURNT REDTO BLK SH,,, TR CHOR

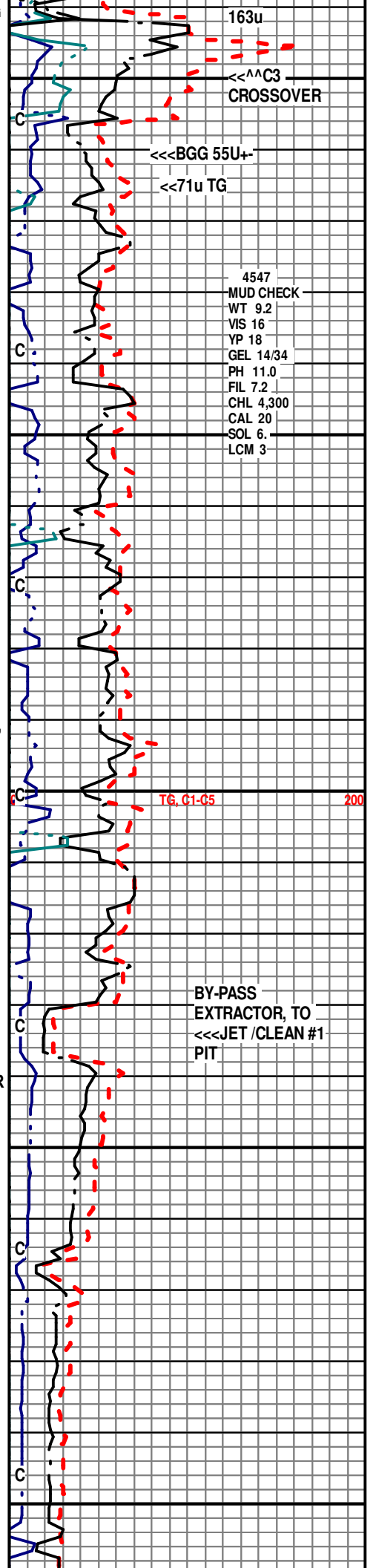
L;S MICRO OOKL W/MICRO QTZ CNTR IP, SME OOL, MICRO FOSS, IP, TR CHOR, TR PYR, MICA,

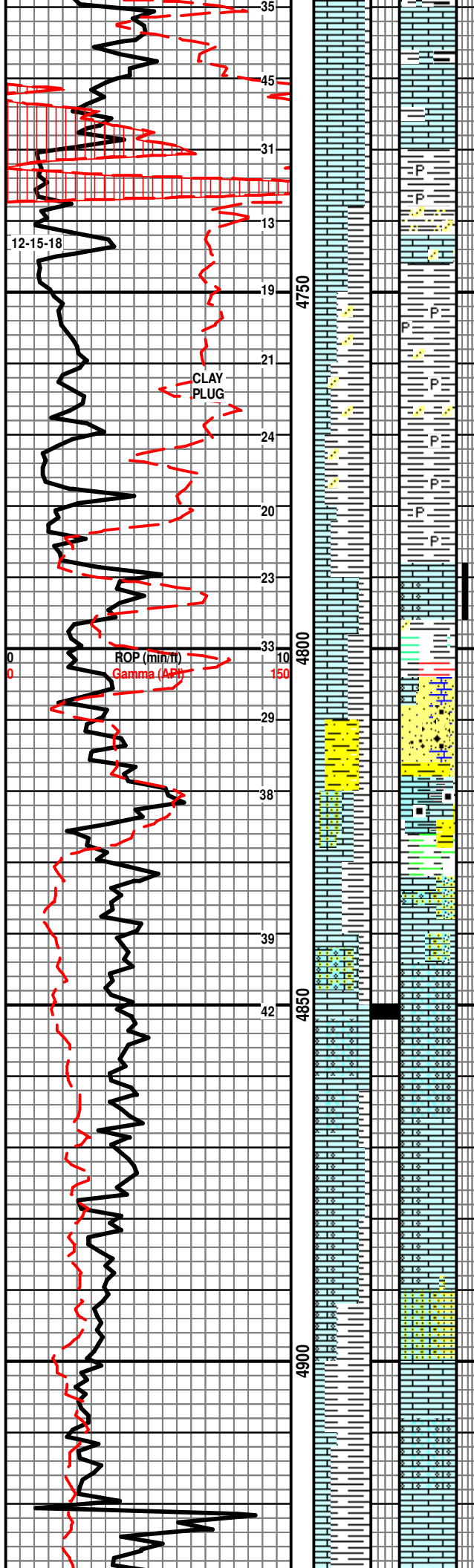
DK BRN TN HD DNS XLN FOSS INTBD BLK TO GRN SH

LS OFF WH LT TN CHLKY SME OOL, FOSS, SME CHT MFNSOC N/O

LS; BUFF TO MOTT DK GY BLK, HD DNS FOSS XLN, SHLY TR TAB CORAL, INTBD BLK TO GY DK GY SH

LS; ASH GY MOTT BLK, TO TNMOTT, HD DNS XLN SHKLY SHDW FOSS





INTBD GRN TO BLK SH SME CARBY

LS; MOSTT WG/BLK, HD DNS XL
SHKLY BLK PELL, SME CHKL
COMNGLD, PYR NO SHOW

MORROW SH 4738-1636ss
SH LT GYSIH GRN GRN TO BLK, TR
BRITE RED INTRUS, ABDTPYRITIE
BLK, FREE PYR, TR BITE DK GRN
SLTST

SH ;LT BRN, GY SME GRN, MICRO
BLK PELL, SME SFT SLI GUMMY,
ABDT PYR, & FREE PYR, TR COAL
PYRITIC PLANT MATL

LS BRN TN FOSS FRGMT,

LS; GY BRN FOSS FRGMTL BLK PELL

LS; WH OPAQ, TO CRM, SPARRY F-XLN, FOSS
FRGS, SME OOL CLSTR, SPAR CMTD, GLAU,
CHOR, N/O SME BRITE YEL FLOR, NO VIS STN OR
CUT NO CRUSH CUT

BRITE GRN TO GY SH TR DK RED INTRUS

SS; WH OFF WH TO TRANS, SME SLI GRN TINT,
SME W/SRTD VF F GR <<<CLSTS, SME F TO
UPFINE GR CLSTRS, HD TT, LMY CMT, GLAU,
PYR, SME COMNGLDS FOSS SNDY LS, N/O
V/FAINT GOLD MFNSOC NO CRUSH CUT

<<<<LS; MOUSE GY GY WH HD DNS XLN SHLY,
TO FRM ARGIL W/ MICRO CARB MATL, TR HD
DNS GRN XLN

MISS. 4828-1726ss

LS; CRM WH AREN IP, CHLKY AREN
INCRS OOL & AREN TR MICRO GLAU

LS; CRMISH WH LT CRM, SMESPAR
CMTED VF F OOL, HEAVY RIM COAT,
CHLKY IP PALE LEMON FLOR, NSOC
NO ODOR

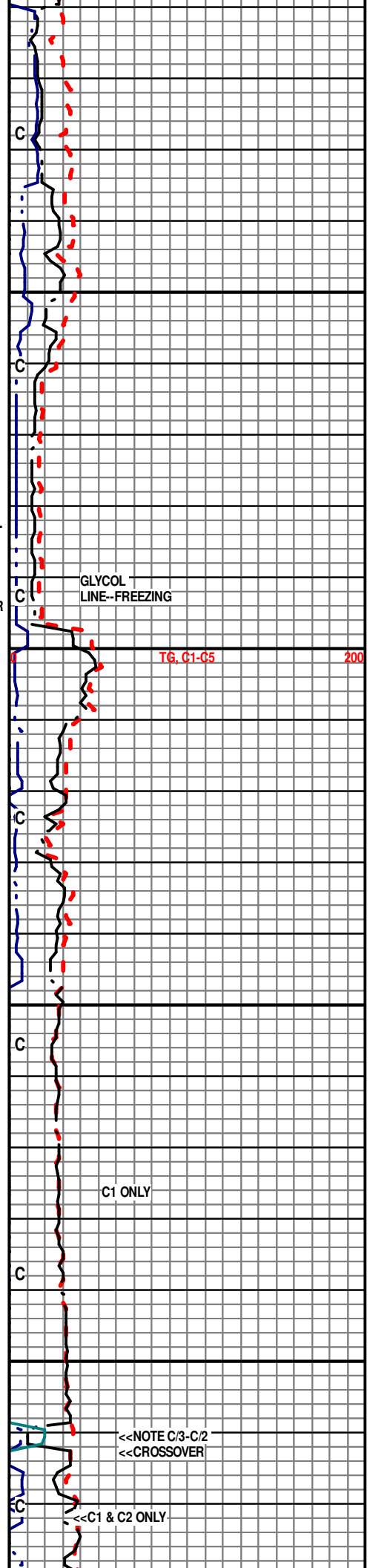
LS; CRM TN CJLKY OOL & AREN TR
CHOR--FOSS FRGS, TR TN SPAR CMTED FOSS &
OOL HASH, N/O MFNSOC

LS; LT TN HD DNS XLN

LS; WH AREN MICRO BLK PELL, IMBD CLR RD
F-QTZ NO SHOW

LS; WH SLI CRM, SPAR CMTED VF OOL, W/SME
IMBDS CLR QTZ, N/O MFNSOC

LS; GY WH HD DNS XLN W/SHDW OOL,



SAMPLES 80-90% MORROW SH

E-LOG RTD 4960

4958

SHORT TRIP TO 4400,
TIH CIRC 2.5HRS, TOH
E-LOGS

4950

THANKS FOR USING
WELL LOGGING LLC
MARLA GARNER

MBC
AUSTIN &

<<NOTE C/3-C/2
<<CROSSOVER

