

Confidentiality Requested:

Yes No

KANSAS CORPORATION COMMISSION 1261232
OIL & GAS CONSERVATION DIVISION

Form ACO-1
November 2016

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: _____

1261232



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) (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	Murfin Drilling Co., Inc.
Well Name	MB 'A' 2-35
Doc ID	1261232

All Electric Logs Run

DIL
DUCP
MEL
BHCS
CBL

check
Prod-MG



P.O. Box 205803
Dallas, TX 75320-5803

Voice: (832) 482-3742
Fax: (832) 482-3738

INVOICE

Invoice Number: 149637
Invoice Date: May 18, 2015
Page: 1

Federal Tax I.D.#: 20-8651475

Bill To:
Murfin Drlg. Co., Inc. 250 N. Water STE #300 Wichita, KS 67202

Customer ID	Field Ticket #	Payment Terms	
Murfin	64175	Net 30 Days	
Job Location	Camp Location	Service Date	Due Date
KS1-01	Oakley	May 18, 2015	6/17/15

Quantity	Item	Description	Unit Price	Amount
1.00	WELL NAME	MB A #2-35		
215.00	CEMENT MATERIALS	Class A Common	17.90	3,848.50
606.00	CEMENT MATERIALS	Chloride	1.10	666.60
225.75	CEMENT SERVICE	Cubic Feet Charge	2.48	559.86
520.50	CEMENT SERVICE	Ton Mileage Charge	2.75	1,431.38
1.00	CEMENT SERVICE	Surface	1,512.25	1,512.25
50.00	CEMENT SERVICE	Pump Truck Mileage	7.70	385.00
1.00	CEMENT SERVICE	Swedge Manifold Rental		
50.00	CEMENT SERVICE	Light Vehicle Mileage	4.40	220.00
1.00	CEMENT SERVICE	Swedge Manifold Rental	275.00	275.00
1.00	CEMENT SUPERVISOR	Paul Beaver		
1.00	EQUIPMENT OPERATOR	Brandon Wilkinson		
1.00	CEMENT SUPERVISOR	LaRene Wentz		

Subtotal	8,898.59
Sales Tax	356.69
Total Invoice Amount	9,255.28
Payment/Credit Applied	
TOTAL	9,255.28

ALL PRICES ARE NET, PAYABLE 30 DAYS FOLLOWING DATE OF INVOICE. 1 1/2% CHARGED THEREAFTER. IF ACCOUNT IS CURRENT, TAKE DISCOUNT OF

\$ 4,004.36 ✓

ONLY IF PAID ON OR BEFORE

Jun 17, 2015

- 4004.36
5250.92

OK JR

ALLIED OIL & GAS SERVICES, LLC 064175

Federal Tax I.D. # 20-8651475

REMIT TO P.O. BOX 93999
SOUTHLAKE, TEXAS 76092

SERVICE POINT: Cadley KS

DATE <u>5-18-15</u>	SEC <u>35</u>	TWP <u>4</u>	RANGE <u>31</u>	CALLED OUT	ON LOCATION <u>11:30 p.m.</u>	JOB START <u>8:30 am</u>	JOB FINISH <u>4:00 p.m.</u>
LEASE <u>MBA</u>	WELL # <u>2-35</u>	LOCATION <u>Rexford 1/2 N to Rd 105,</u>			COUNTY <u>Ravens</u>	STATE <u>KS</u>	
OLD OR <u>NEW</u> (Circle one)				<u>3W, 1/4 S, SE, S, E, S, into</u>			

CONTRACTOR Murfin 7 OWNER Same

TYPE OF JOB Surface

HOLE SIZE 12 1/4 T.D. 222'

CASING SIZE 8 5/8 DEPTH 221.56

TUBING SIZE _____ DEPTH _____

DRILL PIPE _____ DEPTH _____

TOOL _____ DEPTH _____

PRES. MAX _____ MINIMUM _____

MEAS. LINE _____ SHOE JOINT _____

CEMENT LEFT IN CSG. 15'

PERFS. _____

DISPLACEMENT 13 bbl H2O

EQUIPMENT

PUMP TRUCK CEMENTER Paul Beaver

431 HELPER Brandon Wilkinson

BULK TRUCK _____

89/210 DRIVER Lalene Wentz

BULK TRUCK _____

_____ DRIVER _____

CEMENT AMOUNT ORDERED 215 sks Com 3' CC

COMMON 215 sks @ 17.90 3848.50

POZMIX _____ @ _____

GEL _____ @ _____

CHLORIDE 606 # @ 1.10 666.60

ASC _____ @ _____

_____ @ _____

1 Material Total @ 4,515.10

(20.31.79/45%)

_____ @ _____

_____ @ _____

_____ @ _____

_____ @ _____

HANDLING 225.75 ft³ @ 2.48 559.86

MILEAGE 10.41 hrs @ 50 mi x 2.75 1431.38

TOTAL _____

REMARKS:

Mix 215 sks Com 3' CC

Displace w/ water

Cement did circ

1 bbl to pit

plug down @ 2:00 p.m.

Thank You!
Paul + Crew

CHARGE TO: Murfin Drlg

STREET _____

CITY _____ STATE _____ ZIP _____

SERVICE

DEPTH OF JOB 222'

PUMP TRUCK CHARGE 1,512.25

EXTRA FOOTAGE _____ @ _____

MILEAGE MILV 50 @ 7.70 385.00

MANIFOLD slawedge @ 275.00

MILV 50 @ 4.40 220.00

_____ @ _____

(1972.57/45%) TOTAL 4,383.49

PLUG & FLOAT EQUIPMENT

_____ @ _____

_____ @ _____

_____ @ _____

_____ @ _____

_____ @ _____

TOTAL _____

To: Allied Oil & Gas Services, LLC.
You are hereby requested to rent cementing equipment and furnish cementer and helper(s) to assist owner or contractor to do work as is listed. The above work was done to satisfaction and supervision of owner agent or contractor. I have read and understand the "GENERAL TERMS AND CONDITIONS" listed on the reverse side.

PRINTED NAME Sammy Tabola

SIGNATURE _____

SALES TAX (If Any) _____

TOTAL CHARGES 8,898.59

DISCOUNT 4,004.36 (45%) IF PAID IN 30 DAYS

4,894.23 Net



P. O. Box 466
Ness City, KS 67560
Off: 785-798-2300



Invoice

DATE	INVOICE #
5/26/2015	27183

BILL TO
Murfin Drilling Co Inc PO Box 661 Colby, KS 67701-0661
USED FOR <u>103</u>
APPROVED <u>JJ FH</u>

- Acidizing
- Cement
- Tool Rental

TERMS	Well No.	Lease	County	Contractor	Well Type	Well Category	Job Purpose	Operator
Net 30	#2-35	MB# A	Rawlins	Company Tools	Oil	Development	LongString	David E.

PRICE REF.	DESCRIPTION	QTY	UM	UNIT PRICE	AMOUNT
575D	Mileage - 1 Way	100	Miles	5.00	500.00
579D	Pump Charge - Top To Bottom LongString	1	Job	1,700.00	1,700.00
290	D-Air	5	Gallon(s)	42.00	210.00T
281	Mud Flush	500	Gallon(s)	1.25	625.00T
221	Liquid KCL (Clayfix)	2	Gallon(s)	25.00	50.00T
403-5	5 1/2" Cement Basket	3	Each	250.00	750.00T
406-5	5 1/2" Latch Down Plug & Baffle	1	Each	225.00	225.00T
407-5	5 1/2" Insert Float Shoe With Auto Fill	1	Each	300.00	300.00T
409-5	5 1/2" Turbolizer	15	Each	75.00	1,125.00T
413-5	5 1/2" Roto Wall Scratcher	5	Each	35.00	175.00T
419-5	5 1/2" Rotating Head Rental	1	Each	200.00	200.00T
330	Swift Multi-Density Standard (MIDCON II)	300	Sacks	15.75	4,725.00T
325	Standard Cement	200	Sacks	12.25	2,450.00T
284	Calseal	10	Sack(s)	30.00	300.00T
283	Salt	1,082	Lb(s)	0.20	216.40T
285	CFR-1	150	Lb(s)	4.50	675.00T
276	Flocele	191	Lb(s)	2.25	429.75T
581D	Service Charge Cement	500	Sacks	1.50	750.00
583D	Drayage	2,471	Ton Miles	0.75	1,853.25
	Subtotal				17,259.40
	Sales Tax Rawlins County			7.90%	984.04

We Appreciate Your Business!

Total

\$18,243.44



TICKET 27183

CHARGE TO: Murfin Drilling Co Inc
 ADDRESS
 CITY, STATE, ZIP CODE

PAGE 1 OF 2

WELL PROJECT NO. # 2-35 LEASE MBA COUNTY/PARISH Rawlins STATE KS CITY location DATE 5-26-15 OWNER
 TICKET TYPE SALES CONTRACTOR C Tools RIG NAME/NO. Rig #7 SHIPPED VIA location ORDER NO.
 WELL TYPE Oil WELL CATEGORY Development JOB PURPOSE Long String DELIVERED TO location WELL PERMIT NO.
 REFERRAL LOCATION INVOICE INSTRUCTIONS

PRICE REFERENCE	SECONDARY REFERENCE/PART NUMBER	ACCOUNTING		DESCRIPTION	QTY.	UM	QTY.	UM	UNIT PRICE	AMOUNT
		LOC	ACCT							
575		1			100	Mi			5.00	500.00
579		1		MILEAGE # 111	1	EA			1700.00	1700.00
290		1		Pump Charge - Top to Bottom	5	GA			42.00	210.00
287		1		D-Air	500	GA			1.25	625.00
221		1		Mud Flush	2	GA			25.00	50.00
403		1		Liquid Kel	3	EA	5 1/2		250.00	750.00
406		1		Cement Basket	1	EA			225.00	225.00
407		1		latch down plus 3 baffel	1	EA			300.00	300.00
409		1		Insert float shoe w/ Autofill	15	EA			75.00	1125.00
413		1		Turbolizer	5	EA			35.00	175.00
419		1		Roto wall scratcher	1	EA			200.00	200.00
				Rotating Head Rental						

LEGAL TERMS: Customer hereby acknowledges and agrees to the terms and conditions on the reverse side hereof which include, but are not limited to, **PAYMENT, RELEASE, INDEMNITY, and LIMITED WARRANTY** provisions.

MUST BE SIGNED BY CUSTOMER OR CUSTOMER'S AGENT PRIOR TO START OF WORK OR DELIVERY OF GOODS

X [Signature] TIME SIGNED 830 A.M. P.M.

DATE SIGNED 5-26-15

REMIT PAYMENT TO:
 SWIFT SERVICES, INC.
 P.O. BOX 466
 NESS CITY, KS 67560
 785-798-2300

SURVEY

OUR EQUIPMENT PERFORMED WITHOUT BREAKDOWN?
 WE UNDERSTOOD AND MET YOUR NEEDS?
 OUR SERVICE WAS PERFORMED WITHOUT DELAY?
 WE OPERATED THE EQUIPMENT AND PERFORMED JOB CALCULATIONS SATISFACTORILY?
 ARE YOU SATISFIED WITH OUR SERVICE?
 YES NO

DIS-AGREE UN-DECIDED DIS-AGREE

PAGE TOTAL P.1 5860 P.2 11399 40
 Subtotal 17259 40
 Rawlins TAX 7.9% 984.04
 TOTAL 18,243.44

CUSTOMER ACCEPTANCE OF MATERIALS AND SERVICES The customer hereby acknowledges receipt of the materials and services listed on this ticket. APPROVAL

SWIFT OPERATOR David Edgeron

Thank You!

JOB LOG

SWIFT Services, Inc.

DATE 5-26-15 PAGE NO. 1

CUSTOMER Murphy Drilling WELL NO. 2-35 LEASE MBA JOB TYPE Long String TICKET NO. 27183

CHART NO.	TIME	RATE (BPM)	VOLUME (BBL) (GAL)	PUMPS		PRESSURE (PSI)		DESCRIPTION OF OPERATION AND MATERIALS
				T	C	TUBING	CASING	
	100							On location w/ float equip
								RTD - 4450
								LTD - 4450
								Shoe - 22.10 @ 4424
								Total - 4446
								Cent - 1-13 34, 44
								Baskets - 11, 35, 45
	325							Start running 5 1/2 Csg
	420							Circulate on Joint # 53
	450							Resume running Csg
	540							Break Circulation on bottom
	640	2.5						Plug Rat + mouse holes 30/20
	650	5.5	0					Start Flushes
	655	5.5	12					Start KCL spacer
	700	5.5	32/0				200	Start Cement
	740	5.5	205				200	End Cmt
								Wash p + L
	750	5.5	0					Start Disp
		5.5	75				600	Cmt to surface 50 sks to pit
							1200/1700	End Disp 1200/1700
								Thanks
								David, Austin, Terod, Russell

MB 'A' #2-35
 330' FNL 2310' FWL
 Sec. 35-4S-31W
 2870' KB

Formation	Sample top	Datum	Ref	Log tops	Datum	Ref
Anhydrite	2609	+261	-3	2610	+260	-4
B/Anhydrite	2643	+227	-2	2644	+226	-3
Topeka	3680	-810	-7	3680	-810	-7
Heebner	3847	-977	-11	3846	-976	-10
Lansing	3898	-1028	-9	3896	-1026	-7
Stark	4062	-1192	-9	4060	-1190	-7
BKC	4110	-1240	-10	4114	-1244	-14
Pawnee	4224	-1354	-13	4226	-1356	-15
Cherokee	4310	-1440	-9	4310	-1440	-9
Mississippi	4438			NL		
RTD	4450					
LTD				4450		



DRILL STEM TEST REPORT

Prepared For: **Murfin Drilling Co., Inc.**

250 N Water STE #300
Wichita, KS 67202

ATTN: Rocky Milford

MB 'A' #2-35

35-4s-31w Rawlins, KS

Start Date: 2015.05.21 @ 13:00:00

End Date: 2015.05.21 @ 21:10:00

Job Ticket #: 62244 DST #: 1

Trilobite Testing, Inc
1515 Commerce Parkway Hays, KS 67601
ph: 785-625-4778 fax: 785-625-5620

Printed: 2015.05.27 @ 09:29:18

Murfin Drilling Co., Inc.

35-4s-31w Rawlins, KS

MB 'A' #2-35

DST # 1

Leavenworth - LKC "B"

2015.05.21



**TRILOBITE
TESTING, INC**

DRILL STEM TEST REPORT

Murfin Drilling Co., Inc.

35-4s-31w Rawlins, KS

250 N Water STE #300
Wichita, KS 67202

MB 'A' #2-35

Job Ticket: 62244

DST#: 1

ATTN: Rocky Milford

Test Start: 2015.05.21 @ 13:00:00

GENERAL INFORMATION:

Formation: **Leavenworth - LKC "B"**

Deviated: No Whipstock: ft (KB)

Time Tool Opened: 15:26:00

Time Test Ended: 21:10:00

Test Type: Conventional Bottom Hole (Initial)

Tester: Kevin Mack

Unit No: 82

Interval: 3846.00 ft (KB) To 3930.00 ft (KB) (TVD)

Reference Elevations: 2870.00 ft (KB)

Total Depth: 3930.00 ft (KB) (TVD)

2865.00 ft (CF)

Hole Diameter: 7.88 inches Hole Condition: Good

KB to GR/CF: 5.00 ft

Serial #: 8874

Inside

Press@RunDepth: 132.45 psig @ 3847.00 ft (KB)

Capacity: 8000.00 psig

Start Date: 2015.05.21

End Date:

2015.05.21

Last Calib.:

2015.05.21

Start Time: 13:01:00

End Time:

21:10:00

Time On Btm:

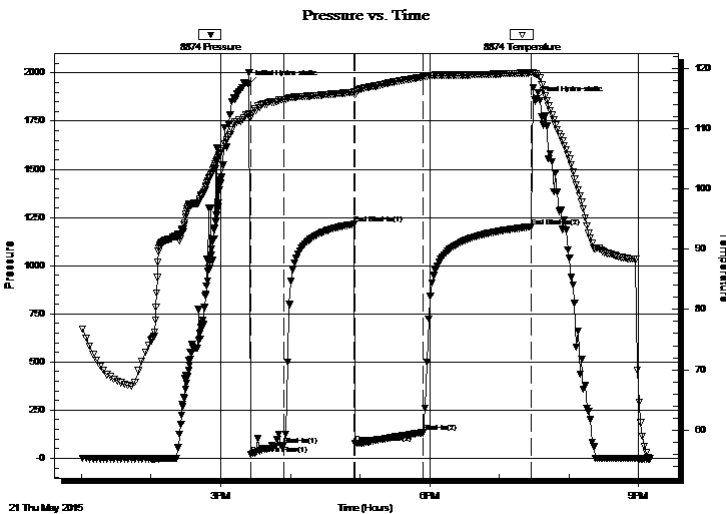
2015.05.21 @ 15:24:00

Time Off Btm:

2015.05.21 @ 19:31:00

TEST COMMENT: 30 - IF- Surface Blow built to 4"
60 - IS- No Return
60 - FF- Surface Blow started at min. Built to 4 1/4"
90 - FS- No Return

PRESSURE SUMMARY



Time (Min.)	Pressure (psig)	Temp (deg F)	Annotation
0	1940.88	112.37	Initial Hydro-static
2	19.84	111.80	Open To Flow (1)
31	68.66	114.80	Shut-In(1)
91	1214.94	116.04	End Shut-In(1)
92	76.95	115.63	Open To Flow (2)
151	132.45	118.55	Shut-In(2)
244	1201.59	119.26	End Shut-In(2)
247	1854.38	119.08	Final Hydro-static

Recovery

Length (ft)	Description	Volume (bbl)
62.00	OSMW 20M 80W (oil spots)	0.30
62.00	OSMW 40M 60W (Oil Spots)	0.30
62.00	OSWM 50M 50W (oil spots)	0.30
62.00	OSM 100M (oil spots)	0.30

Gas Rates

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



**TRILOBITE
TESTING, INC.**

DRILL STEM TEST REPORT

TOOL DIAGRAM

Murfin Drilling Co., Inc.

35-4s-31w Rawlins, KS

250 N Water STE #300
Wichita, KS 67202

MB 'A' #2-35

Job Ticket: 62244

DST#: 1

ATTN: Rocky Milford

Test Start: 2015.05.21 @ 13:00:00

Tool Information

Drill Pipe:	Length: 3581.00 ft	Diameter: 3.80 inches	Volume: 50.23 bbl	Tool Weight: 2500.00 lb
Heavy Wt. Pipe:	Length: 0.00 ft	Diameter: 0.00 inches	Volume: 0.00 bbl	Weight set on Packer: 25000.00 lb
Drill Collar:	Length: 249.00 ft	Diameter: 2.25 inches	Volume: 1.22 bbl	Weight to Pull Loose: 65000.00 lb
			<u>Total Volume: 51.45 bbl</u>	Tool Chased ft
Drill Pipe Above KB:	12.00 ft			String Weight: Initial 60000.00 lb
Depth to Top Packer:	3846.00 ft			Final 60000.00 lb
Depth to Bottom Packer:	ft			
Interval between Packers:	84.00 ft			
Tool Length:	112.00 ft			
Number of Packers:	2	Diameter: 6.75 inches		

Tool Comments:

Tool Description

Length (ft) Serial No. Position Depth (ft) Accum. Lengths

Tool Description	Length (ft)	Serial No.	Position	Depth (ft)	Accum. Lengths
Change Over Sub	1.00			3819.00	
Shut In Tool	5.00			3824.00	
Hydraulic tool	5.00			3829.00	
Jars	5.00			3834.00	
Safety Joint	3.00			3837.00	
Packer	5.00			3842.00	28.00 Bottom Of Top Packer
Packer	4.00			3846.00	
Stubb	1.00			3847.00	
Recorder	0.00	8653	Outside	3847.00	
Recorder	0.00	8874	Inside	3847.00	
Perforations	13.00			3860.00	
Change Over Sub	1.00			3861.00	
Drill Pipe	63.00			3924.00	
Change Over Sub	1.00			3925.00	
Bullnose	5.00			3930.00	84.00 Bottom Packers & Anchor

Total Tool Length: 112.00



**TRILOBITE
TESTING, INC**

DRILL STEM TEST REPORT

FLUID SUMMARY

Murfin Drilling Co., Inc.

35-4s-31w Rawlins, KS

250 N Water STE #300
Wichita, KS 67202

MB 'A' #2-35

Job Ticket: 62244

DST#: 1

ATTN: Rocky Milford

Test Start: 2015.05.21 @ 13:00:00

Mud and Cushion Information

Mud Type: Gel Chem

Cushion Type:

Oil API:

deg API

Mud Weight: 9.00 lb/gal

Cushion Length:

ft

Water Salinity:

50000 ppm

Viscosity: 55.00 sec/qt

Cushion Volume:

bbbl

Water Loss: 6.39 in³

Gas Cushion Type:

Resistivity: 0.00 ohm.m

Gas Cushion Pressure:

psig

Salinity: 1400.00 ppm

Filter Cake: 2.00 inches

Recovery Information

Recovery Table

Length ft	Description	Volume bbbl
62.00	OSMW 20M 80W (oil spots)	0.305
62.00	OSMW 40M 60W (Oil Spots)	0.305
62.00	OSWM 50M 50W (oil spots)	0.305
62.00	OSM 100M (oil spots)	0.305

Total Length: 248.00 ft

Total Volume: 1.220 bbl

Num Fluid Samples: 0

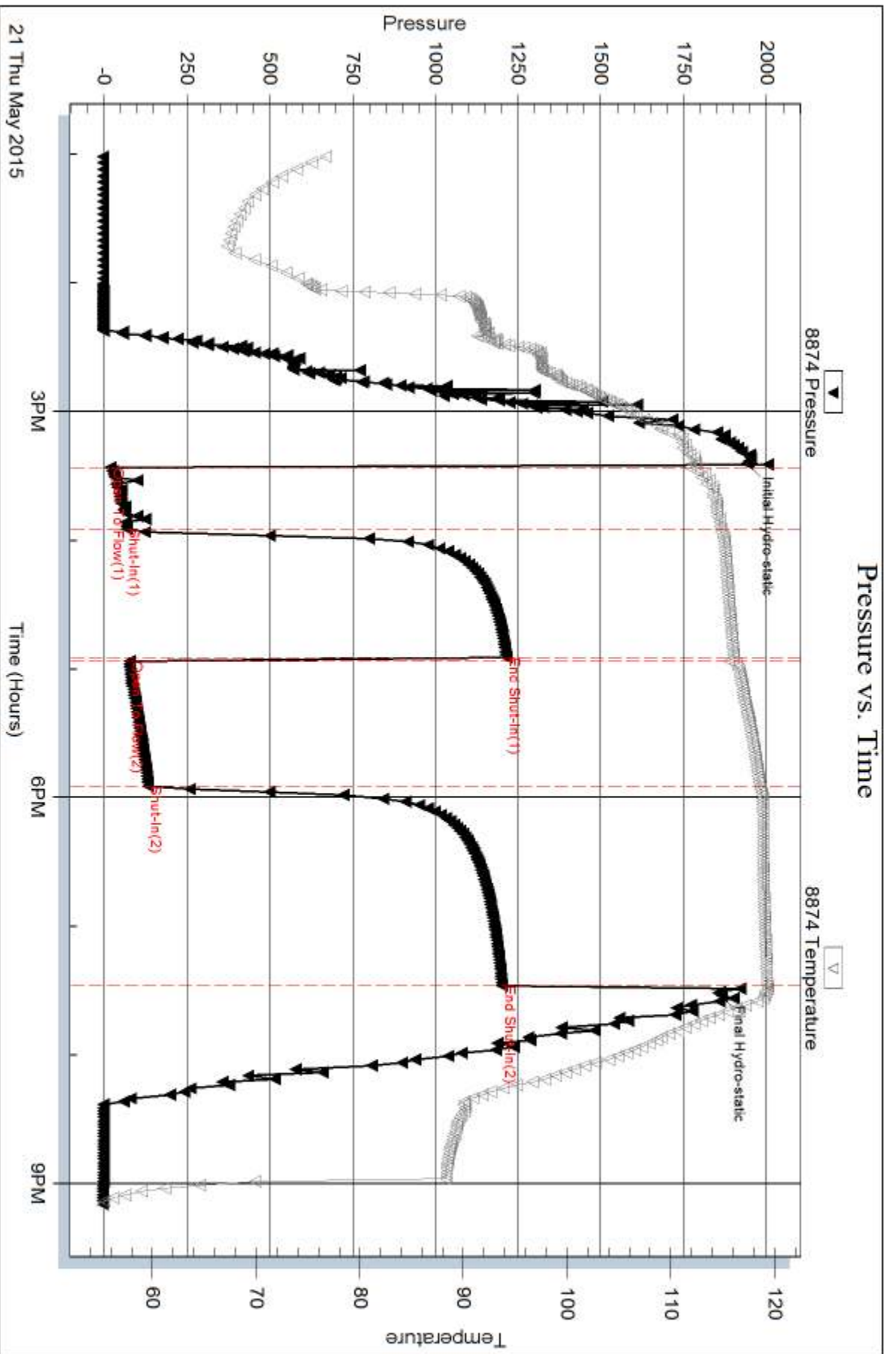
Num Gas Bombs: 0

Serial #:

Laboratory Name:

Laboratory Location:

Recovery Comments: RW = .17 @ 68 = 50000ppm

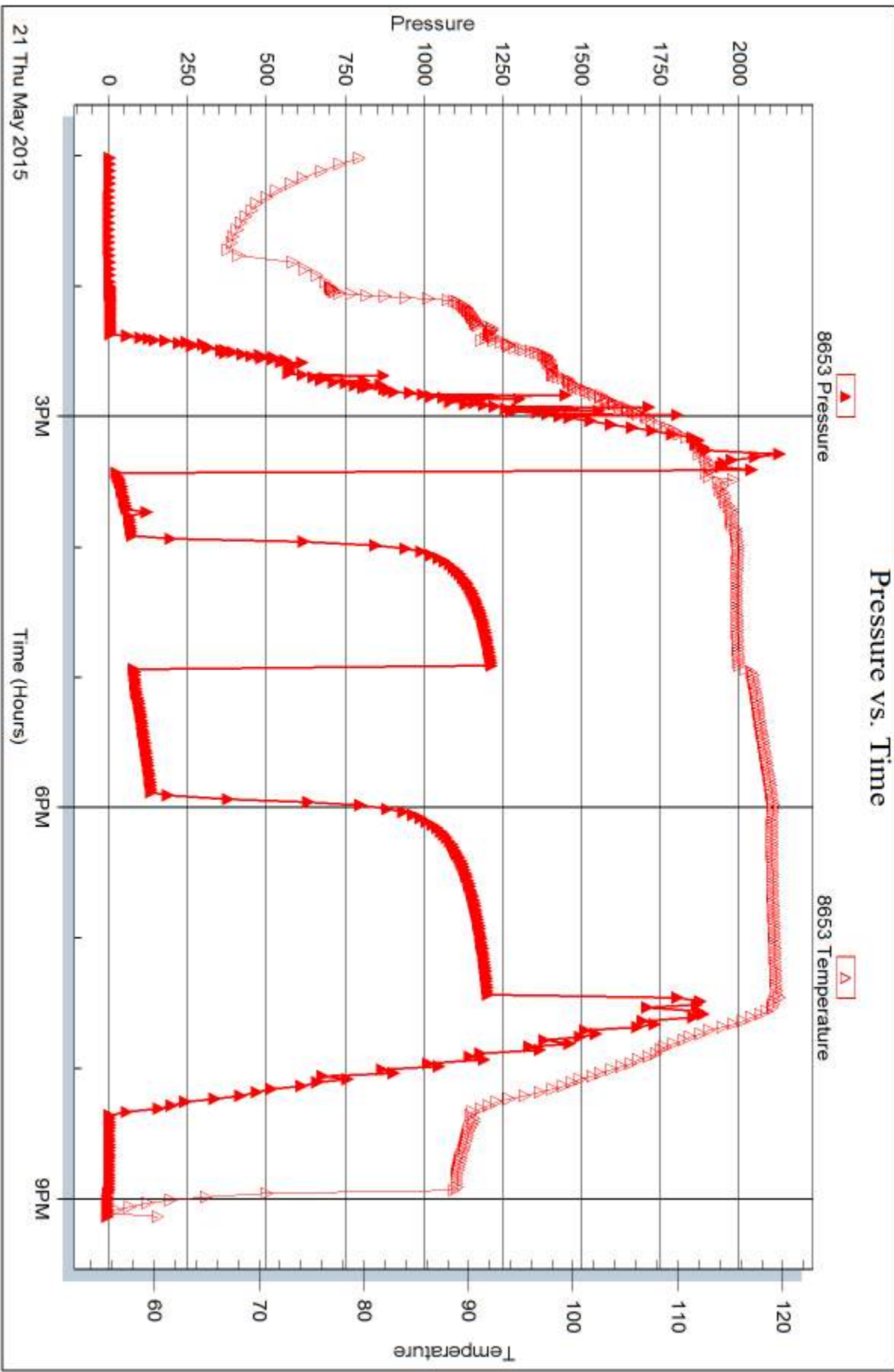


Serial #: 8653

Outside Murfin Drilling Co., Inc.

MB 'A' #2-35

DST Test Number: 1



Trilobite Testing, Inc

Ref. No: 62244

Printed: 2015.05.27 @ 09:29:19



DRILL STEM TEST REPORT

Prepared For: **Murfin Drilling Co., Inc.**

250 N Water STE #300
Wichita, KS 67202

ATTN: Rocky Milford

MB 'A' #2-35

35-4s-31w Rawlins, KS

Start Date: 2015.05.22 @ 07:00:00

End Date: 2015.05.22 @ 15:56:00

Job Ticket #: 62245 DST #: 2

Trilobite Testing, Inc
1515 Commerce Parkway Hays, KS 67601
ph: 785-625-4778 fax: 785-625-5620

Printed: 2015.05.27 @ 09:28:43



**TRILOBITE
TESTING, INC**

DRILL STEM TEST REPORT

Murfin Drilling Co., Inc.

35-4s-31w Rawlins, KS

250 N Water STE #300
Wichita, KS 67202

MB 'A' #2-35

Job Ticket: 62245

DST#: 2

ATTN: Rocky Milford

Test Start: 2015.05.22 @ 07:00:00

GENERAL INFORMATION:

Formation: **LKC "E-G"**

Deviated: No Whipstock: ft (KB)

Time Tool Opened: 09:24:30

Time Test Ended: 15:56:00

Test Type: Conventional Bottom Hole (Initial)

Tester: Kevin Mack

Unit No: 82

Interval: 3947.00 ft (KB) To 3984.00 ft (KB) (TVD)

Reference Elevations: 2870.00 ft (KB)

Total Depth: 3984.00 ft (KB) (TVD)

2865.00 ft (CF)

Hole Diameter: 7.88 inches Hole Condition: Good

KB to GR/CF: 5.00 ft

Serial #: 8653 Outside

Press@RunDepth: 203.48 psig @ 3948.00 ft (KB)

Capacity: 8000.00 psig

Start Date: 2015.05.22 End Date: 2015.05.22

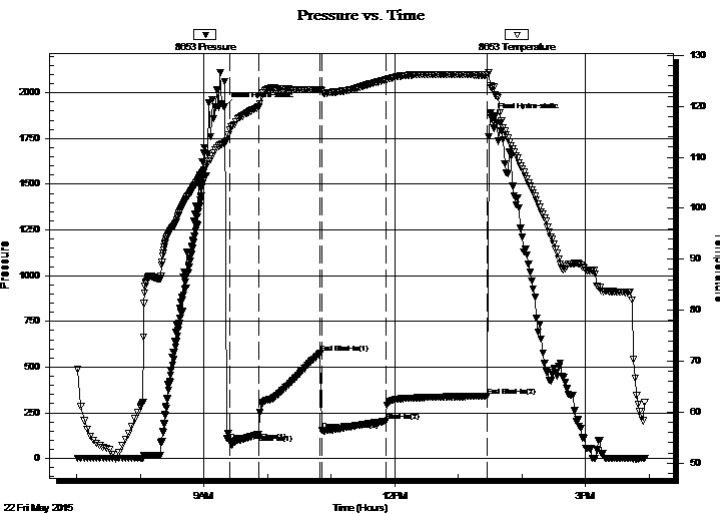
Last Calib.: 2015.05.22

Start Time: 07:01:00 End Time: 15:56:00

Time On Btm: 2015.05.22 @ 09:19:30

Time Off Btm: 2015.05.22 @ 13:31:30

TEST COMMENT: 30 - IF- BoB in 6 min.
60 - IS- BoB in 43 min
30 - FF- BoB in 18 min
60 - FS- Surface Return built to 2" then died back to 1 3/4"



PRESSURE SUMMARY

Time (Min.)	Pressure (psig)	Temp (deg F)	Annotation
0	1923.57	112.65	Initial Hydro-static
5	94.36	115.37	Open To Flow (1)
32	132.56	119.82	Shut-In(1)
91	576.35	123.32	End Shut-In(1)
92	153.83	123.10	Open To Flow (2)
152	203.48	125.19	Shut-In(2)
248	340.90	126.11	End Shut-In(2)
252	1862.15	123.74	Final Hydro-static

Recovery

Length (ft)	Description	Volume (bbl)
120.00	GOCM 10G 30o 60M	0.59
392.00	CGO 35G 65o	4.32
0.00	850 GIP 100G	0.00

Gas Rates

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



**TRILOBITE
TESTING, INC**

DRILL STEM TEST REPORT

TOOL DIAGRAM

Murfin Drilling Co., Inc.

35-4s-31w Rawlins, KS

250 N Water STE #300
Wichita, KS 67202

MB 'A' #2-35

Job Ticket: 62245

DST#: 2

ATTN: Rocky Milford

Test Start: 2015.05.22 @ 07:00:00

Tool Information

Drill Pipe:	Length: 3677.00 ft	Diameter: 3.80 inches	Volume: 51.58 bbl	Tool Weight: 2500.00 lb
Heavy Wt. Pipe:	Length: 0.00 ft	Diameter: 0.00 inches	Volume: 0.00 bbl	Weight set on Packer: 25000.00 lb
Drill Collar:	Length: 249.00 ft	Diameter: 2.25 inches	Volume: 1.22 bbl	Weight to Pull Loose: 80000.00 lb
			<u>Total Volume: 52.80 bbl</u>	Tool Chased ft
Drill Pipe Above KB:	7.00 ft			String Weight: Initial 58000.00 lb
Depth to Top Packer:	3947.00 ft			Final 65000.00 lb
Depth to Bottom Packer:	ft			
Interval between Packers:	37.00 ft			
Tool Length:	65.00 ft			
Number of Packers:	2	Diameter: 6.75 inches		

Tool Comments:

Tool Description

Tool Description	Length (ft)	Serial No.	Position	Depth (ft)	Accum. Lengths
Change Over Sub	1.00			3920.00	
Shut In Tool	5.00			3925.00	
Hydraulic tool	5.00			3930.00	
Jars	5.00			3935.00	
Safety Joint	3.00			3938.00	
Packer	5.00			3943.00	28.00 Bottom Of Top Packer
Packer	4.00			3947.00	
Stubb	1.00			3948.00	
Recorder	0.00	8653	Outside	3948.00	
Recorder	0.00	8520	Inside	3948.00	
Perforations	31.00			3979.00	
Bullnose	5.00			3984.00	37.00 Bottom Packers & Anchor

Total Tool Length: 65.00



**TRILOBITE
TESTING, INC**

DRILL STEM TEST REPORT

FLUID SUMMARY

Murfin Drilling Co., Inc.

35-4s-31w Rawlins, KS

250 N Water STE #300
Wichita, KS 67202

MB 'A' #2-35

Job Ticket: 62245

DST#: 2

ATTN: Rocky Milford

Test Start: 2015.05.22 @ 07:00:00

Mud and Cushion Information

Mud Type: Gel Chem

Cushion Type:

Oil API:

37 deg API

Mud Weight: 9.00 lb/gal

Cushion Length:

ft

Water Salinity:

ppm

Viscosity: 58.00 sec/qt

Cushion Volume:

bbbl

Water Loss: 6.78 in³

Gas Cushion Type:

Resistivity: 0.00 ohm.m

Gas Cushion Pressure:

psig

Salinity: 2000.00 ppm

Filter Cake: 2.00 inches

Recovery Information

Recovery Table

Length ft	Description	Volume bbl
120.00	GOCM 10G 30o 60M	0.590
392.00	CGO 35G 65o	4.324
0.00	850 GIP 100G	0.000

Total Length: 512.00 ft Total Volume: 4.914 bbl

Num Fluid Samples: 0

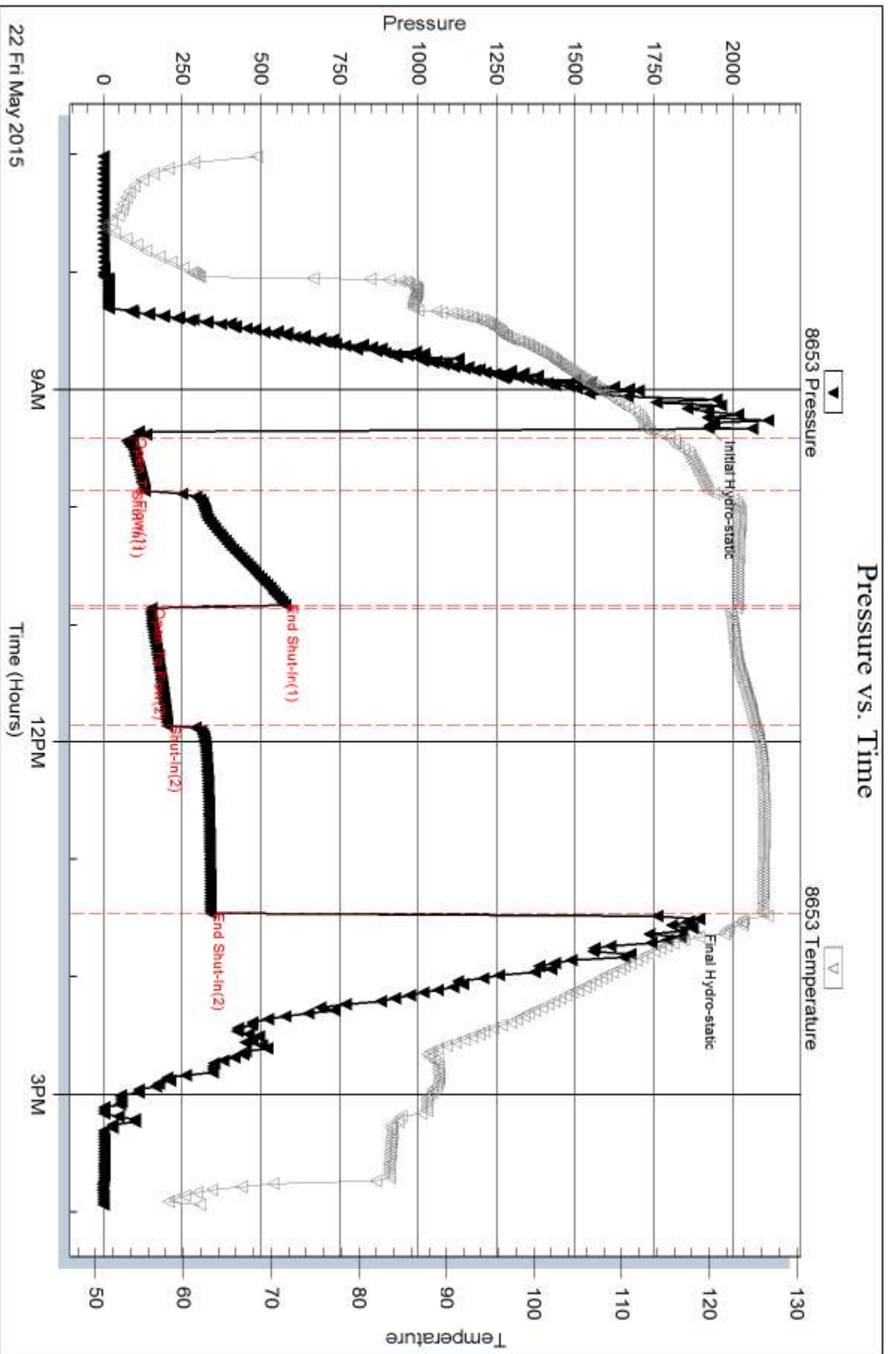
Num Gas Bombs: 0

Serial #:

Laboratory Name:

Laboratory Location:

Recovery Comments: Oil API 38 @ 70 = 37 corrected



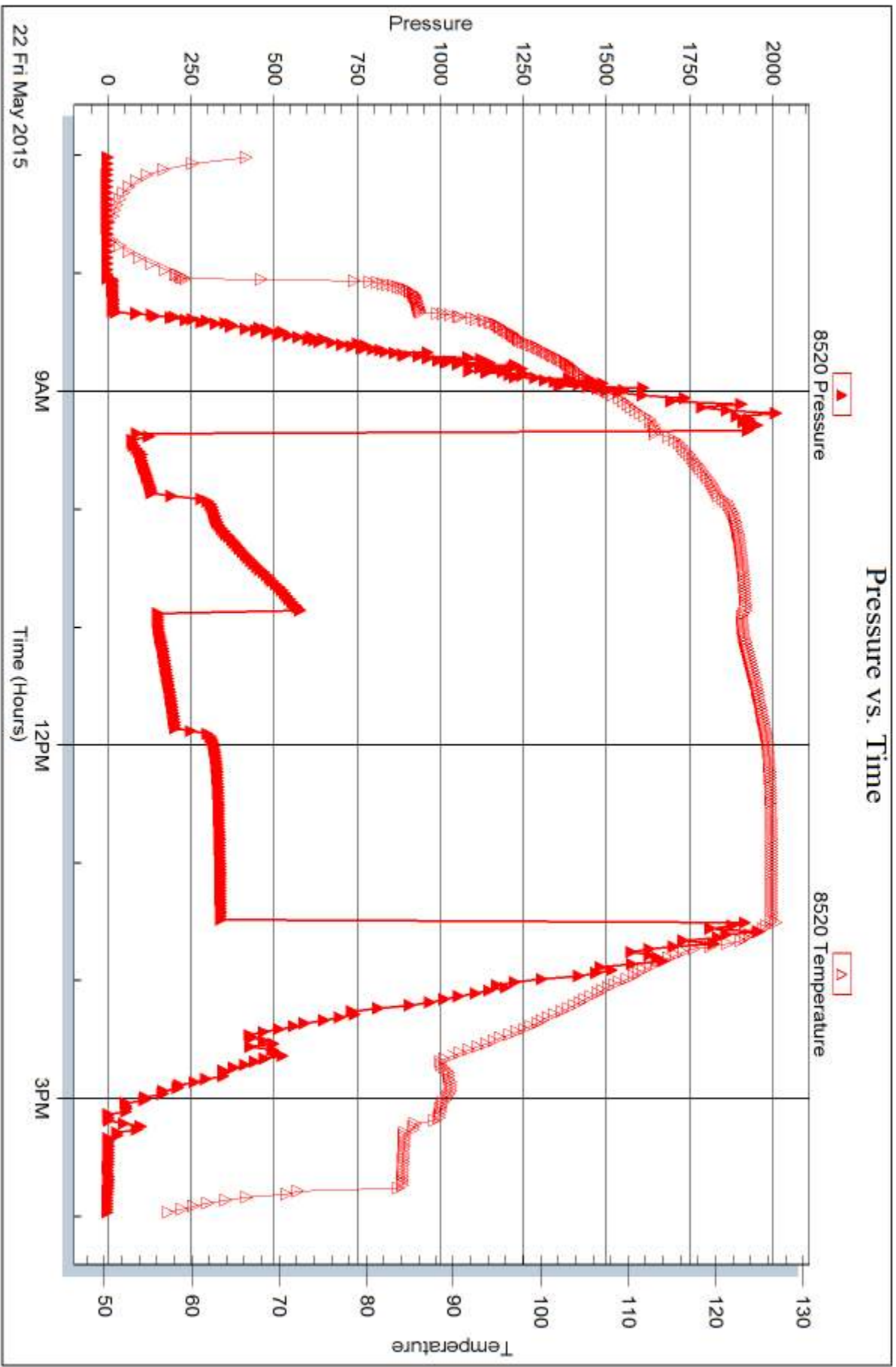
Serial #: 8520

Inside

Murfin Drilling Co., Inc.

MB'A' #2-35

DST Test Number: 2



Trilobite Testing, Inc

Ref. No: 62245

Printed: 2015.05.27 @ 09:28:45



DRILL STEM TEST REPORT

Prepared For: **Murfin Drilling Co., Inc.**

250 N Water STE #300
Wichita, KS 67202

ATTN: Rocky Milford

MB 'A' #2-35

35-4s-31w Rawlins, KS

Start Date: 2015.05.23 @ 03:27:00

End Date: 2015.05.23 @ 12:05:00

Job Ticket #: 62246 DST #: 3

Trilobite Testing, Inc
1515 Commerce Parkway Hays, KS 67601
ph: 785-625-4778 fax: 785-625-5620

Printed: 2015.05.27 @ 09:28:20



**TRILOBITE
TESTING, INC**

DRILL STEM TEST REPORT

Murfin Drilling Co., Inc.
250 N Water STE #300
Wichita, KS 67202
ATTN: Rocky Milford

35-4s-31w Rawlins, KS

MB 'A' #2-35

Job Ticket: 62246

DST#: 3

Test Start: 2015.05.23 @ 03:27:00

GENERAL INFORMATION:

Formation: **LKC "H-J"**
 Deviated: No Whipstock: ft (KB)
 Time Tool Opened: 05:36:30
 Time Test Ended: 12:05:00
 Interval: **3994.00 ft (KB) To 4065.00 ft (KB) (TVD)**
 Total Depth: 4065.00 ft (KB) (TVD)
 Hole Diameter: 7.88 inches Hole Condition: Good
 Test Type: Conventional Bottom Hole (Initial)
 Tester: Kevin Mack
 Unit No: 82
 Reference Elevations: 2870.00 ft (KB)
 2865.00 ft (CF)
 KB to GR/CF: 5.00 ft

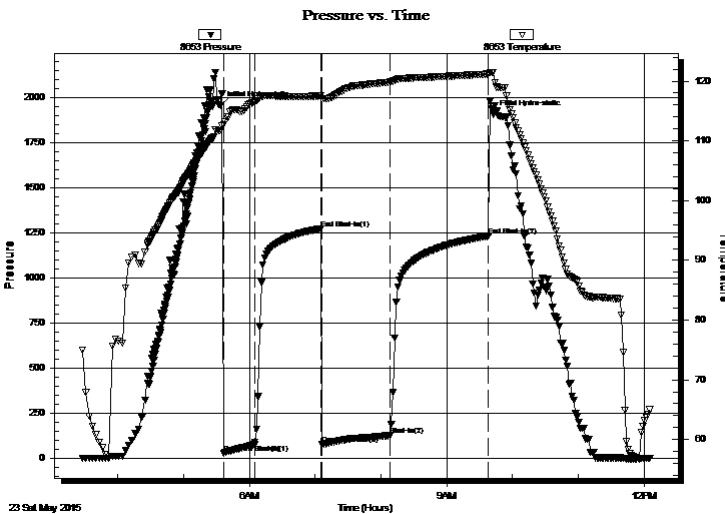
Serial #: 8653

Outside

Press@RunDepth: 125.93 psig @ 3995.00 ft (KB) Capacity: 8000.00 psig
 Start Date: 2015.05.23 End Date: 2015.05.23 Last Calib.: 2015.05.23
 Start Time: 03:28:00 End Time: 12:05:00 Time On Btm: 2015.05.23 @ 05:33:30
 Time Off Btm: 2015.05.23 @ 09:42:30

TEST COMMENT: 30 - IF- BoB in 24 min.
 60 - IS- Surface Return started at 1 min. Built to 1/2"
 60 - FF- BoB in 20 min.
 90 - FS- Surface Return started at 1 min. Built to 1/2"

PRESSURE SUMMARY



Time (Min.)	Pressure (psig)	Temp (deg F)	Annotation
0	1953.90	111.73	Initial Hydro-static
3	29.15	112.66	Open To Flow (1)
31	75.61	116.38	Shut-In(1)
92	1272.96	117.53	End Shut-In(1)
93	78.93	117.02	Open To Flow (2)
155	125.93	119.84	Shut-In(2)
245	1232.82	121.18	End Shut-In(2)
249	1907.19	121.44	Final Hydro-static

Recovery

Length (ft)	Description	Volume (bbl)
60.00	GMCO 20G 40o 40M	0.30
80.00	GOCM 10G 30o 60M	0.39
130.00	CGO 25G 75o	0.83
0.00	30' GIP	0.00

Gas Rates

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



**TRILOBITE
TESTING, INC**

DRILL STEM TEST REPORT

TOOL DIAGRAM

Murfin Drilling Co., Inc.

35-4s-31w Rawlins, KS

250 N Water STE #300
Wichita, KS 67202

MB 'A' #2-35

Job Ticket: 62246

DST#: 3

ATTN: Rocky Milford

Test Start: 2015.05.23 @ 03:27:00

Tool Information

Drill Pipe:	Length: 3737.00 ft	Diameter: 3.80 inches	Volume: 52.42 bbl	Tool Weight: 2500.00 lb
Heavy Wt. Pipe:	Length: 0.00 ft	Diameter: 0.00 inches	Volume: 0.00 bbl	Weight set on Packer: 25000.00 lb
Drill Collar:	Length: 249.00 ft	Diameter: 2.25 inches	Volume: 1.22 bbl	Weight to Pull Loose: 80000.00 lb
			<u>Total Volume: 53.64 bbl</u>	Tool Chased ft
Drill Pipe Above KB:	20.00 ft			String Weight: Initial 64000.00 lb
Depth to Top Packer:	3994.00 ft			Final 65000.00 lb
Depth to Bottom Packer:	ft			
Interval between Packers:	71.00 ft			
Tool Length:	99.00 ft			
Number of Packers:	2	Diameter: 6.75 inches		

Tool Comments:

Tool Description

Tool Description	Length (ft)	Serial No.	Position	Depth (ft)	Accum. Lengths
Change Over Sub	1.00			3967.00	
Shut In Tool	5.00			3972.00	
Hydraulic tool	5.00			3977.00	
Jars	5.00			3982.00	
Safety Joint	3.00			3985.00	
Packer	5.00			3990.00	28.00 Bottom Of Top Packer
Packer	4.00			3994.00	
Stubb	1.00			3995.00	
Recorder	0.00	8653	Outside	3995.00	
Recorder	0.00	8520	Inside	3995.00	
Perforations	31.00			4026.00	
Change Over Sub	1.00			4027.00	
Drill Pipe	32.00			4059.00	
Change Over Sub	1.00			4060.00	
Bullnose	5.00			4065.00	71.00 Bottom Packers & Anchor

Total Tool Length: 99.00



**TRILOBITE
TESTING, INC**

DRILL STEM TEST REPORT

FLUID SUMMARY

Murfin Drilling Co., Inc.

35-4s-31w Rawlins, KS

250 N Water STE #300
Wichita, KS 67202

MB 'A' #2-35

Job Ticket: 62246

DST#: 3

ATTN: Rocky Milford

Test Start: 2015.05.23 @ 03:27:00

Mud and Cushion Information

Mud Type: Gel Chem

Cushion Type:

Oil API:

39 deg API

Mud Weight: 9.00 lb/gal

Cushion Length:

ft

Water Salinity:

ppm

Viscosity: 58.00 sec/qt

Cushion Volume:

bbbl

Water Loss: 6.79 in³

Gas Cushion Type:

Resistivity: 0.00 ohm.m

Gas Cushion Pressure:

psig

Salinity: 2000.00 ppm

Filter Cake: 2.00 inches

Recovery Information

Recovery Table

Length ft	Description	Volume bbbl
60.00	GMCO 20G 40o 40M	0.295
80.00	GOCM 10G 30o 60M	0.393
130.00	CGO 25G 75o	0.831
0.00	30' GIP	0.000

Total Length: 270.00 ft Total Volume: 1.519 bbl

Num Fluid Samples: 0

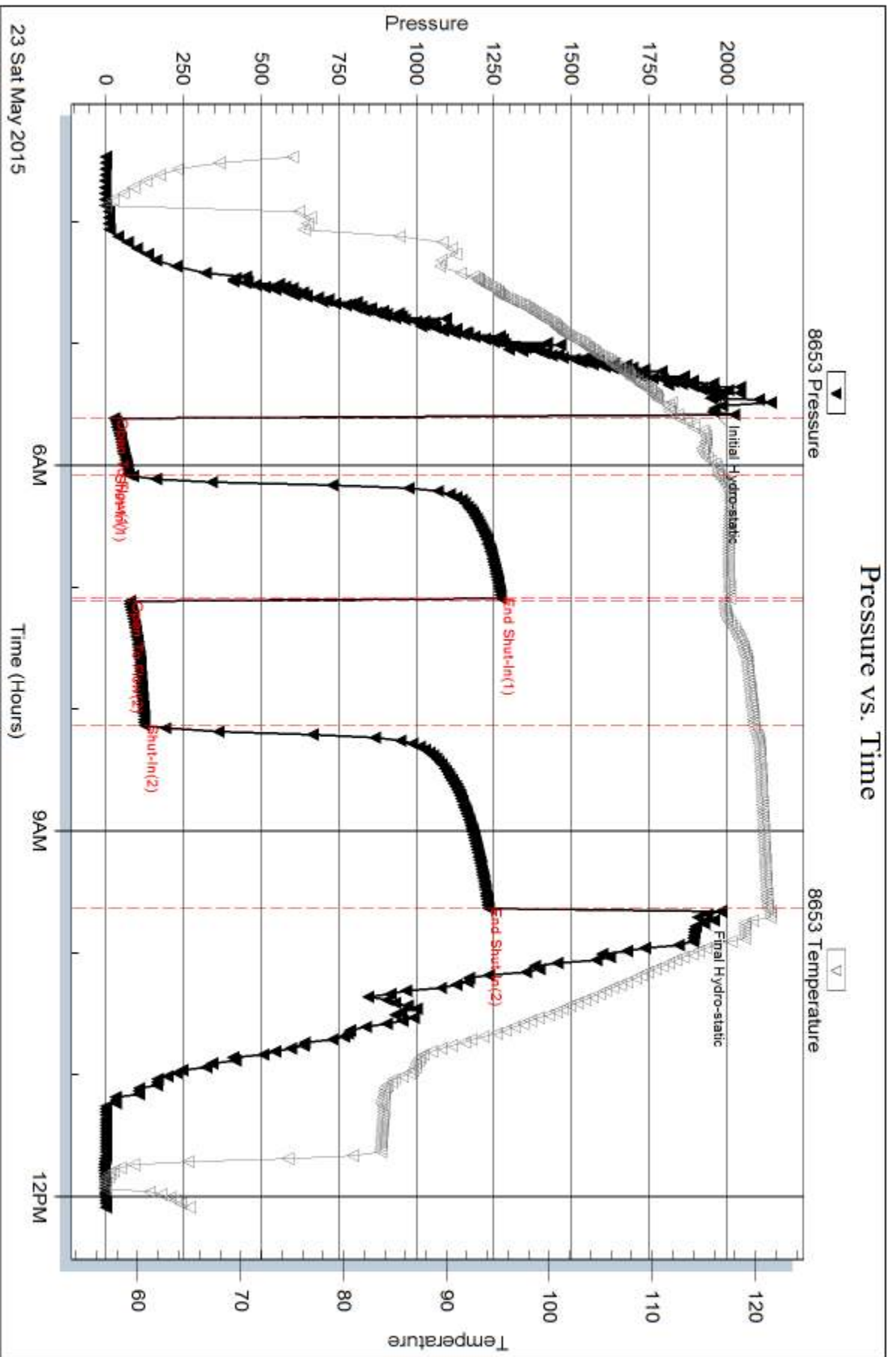
Num Gas Bombs: 0

Serial #:

Laboratory Name:

Laboratory Location:

Recovery Comments: Oil API = 41 @ 80 deg = 39



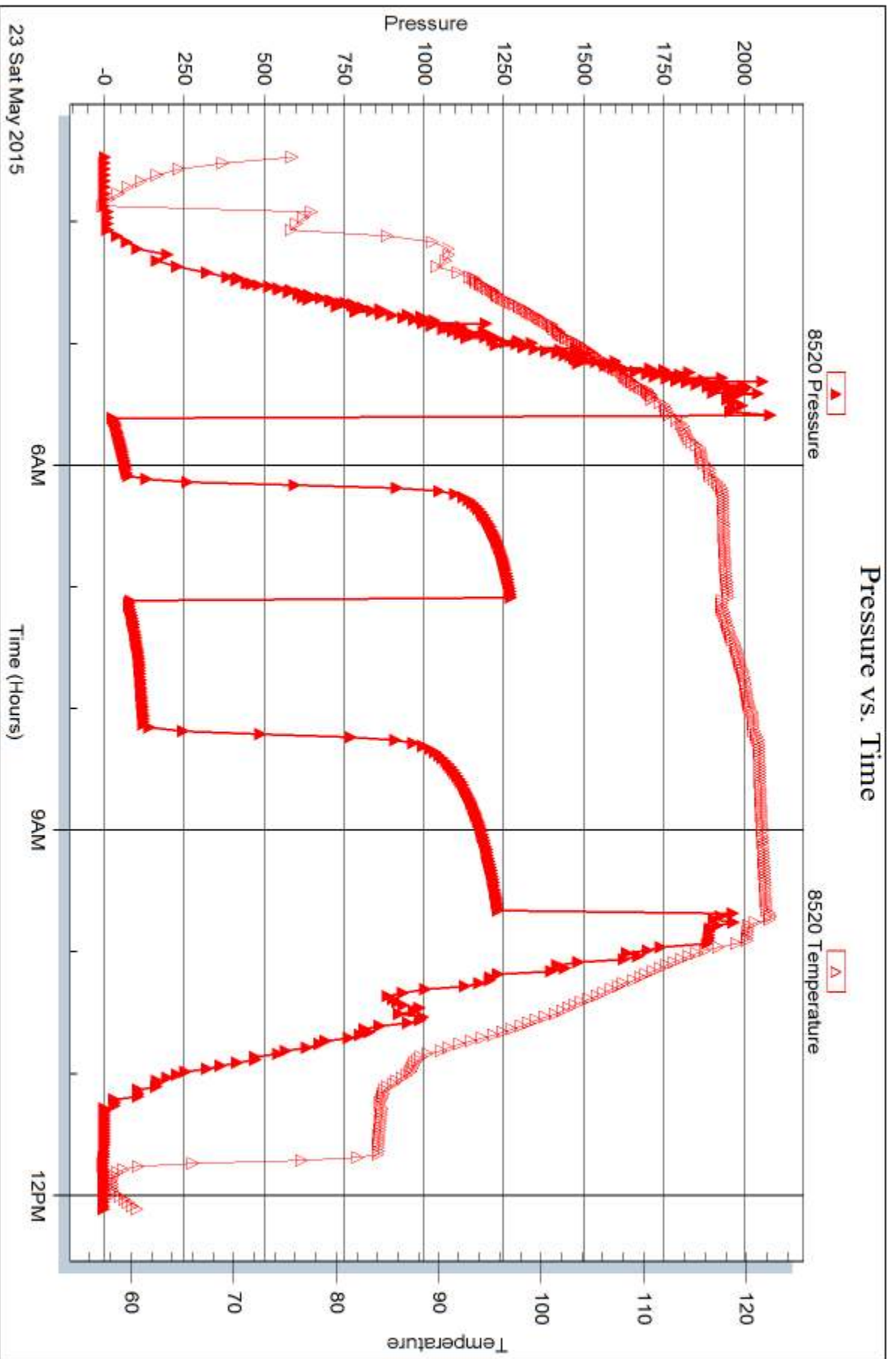
Serial #: 8520

Inside

Murfin Drilling Co., Inc.

MB 'A' #2-35

DST Test Number: 3



Trilobite Testing, Inc

Ref. No: 62246

Printed: 2015.05.27 @ 09:28:21



DRILL STEM TEST REPORT

Prepared For: **Murfin Drilling Co., Inc.**

250 N Water STE #300
Wichita, KS 67202

ATTN: Rocky Milford

MB 'A' #2-35

35-4s-31w Rawlins, KS

Start Date: 2015.05.23 @ 21:37:00

End Date: 2015.05.24 @ 05:56:30

Job Ticket #: 62247 DST #: 4

Trilobite Testing, Inc
1515 Commerce Parkway Hays, KS 67601
ph: 785-625-4778 fax: 785-625-5620

Printed: 2015.05.27 @ 09:27:56



TRILOBITE TESTING, INC.

DRILL STEM TEST REPORT

Murfin Drilling Co., Inc.
 250 N Water STE #300
 Wichita, KS 67202
 ATTN: Rocky Milford

35-4s-31w Rawlins, KS

MB 'A' #2-35

Job Ticket: 62247

DST#: 4

Test Start: 2015.05.23 @ 21:37:00

GENERAL INFORMATION:

Formation: **LKC "K-L"**
 Deviated: No Whipstock: ft (KB)
 Time Tool Opened: 23:28:10
 Time Test Ended: 05:56:30
 Interval: **4059.00 ft (KB) To 4120.00 ft (KB) (TVD)**
 Total Depth: 4120.00 ft (KB) (TVD)
 Hole Diameter: 7.88 inches Hole Condition: Good
 Test Type: Conventional Bottom Hole (Initial)
 Tester: Kevin Mack
 Unit No: 82
 Reference Elevations: 2870.00 ft (KB)
 2865.00 ft (CF)
 KB to GR/CF: 5.00 ft

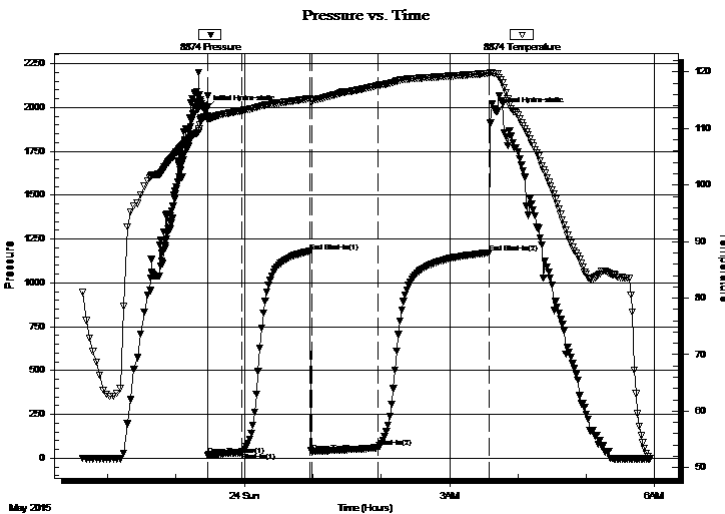
Serial #: 8874

Inside

Press@RunDepth: 59.82 psig @ 4060.00 ft (KB) Capacity: 8000.00 psig
 Start Date: 2015.05.23 End Date: 2015.05.24 Last Calib.: 2015.05.24
 Start Time: 21:38:00 End Time: 05:56:30 Time On Btm: 2015.05.23 @ 23:26:50
 Time Off Btm: 2015.05.24 @ 03:40:30

TEST COMMENT: 30 - IF- 1/4" Blow built to 5"
 60 - IS- No Return
 60 - FF- Blow built to 9 1/2"
 90 - FS- No Return

PRESSURE SUMMARY



Time (Min.)	Pressure (psig)	Temp (deg F)	Annotation
0	1990.29	112.18	Initial Hydro-static
2	17.98	111.54	Open To Flow (1)
31	32.77	113.13	Shut-In(1)
91	1179.41	115.29	End Shut-In(1)
93	37.01	115.04	Open To Flow (2)
151	59.82	117.64	Shut-In(2)
248	1171.45	119.76	End Shut-In(2)
254	1977.52	119.68	Final Hydro-static

Recovery

Length (ft)	Description	Volume (bbl)
40.00	GOCM 10G 40o 50M	0.20
80.00	CGO 40G 60o	0.39
0.00	250' GIP	0.00

Gas Rates

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



**TRILOBITE
TESTING, INC**

DRILL STEM TEST REPORT

TOOL DIAGRAM

Murfin Drilling Co., Inc.

35-4s-31w Rawlins, KS

250 N Water STE #300
Wichita, KS 67202

MB 'A' #2-35

Job Ticket: 62247

DST#: 4

ATTN: Rocky Milford

Test Start: 2015.05.23 @ 21:37:00

Tool Information

Drill Pipe:	Length: 3802.00 ft	Diameter: 3.80 inches	Volume: 53.33 bbl	Tool Weight: 2500.00 lb
Heavy Wt. Pipe:	Length: 0.00 ft	Diameter: 0.00 inches	Volume: 0.00 bbl	Weight set on Packer: 25000.00 lb
Drill Collar:	Length: 249.00 ft	Diameter: 2.25 inches	Volume: 1.22 bbl	Weight to Pull Loose: 78000.00 lb
			<u>Total Volume: 54.55 bbl</u>	Tool Chased ft
Drill Pipe Above KB:	20.00 ft			String Weight: Initial 64000.00 lb
Depth to Top Packer:	4059.00 ft			Final 64000.00 lb
Depth to Bottom Packer:	ft			
Interval between Packers:	61.00 ft			
Tool Length:	89.00 ft			
Number of Packers:	2	Diameter: 6.75 inches		

Tool Comments:

Tool Description

Tool Description	Length (ft)	Serial No.	Position	Depth (ft)	Accum. Lengths
Change Over Sub	1.00			4032.00	
Shut In Tool	5.00			4037.00	
Hydraulic tool	5.00			4042.00	
Jars	5.00			4047.00	
Safety Joint	3.00			4050.00	
Packer	5.00			4055.00	28.00 Bottom Of Top Packer
Packer	4.00			4059.00	
Stubb	1.00			4060.00	
Recorder	0.00	8653	Outside	4060.00	
Recorder	0.00	8874	Inside	4060.00	
Perforations	21.00			4081.00	
Change Over Sub	1.00			4082.00	
Drill Pipe	32.00			4114.00	
Change Over Sub	1.00			4115.00	
Bullnose	5.00			4120.00	61.00 Bottom Packers & Anchor

Total Tool Length: 89.00



**TRILOBITE
TESTING, INC**

DRILL STEM TEST REPORT

FLUID SUMMARY

Murfin Drilling Co., Inc.

35-4s-31w Rawlins, KS

250 N Water STE #300
Wichita, KS 67202

MB 'A' #2-35

Job Ticket: 62247

DST#: 4

ATTN: Rocky Milford

Test Start: 2015.05.23 @ 21:37:00

Mud and Cushion Information

Mud Type: Gel Chem

Cushion Type:

Oil API:

33 deg API

Mud Weight: 9.00 lb/gal

Cushion Length:

ft

Water Salinity:

ppm

Viscosity: 50.00 sec/qt

Cushion Volume:

bbbl

Water Loss: 6.79 in³

Gas Cushion Type:

Resistivity: 0.00 ohm.m

Gas Cushion Pressure:

psig

Salinity: 2000.00 ppm

Filter Cake: 2.00 inches

Recovery Information

Recovery Table

Length ft	Description	Volume bbl
40.00	GOCM 10G 40o 50M	0.197
80.00	CGO 40G 60o	0.393
0.00	250' GIP	0.000

Total Length: 120.00 ft Total Volume: 0.590 bbl

Num Fluid Samples: 0

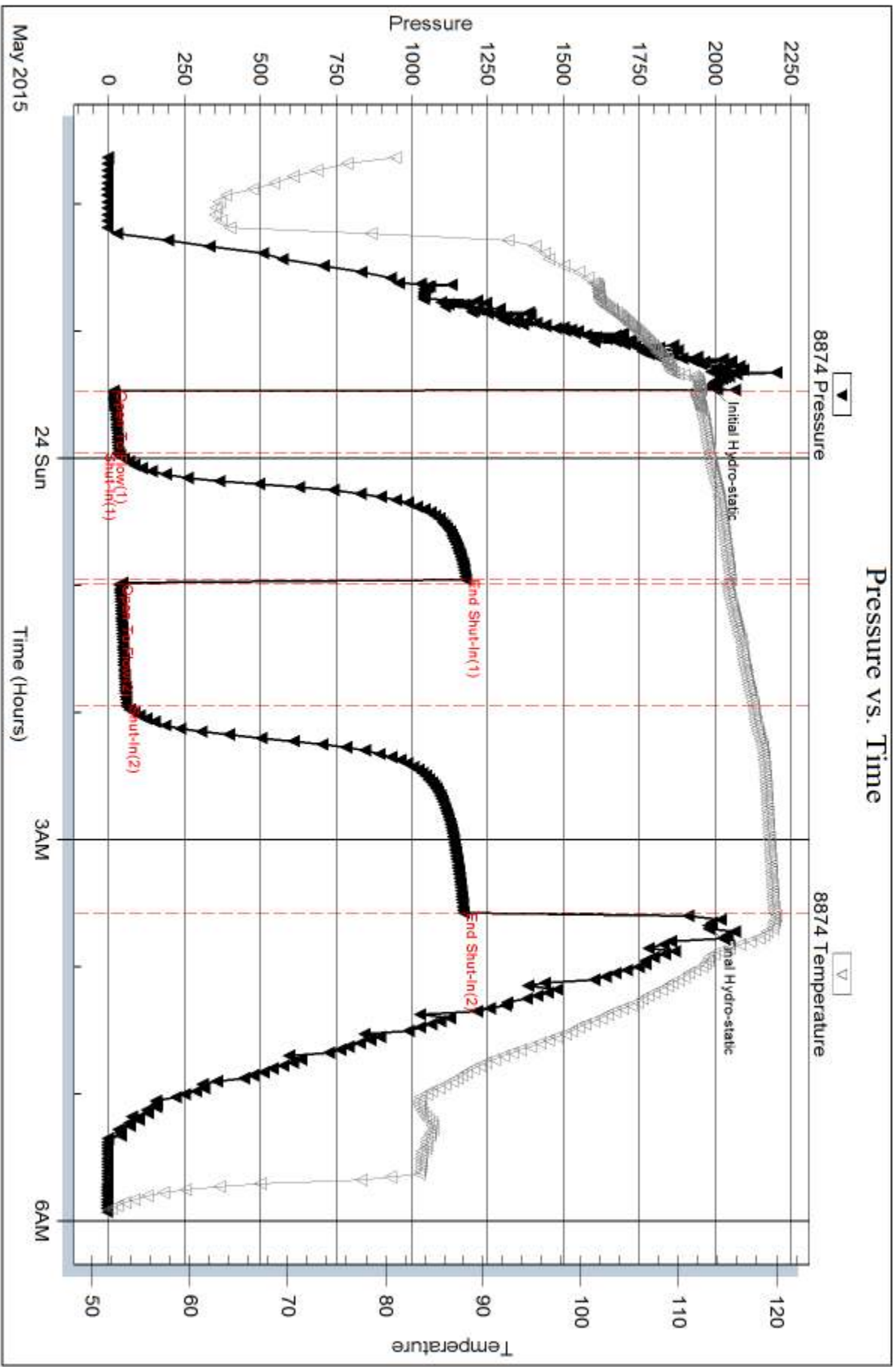
Num Gas Bombs: 0

Serial #:

Laboratory Name:

Laboratory Location:

Recovery Comments: Oil API = 35 @ 80 = 33 corrected

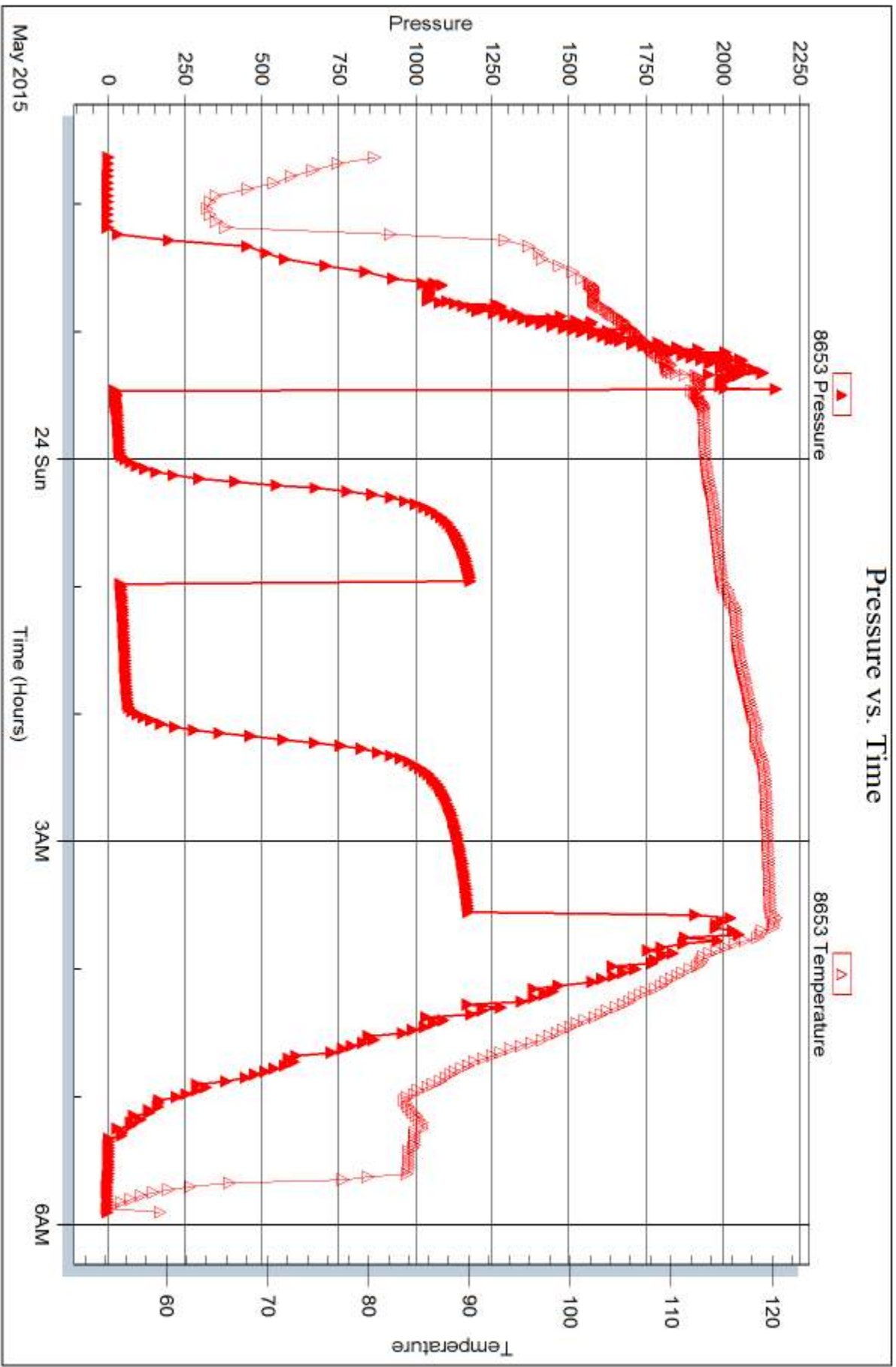


Serial #: 8653

Outside Murfin Drilling Co., Inc.

MB 'A' #2-35

DST Test Number: 4



Trilobite Testing, Inc

Ref. No: 62247

Printed: 2015.05.27 @ 09:27:57



DRILL STEM TEST REPORT

Prepared For: **Murfin Drilling Co., Inc.**

250 N Water STE #300
Wichita, KS 67202

ATTN: Rocky Milford

MB 'A' #2-35

35-4s-31w Rawlins, KS

Start Date: 2015.05.24 @ 22:34:00

End Date: 2015.05.25 @ 07:03:00

Job Ticket #: 62248 DST #: 5

Trilobite Testing, Inc
1515 Commerce Parkway Hays, KS 67601
ph: 785-625-4778 fax: 785-625-5620

Printed: 2015.05.27 @ 09:26:56



**TRILOBITE
TESTING, INC**

DRILL STEM TEST REPORT

Murfin Drilling Co., Inc.
250 N Water STE #300
Wichita, KS 67202
ATTN: Rocky Milford

35-4s-31w Rawlins, KS

MB 'A' #2-35

Job Ticket: 62248

DST#: 5

Test Start: 2015.05.24 @ 22:34:00

GENERAL INFORMATION:

Formation: **Ft. Scott - Verdigri**

Deviated: No Whipstock: ft (KB)

Time Tool Opened: 01:01:30

Time Test Ended: 07:03:00

Test Type: Conventional Bottom Hole (Initial)

Tester: Kevin Mack

Unit No: 82

Interval: 4275.00 ft (KB) To 4342.00 ft (KB) (TVD)

Total Depth: 4342.00 ft (KB) (TVD)

Hole Diameter: 7.88 inches Hole Condition: Good

Reference Elevations: 2870.00 ft (KB)

2865.00 ft (CF)

KB to GR/CF: 5.00 ft

Serial #: 8874

Inside

Press@RunDepth: 26.51 psig @ 4276.00 ft (KB)

Start Date: 2015.05.24

End Date:

2015.05.25

Start Time: 22:35:00

End Time:

07:03:00

Capacity: 8000.00 psig

Last Calib.: 2015.05.25

Time On Btm: 2015.05.25 @ 00:59:30

Time Off Btm: 2015.05.25 @ 04:14:00

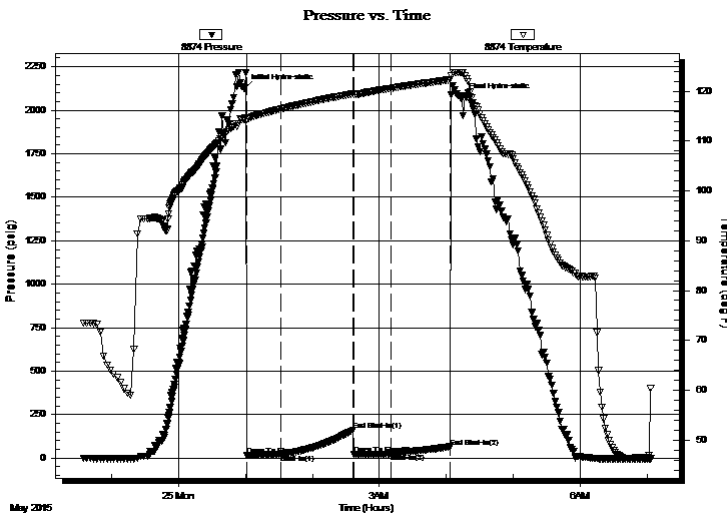
TEST COMMENT: 30 - IF- 1/4" Blow built to 1/2" then died back to Surface Blow

60 - IS- No Return

30 - FF- No Blow

60- FSI- No Return

PRESSURE SUMMARY



Time (Min.)	Pressure (psig)	Temp (deg F)	Annotation
0	2126.77	114.31	Initial Hydro-static
2	18.17	114.44	Open To Flow (1)
32	20.56	116.44	Shut-In(1)
97	161.99	119.49	End Shut-In(1)
98	21.49	119.29	Open To Flow (2)
131	26.51	120.58	Shut-In(2)
184	65.32	122.30	End Shut-In(2)
195	2070.10	123.71	Final Hydro-static

Recovery

Length (ft)	Description	Volume (bbl)
10.00	OSM 100M (oil spots)	0.05

Gas Rates

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



**TRILOBITE
TESTING, INC**

DRILL STEM TEST REPORT

TOOL DIAGRAM

Murfin Drilling Co., Inc.

35-4s-31w Rawlins, KS

250 N Water STE #300
Wichita, KS 67202

MB 'A' #2-35

Job Ticket: 62248

DST#: 5

ATTN: Rocky Milford

Test Start: 2015.05.24 @ 22:34:00

Tool Information

Drill Pipe:	Length: 4020.00 ft	Diameter: 3.80 inches	Volume: 56.39 bbl	Tool Weight: 2500.00 lb
Heavy Wt. Pipe:	Length: 0.00 ft	Diameter: 0.00 inches	Volume: 0.00 bbl	Weight set on Packer: 25000.00 lb
Drill Collar:	Length: 249.00 ft	Diameter: 2.25 inches	Volume: 1.22 bbl	Weight to Pull Loose: 66000.00 lb
			<u>Total Volume: 57.61 bbl</u>	Tool Chased ft
Drill Pipe Above KB:	22.00 ft			String Weight: Initial 64000.00 lb
Depth to Top Packer:	4275.00 ft			Final 64000.00 lb
Depth to Bottom Packer:	ft			
Interval between Packers:	67.00 ft			
Tool Length:	95.00 ft			
Number of Packers:	2	Diameter: 6.75 inches		

Tool Comments:

Tool Description

Tool Description	Length (ft)	Serial No.	Position	Depth (ft)	Accum. Lengths
Change Over Sub	1.00			4248.00	
Shut In Tool	5.00			4253.00	
Hydraulic tool	5.00			4258.00	
Jars	5.00			4263.00	
Safety Joint	3.00			4266.00	
Packer	5.00			4271.00	28.00 Bottom Of Top Packer
Packer	4.00			4275.00	
Stubb	1.00			4276.00	
Recorder	0.00	8653	Outside	4276.00	
Recorder	0.00	8874	Inside	4276.00	
Perforations	27.00			4303.00	
Change Over Sub	1.00			4304.00	
Drill Pipe	32.00			4336.00	
Change Over Sub	1.00			4337.00	
Bullnose	5.00			4342.00	67.00 Bottom Packers & Anchor

Total Tool Length: 95.00



**TRILOBITE
TESTING, INC**

DRILL STEM TEST REPORT

FLUID SUMMARY

Murfin Drilling Co., Inc.

35-4s-31w Rawlins, KS

250 N Water STE #300
Wichita, KS 67202

MB 'A' #2-35

Job Ticket: 62248

DST#: 5

ATTN: Rocky Milford

Test Start: 2015.05.24 @ 22:34:00

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: 64.00 sec/qt

Cushion Volume:

bbf

Water Loss: 5.99 in³

Gas Cushion Type:

Resistivity: 0.00 ohm.m

Gas Cushion Pressure:

psig

Salinity: 1600.00 ppm

Filter Cake: 2.00 inches

Recovery Information

Recovery Table

Length ft	Description	Volume bbf
10.00	OSM 100M (oil spots)	0.049

Total Length: 10.00 ft Total Volume: 0.049 bbf

Num Fluid Samples: 0

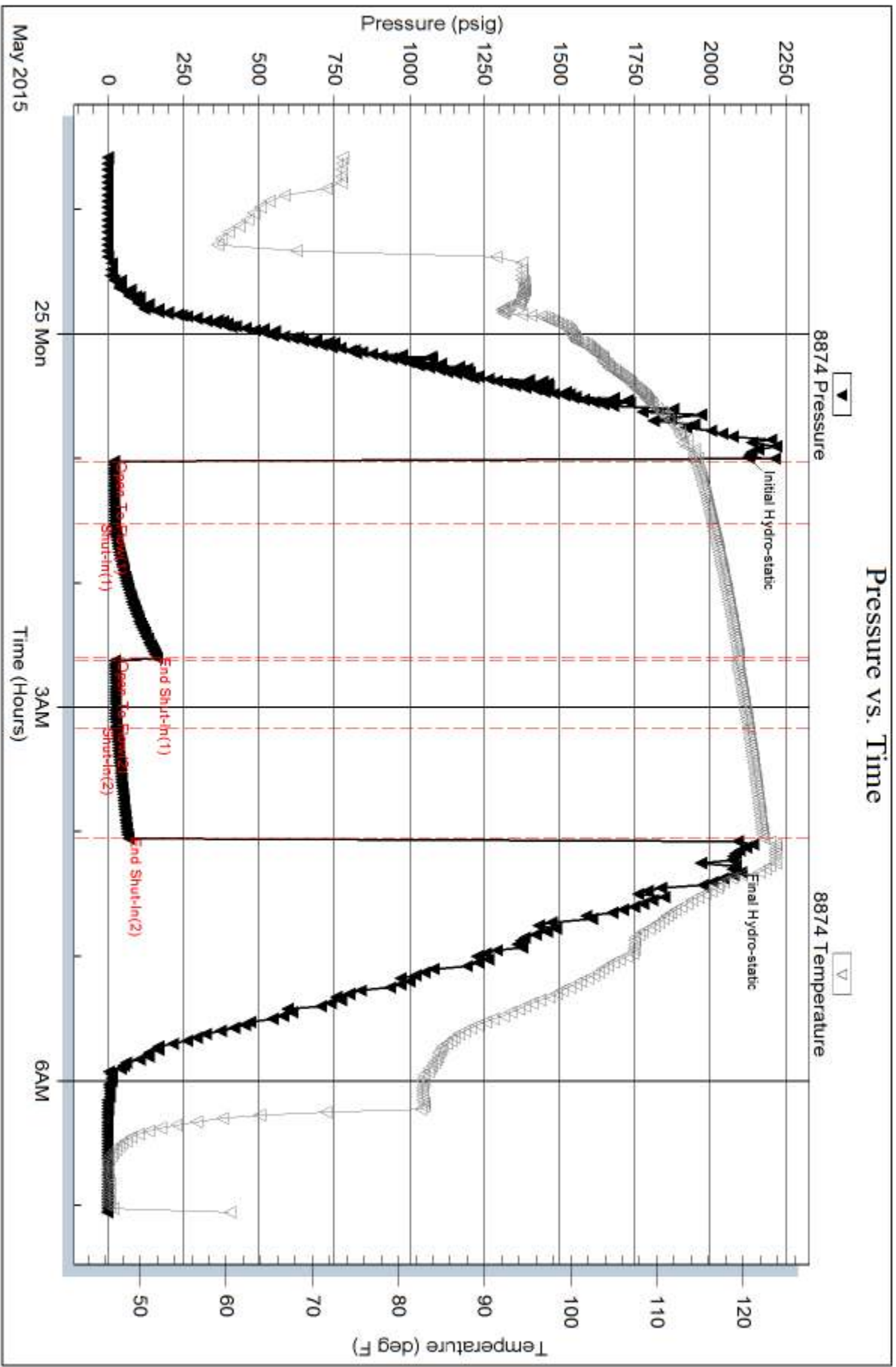
Num Gas Bombs: 0

Serial #:

Laboratory Name:

Laboratory Location:

Recovery Comments:

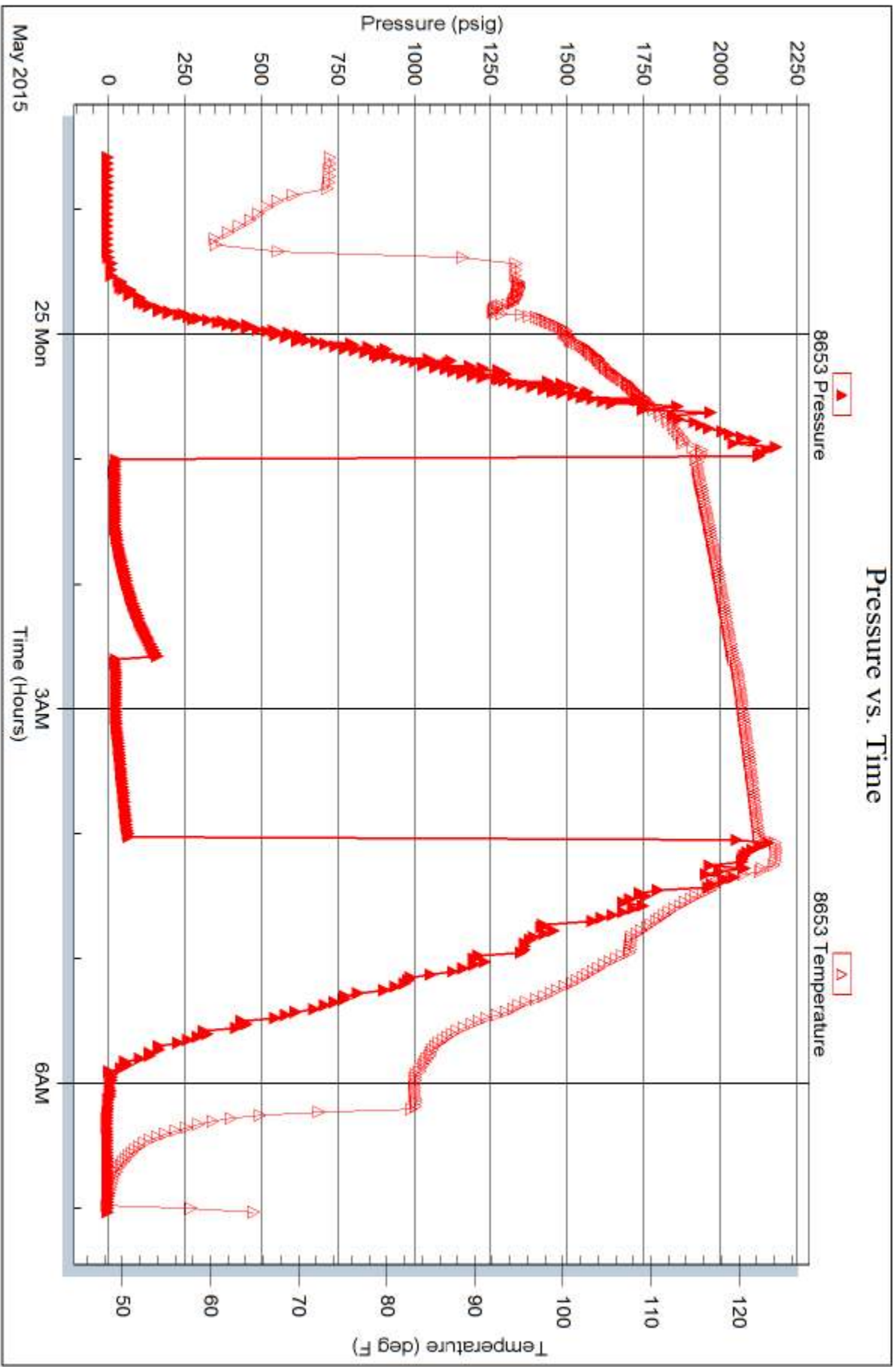


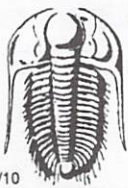
Serial #: 8653

Outside Murfin Drilling Co., Inc.

MB 'A' #2-35

DST Test Number: 5





TRILOBITE TESTING INC.

1515 Commerce Parkway • Hays, Kansas 67601

Test Ticket

NO. 62244

Well Name & No. MB 'A' #2-35 Test No. 1 Date 5-21-15
 Company Murfin Drilling Co., Inc. Elevation 2870 KB 2865 GL
 Address 250 N Water STE #3000 Wichita, KS 67202
 Co. Rep / Geo. Rocky Milford Rig Murfin #7
 Location: Sec. 35 Twp. 4S Rge. 31W Co. Rawlins State KS

Interval Tested 3846-3930 Zone Tested Leavenworth - LKC "B"
 Anchor Length 84' Drill Pipe Run 3581 Mud Wt. 9.1
 Top Packer Depth 3842 Drill Collars Run 249' Vis 55
 Bottom Packer Depth 3846 Wt. Pipe Run 0 WL 6.4
 Total Depth 3930 Chlorides 1,400 ppm System LCM 6#
 Blow Description IF - Surface Blow built to 4"
IST - No Return
FF - Surface Blow started at 5 min. Built to 4 1/4"
FST - No Return

Rec	Feet of	%gas	Spots	%oil	%water	%mud
62	OSM				100	
62	OSMw				50	50
62	OSWm				60	40
62	OSwm				80	20

Rec Total 248' BHT 119 Gravity — API RW .17 @ 67 °F Chlorides 50,000 ppm

(A) Initial Hydrostatic 1940 Test 1050 T-On Location 12:10 PM
 (B) First Initial Flow 19 Jars 250 T-Started 1:00 PM
 (C) First Final Flow 68 Safety Joint 75 T-Open 3:25 PM
 (D) Initial Shut-In 1214 Circ Sub — T-Pulled 7:25 PM
 (E) Second Initial Flow 76 Hourly Standby — T-Out 9:00 PM
 (F) Second Final Flow 132 Mileage 50 RT 50
 (G) Final Shut-In 1201 Sampler —
 (H) Final Hydrostatic 1854 Straddle —
 Shale Packer —
 Extra Packer —
 Extra Recorder —
 Day Standby —
 Accessibility —
 Sub Total 1425

Initial Open 30
 Initial Shut-In 60
 Final Flow 60
 Final Shut-In 90

Comments —
 Ruined Shale Packer —
 Ruined Packer —
 Extra Copies —
 Sub Total 0
 Total 1425
 MP/DST Disc't —

Approved By _____

Our Representative

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



TRILOBITE TESTING INC.

1515 Commerce Parkway • Hays, Kansas 67601

Test Ticket

NO. 62245

Well Name & No. MB 'A' #2-35 Test No. 2 Date 5/22/15
 Company Murfin Drilling Co., Inc Elevation 2870 KB 2865 GL
 Address 250 N Water STE #300 Wichita, KS 67202
 Co. Rep / Geo. Rocky Milford Rig Murfin #7
 Location: Sec. 35 Twp. 4S Rge. 31W Co. Rawlins State KS

Interval Tested 3947-3984 Zone Tested LKL "E-G"
 Anchor Length 37' Drill Pipe Run 3677' Mud Wt. 9.1
 Top Packer Depth 3943 Drill Collars Run 249 Vis 58
 Bottom Packer Depth 3947 Wt. Pipe Run 0 WL 6.8
 Total Depth 3984 Chlorides 20000 ppm System LCM 5#
 Blow Description IF - BoB in 6 min.
IST - BoB in 48 min.
FF - BoB in 18
FSI - Surface Return Built to 2" then died back to 1 3/4"

Rec	Feet of	%gas	%oil	%water	%mud
<u>392</u>	<u>CGO</u>	<u>35</u>	<u>65</u>		
<u>120</u>	<u>GOCM</u>	<u>10</u>	<u>30</u>		<u>60</u>
<u>850'</u>	<u>850' GIP</u>	<u>100</u>			
Rec	Feet of	%gas	%oil	%water	%mud
Rec	Feet of	%gas	%oil	%water	%mud

Rec Total 512' BHT 126 Gravity 37 API RW - @ - ° F Chlorides - ppm

(A) Initial Hydrostatic 1923 Test 1050 T-On Location 6:15 AM
 (B) First Initial Flow 94 Jars 250 T-Started 7:00 AM
 (C) First Final Flow 132 Safety Joint 75 T-Open 9:22 AM
 (D) Initial Shut-In 576 Circ Sub T-Pulled 1:22 PM
 (E) Second Initial Flow 153 Hourly Standby T-Out 4:06 PM
 (F) Second Final Flow 203 Mileage 50RT 50 Comments _____
 (G) Final Shut-In 340 Sampler _____
 (H) Final Hydrostatic 1862 Straddle _____
 Shale Packer _____
 Extra Packer _____
 Extra Recorder _____
 Day Standby _____
 Accessibility _____
 Sub Total 1425

Initial Open 30
 Initial Shut-In 60
 Final Flow 60
 Final Shut-In 90

Sub Total 1425 Total 1425 MP/DST Disc't _____

Approved By _____ Our Representative [Signature]
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TRILOBITE TESTING INC.

1515 Commerce Parkway • Hays, Kansas 67601

Test Ticket

NO. 62246

Well Name & No. MB 'A' #2-35 Test No. 3 Date 5-23-15
 Company Murrin Drilling Co, Inc. Elevation 2870 KB 2865 GL
 Address 2500 N Water STE #3000 Wichita, KS 67202
 Co. Rep / Geo. Rocky Milford Rig Murrin #7
 Location: Sec. 35 Twp. 4S Rge. 31W Co. Rawlins State KS

Interval Tested 3994-4065 Zone Tested LKC "H-S"
 Anchor Length 71 Drill Pipe Run 3737 Mud Wt. 9.1
 Top Packer Depth 3994 Drill Collars Run 249' Vis 58
 Bottom Packer Depth 3994 Wt. Pipe Run 0 WL 6.8
 Total Depth 4065 Chlorides 20000 ppm System LCM 5

Blow Description IF-BoB in 24 min.
ISI - Surface Return started at 1 min. Built to 1/2"
FF-BoB in 20 min.
FBI - Surface Return started at 1 min. Built to 1/2"

Rec	Feet of	%gas	%oil	%water	%mud
<u>130</u>	<u>CGO</u>	<u>25</u>	<u>75</u>		
<u>80</u>	<u>GOCM</u>	<u>10</u>	<u>30</u>	<u>60</u>	
<u>60</u>	<u>GMCO</u>	<u>20</u>	<u>80</u>	<u>40</u>	

Rec Total 270' BHT 121 Gravity 39 API RW - @ - °F Chlorides - ppm

(A) Initial Hydrostatic 1953 Test 1150 T-On Location 3:20 AM
 (B) First Initial Flow 29 Jars 250 T-Started 3:27 AM
 (C) First Final Flow 75 Safety Joint 75 T-Open 5:35 AM
 (D) Initial Shut-In 1272 Circ Sub T-Pulled 9:35 AM
 (E) Second Initial Flow 78 Hourly Standby T-Out 12:07 PM
 (F) Second Final Flow 125 Mileage 50 RT 50 Comments
 (G) Final Shut-In 1232 Sampler
 (H) Final Hydrostatic 1907 Straddle
 Shale Packer Ruined Shale Packer
 Extra Packer Ruined Packer
 Extra Recorder Extra Copies

Initial Open 30
 Initial Shut-In 60
 Final Flow 60
 Final Shut-In 90
 Sub Total 1525
 Total 1525
 MP/DST Disc't

Approved By _____ Our Representative [Signature]

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TRILOBITE TESTING INC.

1515 Commerce Parkway • Hays, Kansas 67601

Test Ticket

NO. 62247

Well Name & No. MB 'A' #2-35 Test No. 4 Date 5-23-15
 Company Murfin Drilling Co., Inc Elevation 2870 KB 2865 GL
 Address 250 N Water STE# 300 Wichita, KS 67202
 Co. Rep / Geo. Rocky Milford Rig Murfin #7
 Location: Sec. 35 Twp. 4S Rge. 3W Co. Rawlins State KS

Interval Tested 4059-4120 Zone Tested LKC "K-L"
 Anchor Length 61' Drill Pipe Run 3802 Mud Wt. 9.1
 Top Packer Depth 4055 Drill Collars Run 249' Vis 50
 Bottom Packer Depth 4059 Wt. Pipe Run 0 WL 68
 Total Depth 4120 Chlorides 2,000 ppm System LCM 4#
 Blow Description IF - 1/4" Blow built to 5"
ISI - NO Return
FF - Blow built to 9 1/2"
FSI - NO Return

Rec	Feet of	%gas	%oil	%water	%mud
<u>80</u>	<u>CGO</u>	<u>Yes</u>	<u>60</u>		
<u>40</u>	<u>GCM</u>	<u>100</u>	<u>40</u>	<u>50</u>	
		%gas	%oil	%water	%mud
		%gas	%oil	%water	%mud
<u>250</u>	<u>GIP</u>	<u>100</u>			

Rec Total 120 BHT 120 Gravity 33 API RW - @ - ° F Chlorides - ppm

(A) Initial Hydrostatic <u>1990</u>	<input checked="" type="checkbox"/> Test <u>1150</u>	T-On Location <u>9:30 PM</u>
(B) First Initial Flow <u>17</u>	<input checked="" type="checkbox"/> Jars <u>250</u>	T-Started <u>9:37 PM</u>
(C) First Final Flow <u>32</u>	<input checked="" type="checkbox"/> Safety Joint <u>75</u>	T-Open <u>11:28 PM</u>
(D) Initial Shut-In <u>1179</u>	<input type="checkbox"/> Circ Sub	T-Pulled <u>3:28 AM 5/24/15</u>
(E) Second Initial Flow <u>37</u>	<input type="checkbox"/> Hourly Standby	T-Out <u>5:58 AM</u>
(F) Second Final Flow <u>59</u>	<input checked="" type="checkbox"/> Mileage <u>50 RT 50</u>	Comments _____
(G) Final Shut-In <u>1171</u>	<input type="checkbox"/> Sampler	<input type="checkbox"/> Ruined Shale Packer _____
(H) Final Hydrostatic <u>1977</u>	<input type="checkbox"/> Straddle	<input type="checkbox"/> Ruined Packer _____
Initial Open <u>30</u>	<input type="checkbox"/> Shale Packer	<input type="checkbox"/> Extra Copies _____
Initial Shut-In <u>60</u>	<input type="checkbox"/> Extra Packer	Sub Total <u>0</u>
Final Flow <u>60</u>	<input type="checkbox"/> Extra Recorder	Total <u>1525</u>
Final Shut-In <u>90</u>	<input type="checkbox"/> Day Standby	MP/DST Disc't _____
	<input type="checkbox"/> Accessibility	
	Sub Total <u>1525</u>	

Approved By _____ Our Representative _____

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TRILOBITE TESTING INC.

1515 Commerce Parkway • Hays, Kansas 67601

Test Ticket

NO. 62248

Well Name & No. MB 'A' #2-35 Test No. 5 Date 5-25-15
 Company Murfin Drilling, Co., Inc. Elevation 2870 KB 2865 GL
 Address 250 N Water STE #300 Wichita, KS 67202
 Co. Rep / Geo. Rocky Milford Rig Murfin #7
 Location: Sec. 35 Twp. 4S Rge. 3W Co. Rawlins State KS

Interval Tested 4275-4342 Zone Tested Ft. Scott - Verdigris
 Anchor Length 67 Drill Pipe Run 4020' Mud Wt. 8.9
 Top Packer Depth 4271 Drill Collars Run 249' Vis 64
 Bottom Packer Depth 4275 Wt. Pipe Run 0 WL 6.0
 Total Depth 4342 Chlorides 1,600 ppm System LCM 8#
 Blow Description IF- 1/4" Blow built to 1/2", then died back to surface Blow
IST- NO Return
FF- NO Blow
FSL- NO Return

Rec	Feet of	%gas	%oil	%water	%mud
<u>10'</u>	<u>CSM</u>	<u>SPOTS</u>		<u>100%</u>	
Rec	Feet of	%gas	%oil	%water	%mud
Rec	Feet of	%gas	%oil	%water	%mud
Rec	Feet of	%gas	%oil	%water	%mud
Rec	Feet of	%gas	%oil	%water	%mud

Rec Total 10 BHT 122 Gravity — API RW — @ — °F Chlorides — ppm
 (A) Initial Hydrostatic 2126 Test 1150 T-On Location 10:30 PM 5/24
 (B) First Initial Flow 18 Jars 250 T-Started 10:34 PM
 (C) First Final Flow 20 Safety Joint 75 T-Open 1:02 AM
 (D) Initial Shut-In 161 Circ Sub _____ T-Pulled 4:02 AM
 (E) Second Initial Flow 21 Hourly Standby _____ T-Out 7:03 AM
 (F) Second Final Flow 26 Mileage 50 RT 50 Comments Loaded tools
 (G) Final Shut-In 65 Sampler _____ at end of test
 (H) Final Hydrostatic 2070 Straddle _____
 Ruined Shale Packer _____
 Shale Packer _____
 Ruined Packer _____
 Extra Packer _____
 Extra Recorder _____
 Day Standby _____
 Accessibility _____
 Sub Total 1525 MP/DST Disc't _____
 Sub Total 1525 Total 1525

Approved By _____ Our Representative [Signature]
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Robert L. Milford

PETROLEUM GEOLOGIST
Wichita, Kansas

GEOLOGISTS REPORT

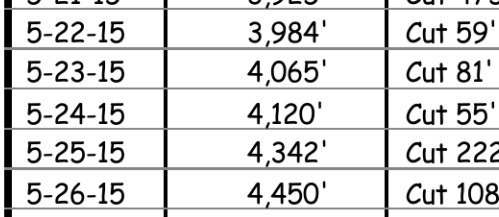
DRILLING TIME AND SAMPLE LOG

OPERATOR: **Murfin Drilling Company, Inc.**
 LEASE: **MB 'A' #2-35**
 LOC. SPOT: **NE NE NW**
 ELEVATIONS: **KB 2,870'**
GL 2,865'

LOC. FOOTAGE: **330' FNL 2,310' FWL**
 SEC: **35** TWP: **4S** RNG: **31W**
 COUNTY: **Rovilins** STATE: **Kansas**
 API: **15-153-21138-00-00**

CONTRACTOR: **Murfin Drilling Co., Inc.** RIG NO.: **7**
 DRILLING STARTED: **5-18-2015** COMPLETED: **5-25-2015**
 MUD DISPENSED: **3,200' MUD TYPE: Chemical**
 DRILLING TIME KEPT FROM: **3,570'** TO: **RTD**
 SAMPLES SAVED FROM: **3,570'** TO: **RTD**
 SAMPLES EXAMINED FROM: **3,570'** TO: **RTD**
 GEOLOGICAL SUPERVISION FROM: **3,570'** TO: **RTD**

FORMATION NAME	TOP	LOG DATUM	SAMPLE TOP DATUM
Stone Corral	2,610'	+260'	2,609' +261'
Lopeka	3,680'	-810'	3,680' -810'
Heebner	3,846'	-976'	3,846' -976'
Lansing	3,896'	-1026'	3,896' -1026'
Stark	4,060'	-1190'	4,060' -1190'
B/KC	4,116'	-1246'	4,116' -1246'
Pawnee	4,226'	-1356'	4,226' -1356'
Cherokee	4,310'	-1440'	4,310' -1440'
Mississippi	not on log		
Total Depth	4,450'	-1580'	4,450' -1580'

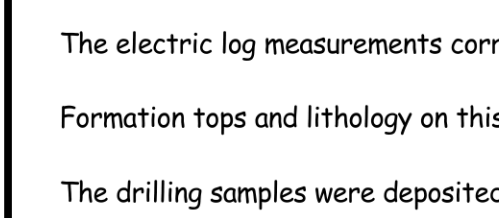


MEASUREMENTS FROM: **MEASUREMENTS FROM: MEASUREMENTS FROM:**

CASING RECORD
 Conductor
 Surface: **8.5/8" @ 221'**
 w/ 215 sacks cement
 Production: **5.1/2" @ 4446'**
 w/ 450 sacks cement

ELECTRICAL SURVEYS
 Pioneer Wireline
 Dual Induction Log
 Dual Compensated -

Porosity Log
 Microresistivity Log
 Borehole Compensated-Sonic Log



DATE: 7:00 AM DEPTH: REMARKS

DATE	7:00 AM DEPTH	REMARKS
5-18-15	0'	Spud @ 4:45 pm. Plug down @ 9:00 pm. Drilled out plug @ 5:00 am on 5-19-15 w/ PDC bit
5-19-15	415'	Cut 415' in last 24 hrs.
5-20-15	3,450'	Cut 3,035' in last 24 hrs; 21.75 hrs drlg. Bit trip @ 3540' (ran button bit).
5-21-15	3,925'	Cut 475' in last 24 hrs; 17 hrs drlg. DST #1 @ 3930', DST #2 @ 3984'.
5-22-15	3,984'	Cut 59' in last 24 hrs; 2.5 hrs drlg. DST #3 @ 4065'
5-23-15	4,065'	Cut 81' in last 24 hrs; 3.75 hrs drlg. DST #4 @ 4120'
5-24-15	4,120'	Cut 55' in last 24 hrs; 3 hrs drlg. DST #5 @ 4342'
5-25-15	4,342'	Cut 222' in last 24 hrs; 8.25 hrs drlg. RTD 4450' @ 11:17 am
5-26-15	4,450'	Cut 108' in last 24 hrs; 2 hrs drlg. Ran production casing.

Remarks: The electric log measurements correlate from even to 1' lower to the drilling measurements.

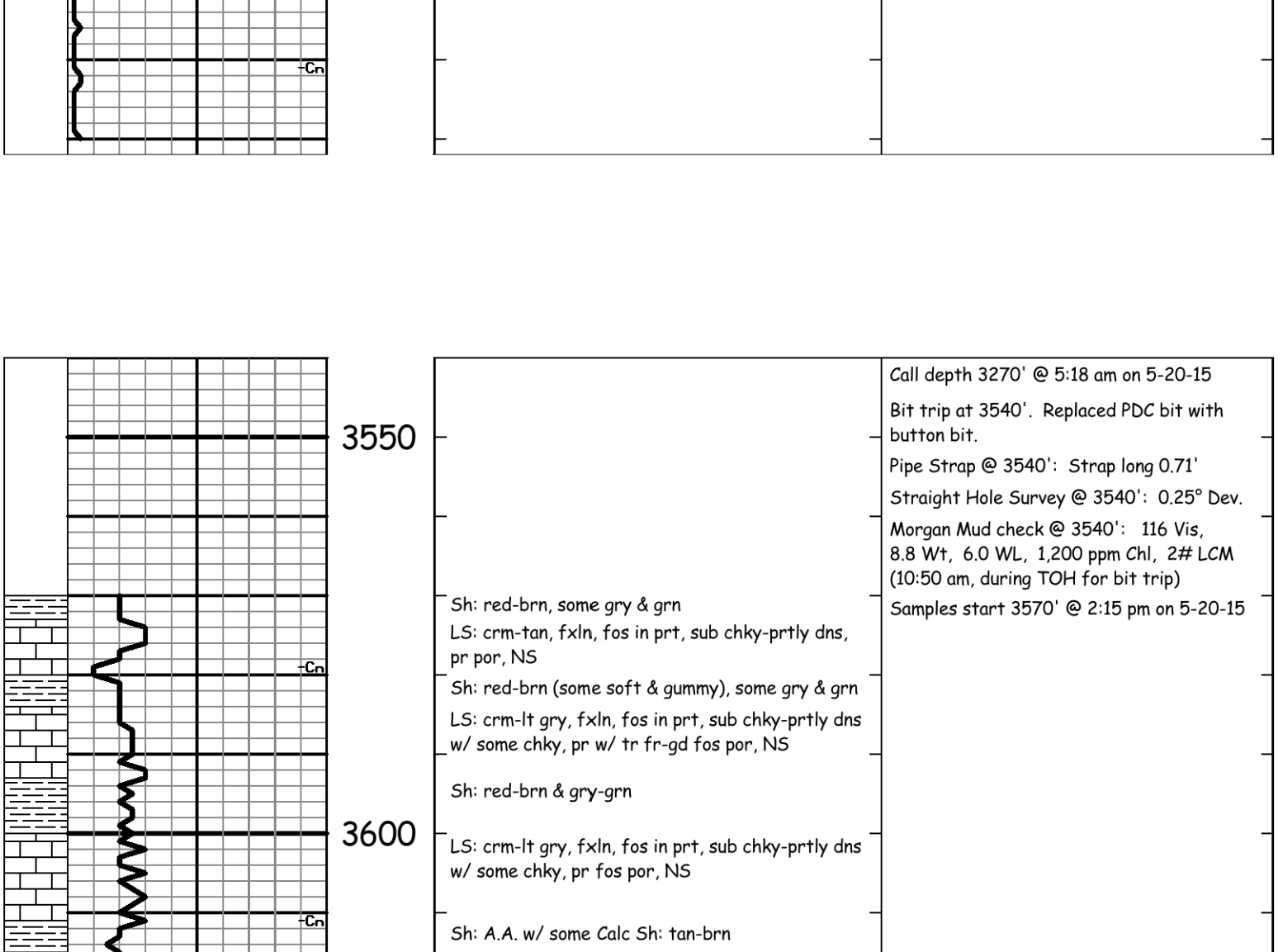
Formation tops and lithology on this report have been corrected to the electric log.

The drilling samples were deposited at the Kansas Geological Survey office in Wichita.

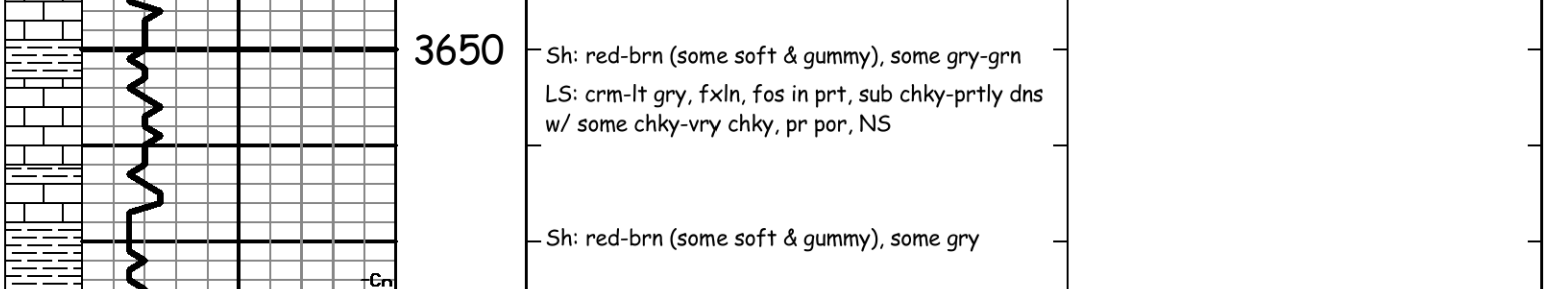
Respectfully submitted,
 Robert L. Milford

Drill Stem Test Charts

Drill Stem Test by Trilobite Testing, Inc.



LITH	DRILL TIME (MIN/FT)	DEPTH	SAMPLE DESCRIPTIONS	REMARKS
		2600		Stone Corral 2610' (+260) EL
		2650		B/Stone Corral 2644' (+226) EL



Call depth 3270' @ 5:18 am on 5-20-15
 Leavenworth - LKC 'B' zn
 IF: blow built to 4.25" ISI: no blow back
 FF: blow built to 4.25" FSI: no blow back
 Rec: 248' TOTAL FLUID:
 62' OSMW (spots 0, 100% M)
 62' OSMW (spots 0, 50% W, 50% M)
 62' OSMW (spots 0, 60% W, 40% M)
 62' OSMW (spots 0, 80% W, 20% M)
 Chl ppm: 50,000 DST: 1,400 Mud
 IFF: 19-68#/30" ISIP: 1214#/60"
 FFP: 76-132#/60" FSP: 1201#/90"
 Note: some minor plugging during IFF

Sh: red-brn, some gry & grn
 LS: crm-tan, fxln, fos in prt, sub chky-prtly dns, pr por, NS
 Sh: red-brn (some soft & gummy), some gry & grn
 LS: crm-lt gry, fxln, fos in prt, sub chky-prtly dns w/ some chky, pr w/ tr fr-gd fos por, NS

Sh: red-brn & gry-grn
 LS: crm-lt gry, fxln, fos in prt, sub chky-prtly dns w/ some chky, pr fos por, NS
 Sh: A.A. w/ some Calc Sh: tan-brn
 LS: wh-tan, fxln, fos in prt, sub chky-prtly dns w/ some chky-vry chky, pr por, NS
 Sh: red-brn (some soft & gummy), some gry-grn

LS: crm-tan, fxln, fos in prt, sub chky-prtly dns w/ some chky-vry chky, pr por, NS
 Sh: red-brn (some soft & gummy), some gry
 LS: crm-tan, fxln, sli fos, some shly (red-brn, mottled), sub chky-prtly dns w/ some chky-vry chky, pr por, NS
 LS: A.A. w/ incrs wh, chky-vry chky, pr por, NS

Sdy LS-Calc Sd: crm-lt gry, fn-vry fn grain sd, semi fri-brittle, pr w/ some fr intrgranular por, NS
 Sdy Sh: red-brn & Sh: red-brn (some soft & gummy)
 LS: wh-lt gry, fxln, sli fos, vry chky-prtly dns, pr por, NS
 LS: A.A. gd amnt of wh, chky-vry chky, pr por, NS

LS: wh-lt gry, fxln, fos in prt, vry chky-prtly dns, pr por, NS
 LS: A.A.
 Sh: Blk Carb (tr amnt)-drk gry
 LS: tan, fxln, sli fos, prtly dns, pr por, NS
 LS: fr-med gry, some red-brn & grn, w/ trace Sd: tan, fn-vry fn grain, sli calc, pr vis por, NS
 LS: wh-tan, fxln, fos in prt, sub chky-prtly dns w/ some chky-vry chky, pr por, NS
 Sh: red-brn, gry, grn

LS: wh-crm, fxln, fos in prt, sub chky-prtly dns w/ some chky, pr por, NS
 LS: wh-lt gry, fxln, fos in prt, sub chky-prtly dns w/ some chky, pr por, NS
 LS: crm-tan, fxln, sli fos, sub chky-prtly dns, pr por, NS
 LS: wh-crm, fxln, fos in prt, vry chky-prtly dns, pr w/ some fr fos por, NS
 LS: wh-crm, fxln, fos in prt, vry chky-prtly dns, pr w/ some fr fos por, NS

Sh: Blk Carb & drk gry (small amnts of each)
 LS: crm-tan, fxln, sli fos, sub chky-prtly dns, pr por, NS
 LS: pr-med-drk brn spdt-patchy stn, few pcs w/ SSFO, no odor
 Sh: red-brn, gry, grn
 Sh: red-brn (some soft & gummy), some sdy, some lt-med gry
 LS: wh-crm, fxln, fos-ool in prt, vry chky-prtly dns, pr-fr intrprtial & tr vug por, vry scat med-drk brn spdt-patchy stn, SSFO, fr-gd odor
 Sh: red-brn (some soft & gummy)
 Sh: red-brn (mstly soft & gummy), some gry & grn

Sh: red-brn, gry, grn
 LS: wh-crm, fxln, sli fos-ool, sub chky-prtly dns, pr w/ some fr intrprtial & tr vug por, vry scat med-drk brn patchy-sub sat stn, S-FSFO, no odor
 Sh: red-brn (some soft & gummy), some gry & grn
 LS: wh-crm, fxln, sli fos-ool, sub chky-prtly dns, pr w/ some fr intrprtial & tr vug por, vry scat med-drk brn patchy-sub sat stn, S-FSFO, no odor
 LS: crm, fxln, fos-ool in prt, sub chky-prtly dns, pr-fr intrprtial w/ tr gd vug por, vry scat lt-drk brn spdt-patchy stn, S-FSFO, no odor
 Sh: red-brn, gry, grn
 LS: wh-lt gry, fxln, sli fos-ool, chty (crm-tan, some transl), sli pyr, sub chky-prtly dns w/ some chky-vry chky, pr-fr intrprtial w/ some fr-gd vug por, scat lt-drk brn & tr blk patchy-sub sat w/ tr sat stn, S-FSFO, some w/ sli odor on brk

LS: wh-crm, fxln, sli fos-ool, sub chky-prtly dns, pr w/ some fr intrprtial & vug por, scat lt-drk brn & tr blk spdt-sub sat w/ tr sat stn, S-FSFO, no odor
 LS: crm, fxln, sli fos-ool, sub chky-prtly dns, pr-fr intrprtial w/ some vug por, scat lt-drk brn patchy-sub sat w/ some sat stn, S-FSFO, no odor
 LS: wh-crm, fxln, sli fos, sli chty (crm), sli pyr, vry chky-prtly dns, pr por, NS
 Sh: Blk Carb & drk gry
 LS: tan, fxln, sli fos, prtly dns, pr por, NS
 Sh: red-brn, gry, grn

LS: wh-tan, fxln, sli fos, sli chty (crm-tan), sli pyr, sub chky-prtly dns w/ some chky, pr-fr intrprtial w/ tr vug por, scat lt-drk brn patchy-sub sat stn, S-FSFO, no odor
 LS: crm-tan, fxln, fos, sub chky-prtly dns, pr por, NS
 Sh: red-brn (some soft & gummy), gry & grn
 Sh: A.A.
 LS: crm-tan, fxln, fos in prt, chty, sub chky-prtly dns, pr-fr fos w/ some gd fos-vug por, scat lt-med brn patchy & some sat stn, S-FSFO, no odor
 Sh: lt gry (soft & gummy)
 Sh: red-brn, gry, grn
 Sh: red-brn, some gry & grn

LS: crm-lt gry, fxln, ool (small)-fos in prt, sub chky-prtly dns, pr-fr intrprtial w/ tr small vug por, scat lt-drk brn patchy-sub sat stn, S-FSFO, no odor
 Sh: red-brn, gry, grn
 LS: crm-lt gry, fxln, sli fos, sub chky-prtly dns, pr por, NS
 Calc Sh: red-brn & grn
 LS: A.A. w/ some sli shly, pr por, NS
 Sh: red-brn & gry-grn
 Sh: red-brn (some soft & gummy) & lt gry (some soft & gummy)-med gry, some grn & some Sdy Sh: red-brn, calc
 LS: crm-lt gry, fxln, fos in prt, sub chky-prtly dns, pr por, NS
 LS: A.A.
 Sh: red-brn (some soft & gummy) & gry-grn, w/ some lt gry (soft & gummy)
 Sh: red-brn (some soft & gummy), some gry & grn

LS: crm-tan, fxln, sli fos, some shly (red-brn, mottled), sub chky-prtly dns, pr por, NS
 Sh: red-brn (some soft & gummy), some gry & grn
 Sh: red-brn (some soft & gummy), some gry & Calc
 Sh: lt gry
 Sh: red-brn (some soft & gummy) & lt-drk gry w/ some grn
 LS: wh-crm, fxln, fos-ool in prt, sub chky-prtly dns w/ some chky-vry chky, mstly pr por w/ tr pin-point & cpl pcs small vug por, about 8 pcs w/ lt-drk brn spdt-patchy stn, NSFO, no odor (see Remarks)
 Calc Sh: med-gry w/ some Sh: gry & red-brn
 Sh: gry-grn w/ some red-brn
 Sh: Blk Carb

LS: wh-tan, fxln, fos-ool (small) in prt, sub chky-prtly dns w/ some chky-vry chky, pr intrprtial por, NS
 LS: gry, fxln, sli shly, gritty-prtly dns, pr por, NS
 Sh: mstly gry, some calc
 Sh: Blk Carb
 Sh: lt gry (some soft & gummy), grn & red-brn
 LS: crm-tan, fxln, fos-ool in prt, sub chky-prtly dns, pr intrprtial w/ some small vug por, scat lt-drk brn spdt-sub sat w/ tr sat stn, S-FSFO, no odor
 Sh: med-drk gry w/ some red-brn & grn
 LS: crm-tan, fxln, fos in prt, sub chky-prtly dns w/ some chky, pr w/ tr small vug por, vry scat lt-drk brn spdt-sub sat stn, S-FSFO, no odor
 LS: crm-tan, fxln, sli fos, sub chky-prtly dns, pr por, tr-stn A.A. (may be coavings), NSFO, no odor
 Sh: red-brn, gry, grn, w/ small amnt of Sd: lt gry, fn grain, calc, shly, semi fri-semi brittle, pr vis por, NS
 Sh: A.A. w/ some Sdy Sh: red-brn, calc, and small amnt of Sd: A.A., pr vis por, NS
 Sh: red-brn, gry, grn, brn w/ small amnt Sd: A.A. & Sd: crm-lt gry, fn-vry fn grain, sli glauc, semi fri-semi brittle, pr vis por, NS
 Sh: red-brn, gry, grn, yell w/ small amnt maroon, w/ some Sdy Sh: red-brn (sli calc) & grn, and small amnt of Sd: crm-lt gry, fn-vry fn grain, sli glauc, semi fri-semi brittle, pr vis por, NS
 Cht: wh-crm, some yell, fresh & weathered, pin point & vug por mstly in weathered cht, NS
 Cht: A.A., NS

DST #1 3846'-3930'
 Leavenworth - LKC 'B' zn
 IF: blow built to 4" ISI: no blow back
 FF: blow built to 4.25" FSI: no blow back
 Rec: 248' TOTAL FLUID:
 62' OSMW (spots 0, 100% M)
 62' OSMW (spots 0, 50% W, 50% M)
 62' OSMW (spots 0, 60% W, 40% M)
 62' OSMW (spots 0, 80% W, 20% M)
 Chl ppm: 50,000 DST: 1,400 Mud
 IFF: 19-68#/30" ISIP: 1214#/60"
 FFP: 76-132#/60" FSP: 1201#/90"
 Note: some minor plugging during IFF

Sh: red-brn, gry, grn
 LS: crm-tan, fxln, fos in prt, sub chky-prtly dns w/ some chky, pr por, NS
 Sh: red-brn (some soft & gummy), some gry-grn
 LS: crm-lt gry, fxln, fos in prt, sub chky-prtly dns w/ some chky, pr w/ some fr fos por, tr med-drk brn & blk spdt-patchy stn, S-FSFO, no odor
 Sh: red-brn (mstly soft & gummy), some gry & grn
 LS: wh-crm, fxln, fos-ool in prt, vry chky-prtly dns, pr-fr intrprtial & tr vug por, vry scat med-drk brn spdt-patchy stn, SSFO, fr-gd odor
 Sh: red-brn (some soft & gummy)
 Sh: red-brn (mstly soft & gummy), some gry & grn
 LS: wh-crm, fxln, sli fos-ool, sub chky-prtly dns, pr w/ some fr intrprtial & tr vug por, vry scat med-drk brn patchy-sub sat stn, S-FSFO, no odor
 Sh: red-brn (some soft & gummy), some gry & grn
 LS: wh-crm, fxln, sli fos-ool, sub chky-prtly dns, pr w/ some fr intrprtial & vug por, scat lt-drk brn & tr blk spdt-sub sat w/ tr sat stn, S-FSFO, no odor
 LS: crm, fxln, sli fos-ool, sub chky-prtly dns, pr-fr intrprtial w/ some vug por, scat lt-drk brn patchy-sub sat w/ some sat stn, S-FSFO, no odor
 LS: wh-crm, fxln, sli fos, sli chty (crm), sli pyr, vry chky-prtly dns, pr por, NS
 Sh: Blk Carb & drk gry
 LS: tan, fxln, sli fos, prtly dns, pr por, NS
 Sh: red-brn, gry, grn

DST #2 3947'-3984' LKC 'E'-'G' zns
 IF: BOB in 6" ISI: BOB in 43"
 FF: BOB in 18" FSI: blow built to 2"
 Rec: 850' GIP & 512' TOTAL FLUID:
 130' GCO (25% G, 30% O, 60% M)
 120' GOCM (10% G, 30% O, 60% M)
 Oil Gravity 37° API
 IFF: 94-132#/30" ISIP: 576#/60"
 FFP: 153-203#/60" FSP: 340#/90"
 Morgan Mud check @ 3984': 58 Vis, 9.1 Wt, 6.8 WL, 2,000 ppm Chl, 5# LCM (11:30 am, while taking DST #2)
 Removed junk basket above bit @ 3984'.

Sh: red-brn, gry, grn
 LS: crm-tan, fxln, fos in prt, chty, sub chky-prtly dns, pr-fr fos w/ some gd fos-vug por, scat lt-med brn patchy & some sat stn, S-FSFO, no odor
 Sh: lt gry (soft & gummy)
 Sh: red-brn, gry, grn
 Sh: red-brn, some gry & grn
 LS: crm-lt gry, fxln, ool (small)-fos in prt, sub chky-prtly dns, pr-fr intrprtial w/ tr small vug por, scat lt-drk brn patchy-sub sat stn, S-FSFO, no odor
 Sh: red-brn, gry, grn
 LS: crm-lt gry, fxln, sli fos, sub chky-prtly dns, pr por, NS
 Calc Sh: red-brn & grn
 LS: A.A. w/ some sli shly, pr por, NS
 Sh: red-brn & gry-grn
 Sh: red-brn (some soft & gummy) & lt gry (some soft & gummy)-med gry, some grn & some Sdy Sh: red-brn, calc
 LS: crm-lt gry, fxln, fos in prt, sub chky-prtly dns, pr por, NS
 LS: A.A.
 Sh: red-brn (some soft & gummy) & gry-grn, w/ some lt gry (soft & gummy)
 Sh: red-brn (some soft & gummy), some gry & grn

LS: crm-tan, fxln, sli fos, some shly (red-brn, mottled), sub chky-prtly dns, pr por, NS
 Sh: red-brn (some soft & gummy), some gry & grn
 Sh: red-brn (some soft & gummy), some gry & Calc
 Sh: lt gry
 Sh: red-brn (some soft & gummy) & lt-drk gry w/ some grn
 LS: wh-crm, fxln, fos-ool in prt, sub chky-prtly dns w/ some chky-vry chky, mstly pr por w/ tr pin-point & cpl pcs small vug por, about 8 pcs w/ lt-drk brn spdt-patchy stn, NSFO, no odor (see Remarks)
 Calc Sh: med-gry w/ some Sh: gry & red-brn
 Sh: gry-grn w/ some red-brn
 Sh: Blk Carb

LS: wh-tan, fxln, fos-ool (small) in prt, sub chky-prtly dns w/ some chky-vry chky, pr intrprtial por, NS
 LS: gry, fxln, sli shly, gritty-prtly dns, pr por, NS
 Sh: mstly gry, some calc
 Sh: Blk Carb
 Sh: lt gry (some soft & gummy), grn & red-brn
 LS: crm-tan, fxln, fos-ool in prt, sub chky-prtly dns, pr intrprtial w/ some small vug por, scat lt-drk brn spdt-sub sat w/ tr sat stn, S-FSFO, no odor
 Sh: med-drk gry w/ some red-brn & grn
 LS: crm-tan, fxln, fos in prt, sub chky-prtly dns w/ some chky, pr w/ tr small vug por, vry scat lt-drk brn spdt-sub sat stn, S-FSFO, no odor
 LS: crm-tan, fxln, sli fos, sub chky-prtly dns, pr por, tr-stn A.A. (may be coavings), NSFO, no odor
 Sh: red-brn, gry, grn, w/ small amnt of Sd: lt gry, fn grain, calc, shly, semi fri-semi brittle, pr vis por, NS
 Sh: A.A. w/ some Sdy Sh: red-brn, calc, and small amnt of Sd: A.A., pr vis por, NS
 Sh: red-brn, gry, grn, brn w/ small amnt Sd: A.A. & Sd: crm-lt gry, fn-vry fn grain, sli glauc, semi fri-semi brittle, pr vis por, NS
 Sh: red-brn, gry, grn, yell w/ small amnt maroon, w/ some Sdy Sh: red-brn (sli calc) & grn, and small amnt of Sd: crm-lt gry, fn-vry fn grain, sli glauc, semi fri-semi brittle, pr vis por, NS
 Cht: wh-crm, some yell, fresh & weathered, pin point & vug por mstly in weathered cht, NS
 Cht: A.A., NS

DST #3 3994-4065' LKC 'H'-'J' zns
 IF: BOB in 24" ISI: BOB in 43"
 FF: BOB in 20" FSI: blow built to 0.5"
 Rec: 250' GIP & 120' TOTAL FLUID:
 80' GCO (25% G, 30% O, 60% M)
 60' GOCM (20% G, 40% O, 40% M)
 Oil Gravity 37° API
 IFF: 29-75#/30" ISIP: 1272#/60"
 FFP: 78-125#/60" FSP: 1232#/90"

Sh: red-brn, gry, grn
 LS: crm-tan, fxln, fos in prt, chty, sub chky-prtly dns, pr-fr fos w/ some gd fos-vug por, scat lt-med brn patchy & some sat stn, S-FSFO, no odor
 Sh: lt gry (soft & gummy)
 Sh: red-brn, gry, grn
 Sh: red-brn, some gry & grn
 LS: crm-lt gry, fxln, ool (small)-fos in prt, sub chky-prtly dns, pr-fr intrprtial w/ tr small vug por, scat lt-drk brn patchy-sub sat stn, S-FSFO, no odor
 Sh: red-brn, gry, grn
 LS: crm-lt gry, fxln, sli fos, sub chky-prtly dns, pr por, NS
 Calc Sh: red-brn & grn
 LS: A.A. w/ some sli shly, pr por, NS
 Sh: red-brn & gry-grn
 Sh: red-brn (some soft & gummy) & lt gry (some soft & gummy)-med gry, some grn & some Sdy Sh: red-brn, calc
 LS: crm-lt gry, fxln, fos in prt, sub chky-prtly dns, pr por, NS
 LS: A.A.
 Sh: red-brn (some soft & gummy) & gry-grn, w/ some lt gry (soft & gummy)
 Sh: red-brn (some soft & gummy), some gry & grn

LS: crm-tan, fxln, sli fos, some shly (red-brn, mottled), sub chky-prtly dns, pr por, NS
 Sh: red-brn (some soft & gummy), some gry & grn
 Sh: red-brn (some soft & gummy), some gry & Calc
 Sh: lt gry
 Sh: red-brn (some soft & gummy) & lt-drk gry w/ some grn
 LS: wh-crm, fxln, fos-ool in prt, sub chky-prtly dns w/ some chky-vry chky, mstly pr por w/ tr pin-point & cpl pcs small vug por, about 8 pcs w/ lt-drk brn spdt-patchy stn, NSFO, no odor (see Remarks)
 Calc Sh: med-gry w/ some Sh: gry & red-brn
 Sh: gry-grn w/ some red-brn
 Sh: Blk Carb

LS: wh-tan, fxln, fos-ool (small) in prt, sub chky-prtly dns w/ some chky-vry chky, pr intrprtial por, NS
 LS: gry, fxln, sli shly, gritty-prtly dns, pr por, NS
 Sh: mstly gry, some calc
 Sh: Blk Carb
 Sh: lt gry (some soft & gummy), grn & red-brn
 LS: crm-tan, fxln, fos-ool in prt, sub chky-prtly dns, pr intrprtial w/ some small vug por, scat lt-drk brn spdt-sub sat w/ tr sat stn, S-FSFO, no odor
 Sh: med-drk gry w/ some red-brn & grn
 LS: crm-tan, fxln, fos in prt, sub chky-prtly dns w/ some chky, pr w/ tr small vug por, vry scat lt-drk brn spdt-sub sat stn, S-FSFO, no odor
 LS: crm-tan, fxln, sli fos, sub chky-prtly dns, pr por, tr-stn A.A. (may be coavings), NSFO, no odor
 Sh: red-brn, gry, grn, w/ small amnt of Sd: lt gry, fn grain, calc, shly, semi fri-semi brittle, pr vis por, NS
 Sh: A.A. w/ some Sdy Sh: red-brn, calc, and small amnt of Sd: A.A., pr vis por, NS
 Sh: red-brn, gry, grn, brn w/ small amnt Sd: A.A. & Sd: crm-lt gry, fn-vry fn grain, sli glauc, semi fri-semi brittle, pr vis por, NS
 Sh: red-brn, gry, grn, yell w/ small amnt maroon, w/ some Sdy Sh: red-brn (sli calc) & grn, and small amnt of Sd: crm-lt gry, fn-vry fn grain, sli glauc, semi fri-semi brittle, pr vis por, NS
 Cht: wh-crm, some yell, fresh & weathered, pin point & vug por mstly in weathered cht, NS
 Cht: A.A., NS

DST #4 4059'-4120' Lans 'K'-'L' zns
 IF: blow built to 5" ISI: no blow back
 FF: blow built to 9.5" FSI: no blow back
 Rec: 250' GIP & 120' TOTAL FLUID:
 80' GCO (25% G, 30% O, 60% M)
 60' GOCM (10% G, 40% O, 40% M)
 Oil Gravity 37° API
 IFF: 17-32#/30" ISIP: 1179#/60"
 FFP: 37-59#/60" FSP: 1171#/90"

Sh: red-brn, gry, grn
 LS: crm-lt gry, fxln, ool (small)-fos in prt, sub chky-prtly dns, pr-fr intrprtial w/ tr small vug por, scat lt-drk brn patchy-sub sat stn, S-FSFO, no odor
 Sh: red-brn, gry, grn
 LS: crm-lt gry, fxln, sli fos, sub chky-prtly dns, pr por, NS
 Calc Sh: red-brn & grn
 LS: A.A. w/ some sli shly, pr por, NS
 Sh: red-brn & gry-grn
 Sh: red-brn (some soft & gummy) & lt gry (some soft & gummy)-med gry, some grn & some Sdy Sh: red-brn, calc
 LS: crm-lt gry, fxln, fos in prt, sub chky-prtly dns, pr por, NS
 LS: A.A.
 Sh: red-brn (some soft & gummy) & gry-grn, w/ some lt gry (soft & gummy)
 Sh: red-brn (some soft & gummy), some gry & grn

LS: crm-tan, fxln, sli fos, some shly (red-brn, mottled), sub chky-prtly dns, pr por, NS
 Sh: red-brn (some soft & gummy), some gry & grn
 Sh: red-brn (some soft & gummy), some gry & Calc
 Sh: lt gry
 Sh: red-brn (some soft & gummy) & lt-drk gry w/ some grn
 LS: wh-crm, fxln, fos-ool in prt, sub chky-prtly dns w/ some chky-vry chky, mstly pr por w/ tr pin-point & cpl pcs small vug por, about 8 pcs w/ lt-drk brn spdt-patchy stn, NSFO, no odor (see Remarks)
 Calc Sh: med-gry w/ some Sh: gry & red-brn
 Sh: gry-grn w/ some red-brn
 Sh: Blk Carb

LS: wh-tan, fxln, fos-ool (small) in prt, sub chky-prtly dns w/ some chky-vry chky, pr intrprtial por, NS
 LS: gry, fxln, sli shly, gritty-prtly dns, pr por, NS
 Sh: mstly gry, some calc
 Sh: Blk Carb
 Sh: lt gry (some soft & gummy), grn & red-brn
 LS: crm-tan, fxln, fos-ool in prt, sub chky-prtly dns, pr intrprtial w/ some small vug por, scat lt-drk brn spdt-sub sat w/ tr sat stn, S-FSFO, no odor
 Sh: med-drk gry w/ some red-brn & grn
 LS: crm-tan, fxln, fos in prt, sub chky-prtly dns w/ some chky, pr w/ tr small vug por, vry scat lt-drk brn spdt-sub sat stn, S-FSFO, no odor
 LS: crm-tan, fxln, sli fos, sub chky-prtly dns, pr por, tr-stn A.A. (may be coavings), NSFO, no odor
 Sh: red-brn, gry, grn, w/ small amnt of Sd: lt gry, fn grain, calc, shly, semi fri-semi brittle, pr vis por, NS
 Sh: A.A