Confidentiality Requested:
☑ Yes ☐ No

KANSAS CORPORATION COMMISSION
OIL & GAS CONSERVATION DIVISION

1213978

Form ACO-1
August 2013
Form must be Typed
Form must be Signed
All blanks must be Filled

WELL COMPLETION FORM
WELL HISTORY - DESCRIPTION OF WELL & LEASE

OPERATOR: License # 30606
Name: Murfin Drilling Co., Inc.
Address 1: 250 N WATER STE 300
Address 2:
City: WICHITA State: KS Zip: 67202 + 1216
Contact Person: Leon Rodak
Phone: (316) 267-3241
CONTRACTOR: License # 30606
Name: Murfin Drilling Co., Inc.
Wellsite Geologist: Charles Schmaltz
Purchaser:

Designate Type of Completion:

☑ New Well ☐ Re-Entry ☐ Workover

☐ Oil ☐ WSW ☐ SWD ☐ SIOW
☐ Gas ☑ D&A ☐ ENHR ☐ SIGW
☐ OG ☐ GSW ☐ Temp. Abd.
☐ 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 ENHR ☐ Conv. to SWD
☐ Plug Back ☐ Conv. to GSW ☐ Conv. to Producer

☐ Commingled Permit #:
☐ Dual Completion Permit #:
☐ SWD Permit #:
☐ ENHR Permit #:
☐ GSW Permit #:

03/21/2014	03/28/2014	03/29/2014
Spud Date or Recompletion Date	Date Reached TD	Completion Date or Recompletion Date

API No. 15 - 15-179-21357-00-00
Spot Description:
S2 - N2 - SW - NW Sec. 33 Twp. 9 S. R. 27 ☐ East ☑ West
1850 Feet from ☑ North / ☐ South Line of Section
660 Feet from ☐ East / ☑ West Line of Section

Footages Calculated from Nearest Outside Section Corner:
☐ NE ☑ NW ☐ SE ☐ SW

GPS Location: Lat: *(e.g. xx.xxxxx)* , Long: *(e.g. -xxx.xxxxx)*
Datum: ☐ NAD27 ☐ NAD83 ☐ WGS84
County: Sheridan
Lease Name: Keith Well #: 1-33
Field Name:
Producing Formation: na
Elevation: Ground: 2697 Kelly Bushing: 2702
Total Vertical Depth: 4200 Plug Back Total Depth:
Amount of Surface Pipe Set and Cemented at: 262 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: 2000 ppm Fluid volume: 1500 bbls
Dewatering method used: Evaporated

Location of fluid disposal if hauled offsite:

Operator Name:
Lease Name: License #:
Quarter Sec. Twp. S. R. ☐ East ☐ West
County: Permit #:

AFFIDAVIT

I am the affiant and I hereby certify that all requirements of the statutes, rules and regulations promulgated to regulate the oil and gas industry have been fully complied with and the statements herein are complete and correct to the best of my knowledge.

Submitted Electronically

KCC Office Use ONLY

☑ **Confidentiality Requested**
Date: 07/11/2014
☑ **Confidential Release Date:** 07/10/2016
☑ **Wireline Log Received**
☑ **Geologist Report Received**
☐ **UIC Distribution**
ALT ☐ I ☑ II ☐ III **Approved by:** NAOMI JAMES **Date:** 07/14/2014

[redacted] 1213978

Operator Name: Murfin Drilling Co., Inc. Lease Name: Keith Well #: 1-33

Sec. 33 Twp. 9 S. R. 27 ☐ East ☑ West County: Sheridan

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 ☑ Yes ☐ No
(Attach Additional Sheets)

Samples Sent to Geological Survey ☑ Yes ☐ No

Cores Taken ☐ Yes ☑ No

Electric Log Run ☑ Yes ☐ No

List All E. Logs Run:

Attached

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

Name Top Datum

see attachment

CASING RECORD ☑ New ☐ Used

Report all strings set-conductor, surface, intermediate, production, etc.

Purpose of String	Size Hole Drilled	Size Casing Set (In O.D.)	Weight Lbs. / Ft.	Setting Depth	Type of Cement	# Sacks Used	Type and Percent Additives
Surface	12.2500	8.6250	23	262	Common	220	3% CC

ADDITIONAL CEMENTING / SQUEEZE RECORD

Purpose:	Depth Top Bottom	Type of Cement	# Sacks Used	Type and Percent Additives
___ Perforate				
___ Protect Casing	-			
___ Plug Back TD				
___ Plug Off Zone	-			

Did you perform a hydraulic fracturing treatment on this well? ☐ Yes ☑ No *(If No, skip questions 2 and 3)*

Does the volume of the total base fluid of the hydraulic fracturing treatment exceed 350,000 gallons? ☐ Yes ☐ No *(If No, skip question 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)*

Shots Per Foot	PERFORATION RECORD - Bridge Plugs Set/Type Specify Footage of Each Interval Perforated	Acid, Fracture, Shot, Cement Squeeze Record *(Amount and Kind of Material Used)*	Depth

TUBING RECORD: Size: Set At: Packer At: Liner Run: ☐ Yes ☐ No

Date of First, Resumed Production, SWD or ENHR. Producing Method: ☐ Flowing ☐ Pumping ☐ Gas Lift ☐ Other *(Explain)* _____

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

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

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

PRODUCTION INTERVAL:

Form	ACO1 - Well Completion
Operator	Murfin Drilling Co., Inc.
Well Name	Keith 1-33
Doc ID	1213978

All Electric Logs Run

Dual Induction
Dual Compensated
Microresistivity
Borehole Compensated

Form	ACO1 - Well Completion
Operator	Murfin Drilling Co., Inc.
Well Name	Keith 1-33
Doc ID	1213978

Casing

Purpose Of String	Size Hole Drilled	Size Casing Set	Weight	Setting Depth	Type Of Cement	Number of Sacks Used	Type and Percent Additives
Surface	12.2500	8.6250	23	262	Common	220	3% CC

Acct Prod-ct

ALLIED
OIL & GAS SERVICES, LLC

PO Box 93999
Southlake, TX 76092

Voice: (817) 546-7282
Fax: (817) 246-3361

INVOICE

Invoice Number: 142048
Invoice Date: Mar 21, 2014
Page: 1

Bill To:

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

Customer ID	Field Ticket #	Payment Terms	
Murfin	62521	Net 30 Days	
Job Location	**Camp Location**	**Service Date**	**Due Date**
KS1-01	Oakley	Mar 21, 2014	4/20/14

Quantity	Item	Description	Unit Price	Amount
1.00	WELL NAME	Keith #1-33		
220.00	CEMENT MATERIALS	Class A Common	17.90	3,938.00
8.00	CEMENT MATERIALS	Chloride	64.00	512.00
231.00	CEMENT SERVICE	Cubic Feet Charge	2.48	572.88
372.75	CEMENT SERVICE	Ton Mileage Charge	2.60	969.15
1.00	CEMENT SERVICE	Surface	1,512.25	1,512.25
35.00	CEMENT SERVICE	Pump Truck Mileage	7.70	269.50
1.00	CEMENT SERVICE	Swedge Manifold Rental	275.00	275.00
35.00	CEMENT SERVICE	Light Vehicle Mileage	4.40	154.00
1.00	CEMENT SUPERVISOR	LaRene Wentz		
1.00	CEMENT SUPERVISOR	Andrew Forslund		

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

$ 2,870.97

ONLY IF PAID ON OR BEFORE

Apr 15, 2014

Subtotal	8,202.78
Sales Tax	362.68
Total Invoice Amount	8,565.46
Payment/Credit Applied	
TOTAL	**8,565.46**

2870.97

5694.49

OK MJ 5/2

ALLIED OIL & GAS SERVICES, LLC 062521

Federal Tax I.D. # 20-8651475

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

SERVICE POINT: Oakley, KS

DATE	SEC.	TWP.	RANGE	CALLED OUT	ON LOCATION	JOB START	JOB FINISH
3-21-14	33	9	27		6:00 pm	8:30 pm	9:00 pm

LEASE	WELL #	LOCATION	COUNTY	STATE
Keith	1-33	Park, S/, 1/2 E, 4 N, E into	Sheridan	KS

OLD OR (NEW) (Circle one)

CONTRACTOR Murfin 24
OWNER Same
TYPE OF JOB Surface
HOLE SIZE 12 1/4" T.D. 262'
CASING SIZE 8 5/8" DEPTH 262'
TUBING SIZE DEPTH
DRILL PIPE DEPTH
TOOL DEPTH
PRES. MAX MINIMUM
MEAS. LINE SHOE JOINT
CEMENT LEFT IN CSG. 15'
PERFS.
DISPLACEMENT 15.81 bbl

CEMENT
AMOUNT ORDERED ~~180~~ 220 sks com 3%cc
Drilled deeper, ordered more cement.

		@	
COMMON	~~180sks~~	@ 17.90	~~3222.00~~
POZMIX	220sks	@ 17.90	3938.00
GEL		@	
CHLORIDE	~~6~~ 8 sks	@ 64.00	~~384.00~~
ASC	8	@	512.00
HANDLING	~~189ft³~~ 231ft³	@ 2.48	~~468.72~~ 572.88
MILEAGE	~~[illegible]~~ x 35 x 2.60 / 1065 x 35		~~[illegible]~~
		TOTAL	~~4868.24~~ 769.15

SERVICE Total 5992.03

EQUIPMENT

PUMP TRUCK # 431 CEMENTER LaRone Edwards
HELPER Andrew Forslund.
BULK TRUCK #396/306 DRIVER Thomas Torres (TWS)
BULK TRUCK # DRIVER

REMARKS:
Mix ~~180~~ 220 sks cement
Displace with water
Cement did circulate
15 sks to pit

		@	
DEPTH OF JOB	262'		
PUMP TRUCK CHARGE			1312.23
EXTRA FOOTAGE		@	
MILEAGE HFH	35	@ 7.70	269.50
MANIFOLD Swedge		@	275.00
HFW	35	@ 4.40	154.00
		@	

TOTAL 2010.73

CHARGE TO: Murfin Drilling
STREET
CITY STATE ZIP

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.

SALES TAX (If Any)
TOTAL CHARGES 8,202.78
DISCOUNT 2,870.97 IF PAID IN 30 DAYS
5,331.80 Net.

PRINTED NAME Anthony Martin
SIGNATURE Anthony Martin

acct Prod-LH

ALLIED
OIL & GAS SERVICES, LLC

PO Box 93999
Southlake, TX 76092

Voice: (817) 546-7282
Fax: (817) 246-3361

INVOICE

Invoice Number: 142218
Invoice Date: Mar 29, 2014
Page: 1

Bill To:

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

Customer ID	Field Ticket #	Payment Terms	
Murfin	61332	Net 30 Days	
Job Location	**Camp Location**	**Service Date**	**Due Date**
KS1-03	Oakley	Mar 29, 2014	4/28/14

Quantity	Item	Description	Unit Price	Amount
1.00	WELL NAME	Keith #1-33		
132.00	CEMENT MATERIALS	Class A Common	17.90	2,362.80
88.00	CEMENT MATERIALS	Pozmix	9.35	822.80
8.00	CEMENT MATERIALS	Gel	23.40	187.20
55.00	CEMENT MATERIALS	Flo Seal	2.97	163.35
236.28	CEMENT SERVICE	Cubic Feet Charge	2.48	585.97
394.80	CEMENT SERVICE	Ton Mileage Charge	2.60	1,026.48
1.00	CEMENT SERVICE	Plug to Abandon	2,485.59	2,485.59
40.00	CEMENT SERVICE	Pump Truck Mileage	7.70	308.00
40.00	CEMENT SERVICE	Light Vehicle Mileage	4.40	176.00
1.00	EQUIPMENT SALES	8-5/8 Wooden Plug	110.00	110.00
1.00	EQUIPMENT OPERATOR	Paul Beaver		
1.00	EQUIPMENT OPERATOR	Tyler Flipse		
1.00	OPERATOR ASSISTANT	Brandon Wilkinson		

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

$ 2,841.36

ONLY IF PAID ON OR BEFORE

Apr 23, 2014

Subtotal	8,228.19
Sales Tax	670.60
Total Invoice Amount	8,898.79
Payment/Credit Applied	
TOTAL	**8,898.79**

-2841.36

OK
MR

6057.43

ALLIED OIL & GAS SERVICES, LLC 061332

Federal Tax I.D. # 20-8651475

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

SERVICE POINT: Oakley KS

DATE 3-29-14	SEC 33	TWP 9	RANGE 27	CALLED OUT	ON LOCATION 1:30 p.m.	JOB START 9:00 p.m	JOB FINISH 5:00 p.m.
LEASE Keith	WELL # 1-33		LOCATION Park to FOIC Club N to Rd 90 2 E 1/2 S E into			COUNTY Sheridan	STATE KS
OLD OR NEW (Circle one)							

CONTRACTOR Murfin 24
TYPE OF JOB PTA
HOLE SIZE 7 7/8 T.D. 4200'
CASING SIZE DEPTH
TUBING SIZE DEPTH
DRILL PIPE 4 1/2 DEPTH 2300'
TOOL DEPTH
PRES. MAX MINIMUM
MEAS. LINE SHOE JOINT
CEMENT LEFT IN CSG.
PERFS.
DISPLACEMENT water 5 bbl mud 24.15 bbl

EQUIPMENT

PUMP TRUCK # 423/281 CEMENTER Paul Beaver/Tyler Elipse
HELPER Tyler Elipse
BULK TRUCK #396/308 DRIVER Brandon Wilkinson
BULK TRUCK # DRIVER

OWNER Same

CEMENT
AMOUNT ORDERED 220 sks 60/40 4% gel 1/4# Flo Seal

COMMON	132 sks	@ 17.90	2362.80
POZMIX	88 sks	@ 7.35	646.80
GEL	8 sks	@ 23.40	187.20
CHLORIDE		@	
ASC		@	
Flo-Seal	55#	@ 2.97	163.35
		@	
		@	
		@	
		@	
		@	
		@	
HANDLING	236.2847	@ 2.48	585.97
MILEAGE	9.87 tons x 40 mi x 2.60		1026.48
		TOTAL	$5,148.60

REMARKS:

1st plug mix 75 sks @ 2300'
Displace w/ mud
2nd plug mix 100 sks @ 1450'
Displace w/ water
3rd plug mix 40 sks @ 310'
4th plug mix 10 sks @ 40' w/ plug
Mix 30 sks in R.H. mix 15 sks in M.H.
Thank You!
Paul, Tyler, Brandon

SERVICE

DEPTH OF JOB	2300'		
PUMP TRUCK CHARGE			2485.59
EXTRA FOOTAGE		@	
MILEAGE MIHU	40	@ 7.70	308.00
MANIFOLD		@	
MILU	40	@ 4.40	176.00
		@	
		TOTAL	$2,967.59

CHARGE TO: Murfin Drlg.
STREET
CITY STATE ZIP

PLUG & FLOAT EQUIPMENT

8 5/8 wooden plug		@	110.00
		@	
		@	
		@	
		@	
		TOTAL	$110.00

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 Anthony Martin
SIGNATURE Anthony Martin

SALES TAX (If Any)
TOTAL CHARGES 8,228.19
DISCOUNT 2,840.66 IF PAID IN 30 DAYS
5,38553 Net

3/28/14 Depth 4092'. Cut 150'. DT: None. CT: 13¾ hrs. Dev.: None. ***LKC 'G'***: NS. ***LKC 'H'***: cpl pcs w/ vpr interxtln por w/ few spots dd oil residue, NS live oil. ***LKC 'I'*** - no vis por / no show. ***LKC 'J'***: ls: wh, tan fnxtln, few pcs sli ool, app vpr - pr interxtln por, cpl pcs w/ pr spotty hvy inert oil/tar & hvy blk st, NS live oil. ***LKC 'K'***: ls: tan, brown, lt grey, fnxtln, sli ool, scat pr interxtln por, vpr-pr ppt por, few pcs w/ PS hvy dk oil, some tarry, 2-3 pcs/tray w/ few minute ppts FO on break, pr spotty dk st, few pcs w/ VSS dd oil residue, no odor. ***LKC 'L'***: ls: off-wh, tan, fnxtln, chalk in part, cpl pcs w/ tr pr interxtln por (most dense) & VSS dk brown, hvy, inert oil, tr spots blk st, NS live oil, no odor. **DST #3 3999-4092**: 30-60-60-90. IF: wk blow bldg to 3 1/4". FF: surf blow bldg to ½". Rec.: 115'OS WCM (40%W, 60%M), 45'OS VSWCM (5%W, 95%M). HP: 1989-1908. FP: 19/58, 63/97. SIP: 1246-1222. BHT: 118°.

3/29/14 RTD 4200'. Cut 108'. DT: None. CT: 18¾ hrs. Dev.: 1° @ 4200'. HC @ 8:15PM 3/28. Pioneer logged 2:00AM-6:15AM 3/29. LTD: 4198'. WOO

3/30/14 RTD: 4200'. CT: 14¼ hrs. Allied plugged hole 2:30PM -5:15PM 3/29, as follows using 60/40Poz, 4%Gel, ¼#floseal, 25sxs @ 2300', 100sxs @ 1450', 40sxs @ 310', 10sxs @ 40', 30sxs Rh, 15sxs MH. Orders by David Wann KCC 3/25. RR @ 9:15PM 3/29.

	Keith #1-33 1850' FNL 660' FWL Sec. 33-T9S-R27W 2702' KB						Haas-Goetz #1-33 2130' FNL 2570' FEL Sec. 33-T9S-R27W 2709' KB	
Formation	Sample tops	Datum	Ref	Log Tops	Datum	Ref	Log Tops	Datum
Anhydrite	2285	+417	+9	2288	+414		2301	+408
B/Anhydrite	2320	+382	+8	2323	+379		2335	+374
Topeka	3606	-904	-5	3603	-901		3608	-899
Heebner	3824	-1122	-9	3820	-1118		3822	-1113
Lansing	3861	-1159	-7	3861	-1159		3861	-1152
Stark	4044	-1342	-8	4040	-1338		4043	-1334
BKC	4088	-1386	-8	4085	-1383		4087	-1378
Marmaton				4121	-1419		4121	-1412
Upper Pawnee	DNR			DNR			4206	-1497
RTD	4200						4480	
LTD				4198				

TRILOBITE TESTING, INC.

DRILL STEM TEST REPORT

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

250 N Water Ste300
Wichita KS 67202

ATTN: Charles Schmaltz

Keith #1-33

33-9s-27w Sheridan,KS

Start Date: 2014.03.26 @ 06:30:00

End Date: 2014.03.26 @ 15:57:15

Job Ticket #: 54104 DST #: 1

Trilobite Testing, Inc

PO Box 362 Hays, KS 67601

ph: 785-625-4778 fax: 785-625-5620

Printed: 2014.04.01 @ 16:49:48

DRILL STEM TEST REPORT

Murfin Drilling Co Inc.

250 N Water Ste300
Wichita KS 67202

ATTN: Charles Schmaltz

33-9s-27w Sheridan,KS

Keith #1-33

Job Ticket: 54104 **DST#: 1**

Test Start: 2014.03.26 @ 06:30:00

GENERAL INFORMATION:

Formation: **KC "B-D"**
Deviated: No Whipstock: ft (KB)
Time Tool Opened: 10:02:00
Time Test Ended: 15:57:15

Test Type: Conventional Bottom Hole (Initial)
Tester: Brett Dickinson
Unit No: 59

Interval: 3882.00 ft (KB) To 3922.00 ft (KB) (TVD)
Total Depth: 3922.00 ft (KB) (TVD)
Hole Diameter: 7.88 inches Hole Condition: Poor

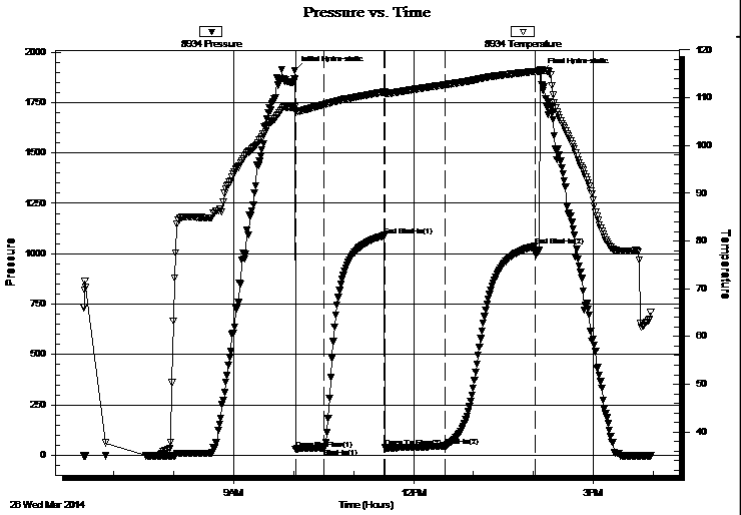
Reference Elevations: 2702.00 ft (KB)
2697.00 ft (CF)
KB to GR/CF: 5.00 ft

Serial #: 8934 **Inside**

Press@RunDepth: 45.94 psig @ 3886.00 ft (KB)
Start Date: 2014.03.26 End Date: 2014.03.26
Start Time: 06:30:05 End Time: 15:57:15

Capacity: 8000.00 psig
Last Calib.: 2014.03.26
Time On Btm: 2014.03.26 @ 10:01:15
Time Off Btm: 2014.03.26 @ 14:07:15

TEST COMMENT: IF-1 1/4" blow died back to 1"
ISI-No blow
FF-Very w eak surface blow
FSI-No blow



PRESSURE SUMMARY

Time (Min.)	Pressure (psig)	Temp (deg F)	Annotation
0	1907.68	108.07	Initial Hydro-static
1	29.83	107.22	Open To Flow (1)
30	37.12	108.61	Shut-In(1)
90	1090.87	111.21	End Shut-In(1)
91	38.64	110.83	Open To Flow (2)
151	45.94	112.70	Shut-In(2)
240	1037.24	115.49	End Shut-In(2)
246	1897.65	115.94	Final Hydro-static

Recovery

Length (ft)	Description	Volume (bbl)
55.00	VSOCM 5%O 95%M	0.27
8.00	Free Oil	0.04

Gas Rates

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

DRILL STEM TEST REPORT

Murfin Drilling Co Inc.

250 N Water Ste300
Wichita KS 67202

ATTN: Charles Schmaltz

33-9s-27w Sheridan,KS

Keith #1-33

Job Ticket: 54104 **DST#: 1**

Test Start: 2014.03.26 @ 06:30:00

GENERAL INFORMATION:

Formation: **KC "B-D"**
Deviated: No Whipstock: ft (KB)
Time Tool Opened: 10:02:00
Time Test Ended: 15:57:15

Test Type: Conventional Bottom Hole (Initial)
Tester: Brett Dickinson
Unit No: 59

Interval: 3882.00 ft (KB) To 3922.00 ft (KB) (TVD)
Total Depth: 3922.00 ft (KB) (TVD)
Hole Diameter: 7.88 inches Hole Condition: Poor

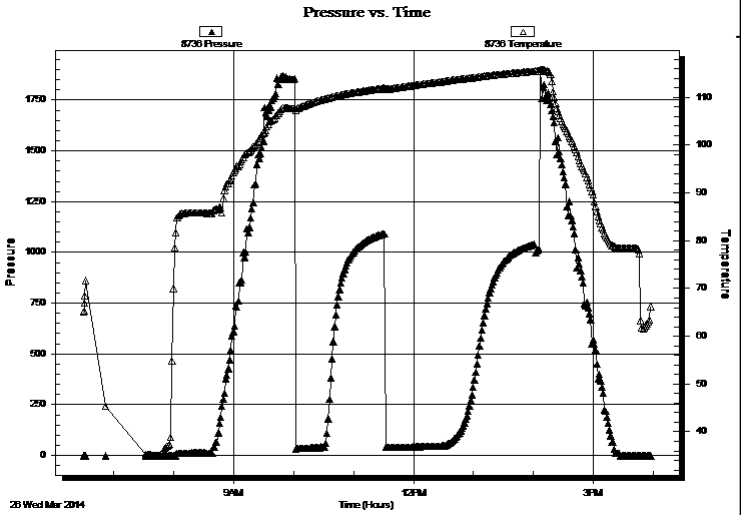
Reference Elevations: 2702.00 ft (KB)
2697.00 ft (CF)
KB to GR/CF: 5.00 ft

Serial #: 8736 **Outside**

Press@RunDepth: psig @ 3886.00 ft (KB)
Start Date: 2014.03.26 End Date: 2014.03.26
Start Time: 06:30:05 End Time: 15:57:15

Capacity: 8000.00 psig
Last Calib.: 2014.03.26
Time On Btm:
Time Off Btm:

TEST COMMENT: IF-1 1/4" blow died back to 1"
ISI-No blow
FF-Very w eak surface blow
FSI-No blow



PRESSURE SUMMARY

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

Recovery

Length (ft)	Description	Volume (bbl)
55.00	VSOCM 5%O 95%M	0.27
8.00	Free Oil	0.04

Gas Rates

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

DRILL STEM TEST REPORT

TOOL DIAGRAM

Murfin Drilling Co Inc.

250 N Water Ste300
Wichita KS 67202

ATTN: Charles Schmaltz

33-9s-27w Sheridan,KS

Keith #1-33

Job Ticket: 54104 **DST#: 1**

Test Start: 2014.03.26 @ 06:30:00

Tool Information

Drill Pipe:	Length:	3742.00 ft	Diameter:	3.80 inches	Volume:	52.49 bbl	Tool Weight:		2500.00 lb
Heavy Wt. Pipe:	Length:	ft	Diameter:	2.70 inches	Volume:	- bbl	Weight set on Packer:		25000.00 lb
Drill Collar:	Length:	115.00 ft	Diameter:	2.25 inches	Volume:	0.57 bbl	Weight to Pull Loose:		60000.00 lb
					Total Volume:	- bbl	Tool Chased		5.00 ft
Drill Pipe Above KB:		3.00 ft					String Weight:	Initial	55000.00 lb
Depth to Top Packer:		3882.00 ft						Final	55000.00 lb
Depth to Bottom Packer:		ft							
Interval betw een Packers:		40.00 ft							
Tool Length:		68.00 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			3859.00		
Hydraulic tool	5.00			3864.00		
Jars	5.00			3869.00		
Safety Joint	3.00			3872.00		
Packer	5.00			3877.00	28.00	Bottom Of Top Packer
Packer	5.00			3882.00		
Stubb	1.00			3883.00		
Perforations	3.00			3886.00		
Recorder	0.00	8934	Inside	3886.00		
Recorder	0.00	8736	Outside	3886.00		
Change Over Sub	1.00			3887.00		
Drill Pipe	31.00			3918.00		
Change Over Sub	1.00			3919.00		
Bullnose	3.00			3922.00	40.00	Bottom Packers & Anchor
Total Tool Length:	**68.00**					

DRILL STEM TEST REPORT

FLUID SUMMARY

Murfin Drilling Co Inc.

250 N Water Ste300
Wichita KS 67202

ATTN: Charles Schmaltz

33-9s-27w Sheridan,KS

Keith #1-33

Job Ticket: 54104 **DST#: 1**

Test Start: 2014.03.26 @ 06:30:00

Mud and Cushion Information

Mud Type:	Gel Chem	Cushion Type:		Oil API:	22 deg API
Mud Weight:	9.00 lb/gal	Cushion Length:	ft	Water Salinity:	ppm
Viscosity:	56.00 sec/qt	Cushion Volume:	bbl		
Water Loss:	5.59 in³	Gas Cushion Type:			
Resistivity:	ohm.m	Gas Cushion Pressure:	psig		
Salinity:	3000.00 ppm				
Filter Cake:	inches				

Recovery Information

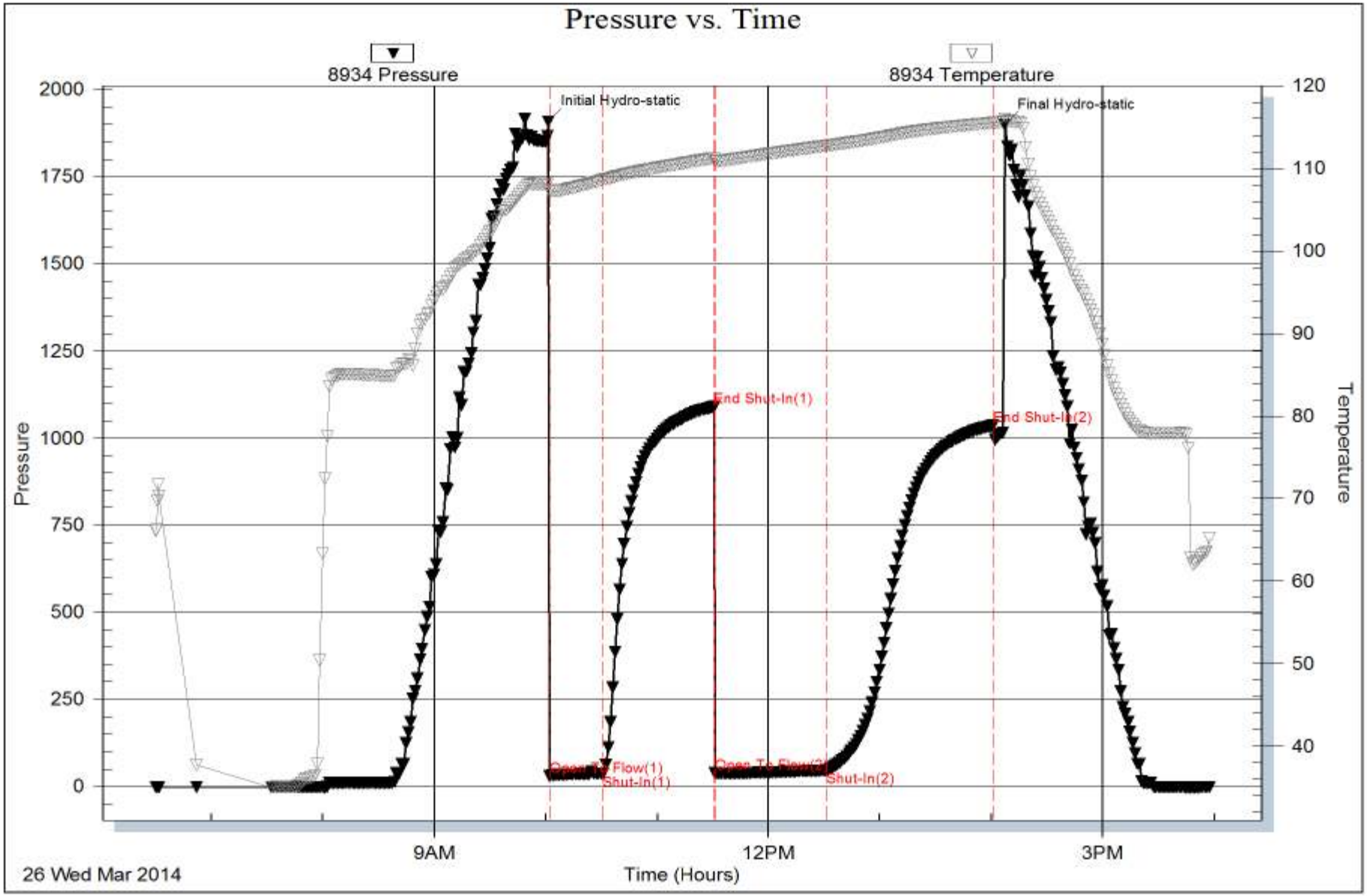
Recovery Table

Length ft	Description	Volume bbl
55.00	VSOCM 5%O 95%M	0.270
8.00	Free Oil	0.039

Total Length: 63.00 ft Total Volume: 0.309 bbl

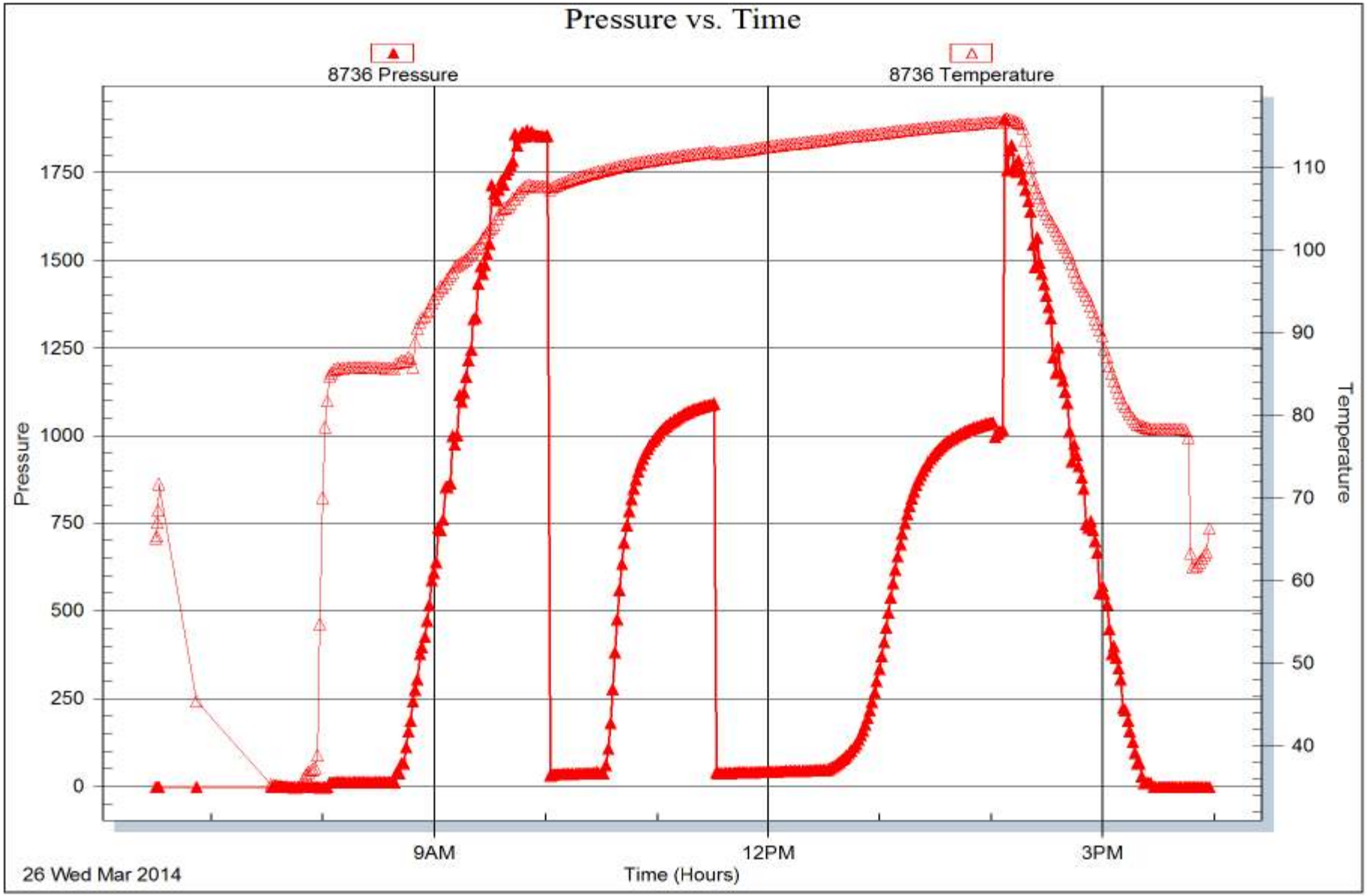
Num Fluid Samples: 0 Num Gas Bombs: 0 Serial #:
Laboratory Name: Laboratory Location:
Recovery Comments:

Serial #: 8934 **Inside** Murfin Drilling Co Inc. Keith #1-33 DST Test Number: 1



Trilobite Testing, Inc Ref. No: 54104 Printed: 2014.04.01 @ 16:49:50

Serial #: 8736 **Outside** Murfin Drilling Co Inc. Keith #1-33 DST Test Number: 1



Trilobite Testing, Inc Ref. No: 54104 Printed: 2014.04.01 @ 16:49:50

TRILOBITE TESTING, INC.

DRILL STEM TEST REPORT

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

250 N Water Ste300
Wichita KS 67202

ATTN: Charles Schmaltz

Keith #1-33

33-9s-27w Sheridan,KS

Start Date: 2014.03.27 @ 01:25:00

End Date: 2014.03.27 @ 08:44:30

Job Ticket #: 54105 DST #: 2

Trilobite Testing, Inc

PO Box 362 Hays, KS 67601

ph: 785-625-4778 fax: 785-625-5620

Printed: 2014.04.01 @ 16:49:23

DRILL STEM TEST REPORT

Murfin Drilling Co Inc.

250 N Water Ste300
Wichita KS 67202

ATTN: Charles Schmaltz

33-9s-27w Sheridan,KS

Keith #1-33

Job Ticket: 54105 **DST#: 2**

Test Start: 2014.03.27 @ 01:25:00

GENERAL INFORMATION:

Formation: **KC**
Deviated: No Whipstock: ft (KB)
Time Tool Opened: 04:01:45
Time Test Ended: 08:44:30

Test Type: Conventional Bottom Hole (Reset)
Tester: Brett Dickinson
Unit No: 59

Interval: 3919.00 ft (KB) To 3942.00 ft (KB) (TVD)
Total Depth: 3942.00 ft (KB) (TVD)
Hole Diameter: 7.88 inches Hole Condition: Poor

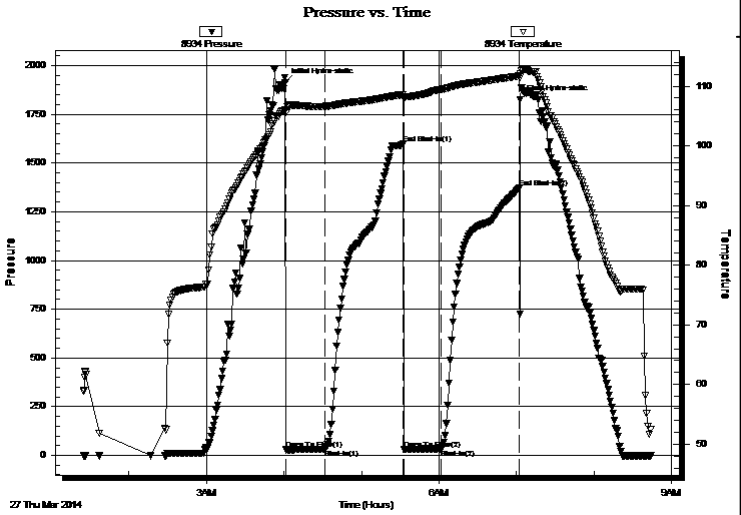
Reference Elevations: 2702.00 ft (KB)
2697.00 ft (CF)
KB to GR/CF: 5.00 ft

Serial #: 8934 **Inside**

Press@RunDepth: 33.17 psig @ 3939.00 ft (KB)
Start Date: 2014.03.27 End Date: 2014.03.27
Start Time: 01:25:05 End Time: 08:44:29

Capacity: 8000.00 psig
Last Calib.: 2014.03.27
Time On Btm: 2014.03.27 @ 04:01:00
Time Off Btm: 2014.03.27 @ 07:03:00

TEST COMMENT: IF-1 1/4" blow
ISI-No blow
FF-No blow
FSI-No blow



PRESSURE SUMMARY

Time (Min.)	Pressure (psig)	Temp (deg F)	Annotation
0	1913.80	106.10	Initial Hydro-static
1	28.96	105.57	Open To Flow (1)
31	29.35	106.62	Shut-In(1)
92	1597.46	108.61	End Shut-In(1)
92	31.08	107.83	Open To Flow (2)
121	33.17	109.42	Shut-In(2)
182	1371.71	111.69	End Shut-In(2)
182	1826.08	112.13	Final Hydro-static

Recovery

Length (ft)	Description	Volume (bbl)
10.00	OS Mud	0.05

* Recovery from multiple tests

Gas Rates

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

DRILL STEM TEST REPORT

Murfin Drilling Co Inc.

250 N Water Ste300
Wichita KS 67202

ATTN: Charles Schmaltz

33-9s-27w Sheridan,KS

Keith #1-33

Job Ticket: 54105 **DST#: 2**

Test Start: 2014.03.27 @ 01:25:00

GENERAL INFORMATION:

Formation: **KC**
Deviated: No Whipstock: ft (KB)
Time Tool Opened: 04:01:45
Time Test Ended: 08:44:30

Test Type: Conventional Bottom Hole (Reset)
Tester: Brett Dickinson
Unit No: 59

Interval: 3919.00 ft (KB) To 3942.00 ft (KB) (TVD)
Total Depth: 3942.00 ft (KB) (TVD)
Hole Diameter: 7.88 inches Hole Condition: Poor

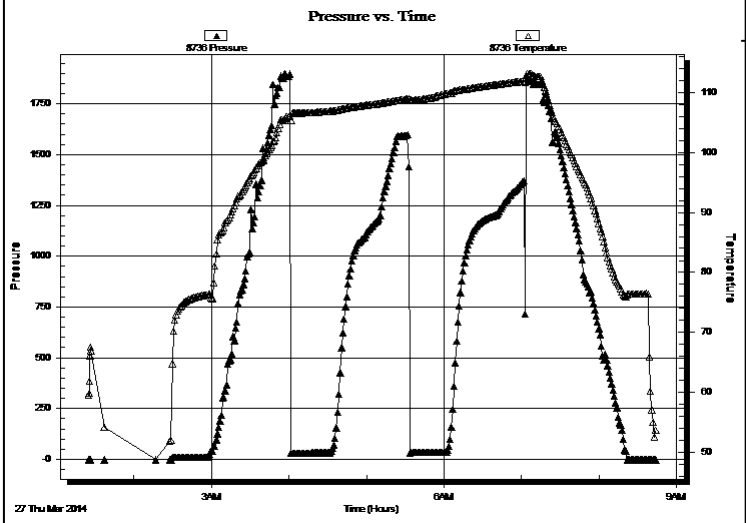
Reference Elevations: 2702.00 ft (KB)
2697.00 ft (CF)
KB to GR/CF: 5.00 ft

Serial #: 8736 **Outside**

Press@RunDepth: psig @ 3939.00 ft (KB)
Start Date: 2014.03.27 End Date: 2014.03.27
Start Time: 01:25:05 End Time: 08:44:29

Capacity: 8000.00 psig
Last Calib.: 2014.03.27
Time On Btm:
Time Off Btm:

TEST COMMENT: IF-1 1/4" blow
ISI-No blow
FF-No blow
FSI-No blow



PRESSURE SUMMARY

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

Recovery

Length (ft)	Description	Volume (bbl)
10.00	OS Mud	0.05

* Recovery from multiple tests

Gas Rates

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

DRILL STEM TEST REPORT

TOOL DIAGRAM

Murfin Drilling Co Inc.

250 N Water Ste300
Wichita KS 67202

ATTN: Charles Schmaltz

33-9s-27w Sheridan,KS

Keith #1-33

Job Ticket: 54105 **DST#: 2**

Test Start: 2014.03.27 @ 01:25:00

Tool Information

Drill Pipe:	Length:	3805.00 ft	Diameter:	3.80	inches	Volume:	53.37	bbl	
Heavy Wt. Pipe:	Length:	ft	Diameter:	2.70	inches	Volume:	-	bbl	
Drill Collar:	Length:	115.00 ft	Diameter:	2.25	inches	Volume:	0.57	bbl	
						Total Volume:	-	bbl	

Drill Pipe Above KB:	29.00 ft
Depth to Top Packer:	3919.00 ft
Depth to Bottom Packer:	ft
Interval betw een Packers:	23.00 ft
Tool Length:	51.00 ft
Number of Packers:	2 Diameter: 6.75 inches

Tool Weight:		2500.00 lb
Weight set on Packer:		25000.00 lb
Weight to Pull Loose:		60000.00 lb
Tool Chased		5.00 ft
String Weight:	Initial	55000.00 lb
	Final	55000.00 lb

Tool Comments:

Tool Description	Length (ft)	Serial No.	Position	Depth (ft)	Accum. Lengths	
Shut In Tool	5.00			3896.00		
Hydraulic tool	5.00			3901.00		
Jars	5.00			3906.00		
Safety Joint	3.00			3909.00		
Packer	5.00			3914.00	28.00	Bottom Of Top Packer
Packer	5.00			3919.00		
Stubb	1.00			3920.00		
Perforations	19.00			3939.00		
Recorder	0.00	8934	Inside	3939.00		
Recorder	0.00	8736	Outside	3939.00		
Bullnose	3.00			3942.00	23.00	Bottom Packers & Anchor
Total Tool Length:	**51.00**					

DRILL STEM TEST REPORT

FLUID SUMMARY

Murfin Drilling Co Inc.

250 N Water Ste300
Wichita KS 67202

ATTN: Charles Schmaltz

33-9s-27w Sheridan,KS

Keith #1-33

Job Ticket: 54105 **DST#: 2**

Test Start: 2014.03.27 @ 01:25:00

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:	56.00 sec/qt	Cushion Volume:	bbl		
Water Loss:	5.59 in³	Gas Cushion Type:			
Resistivity:	ohm.m	Gas Cushion Pressure:	psig		
Salinity:	1500.00 ppm				
Filter Cake:	inches				

Recovery Information

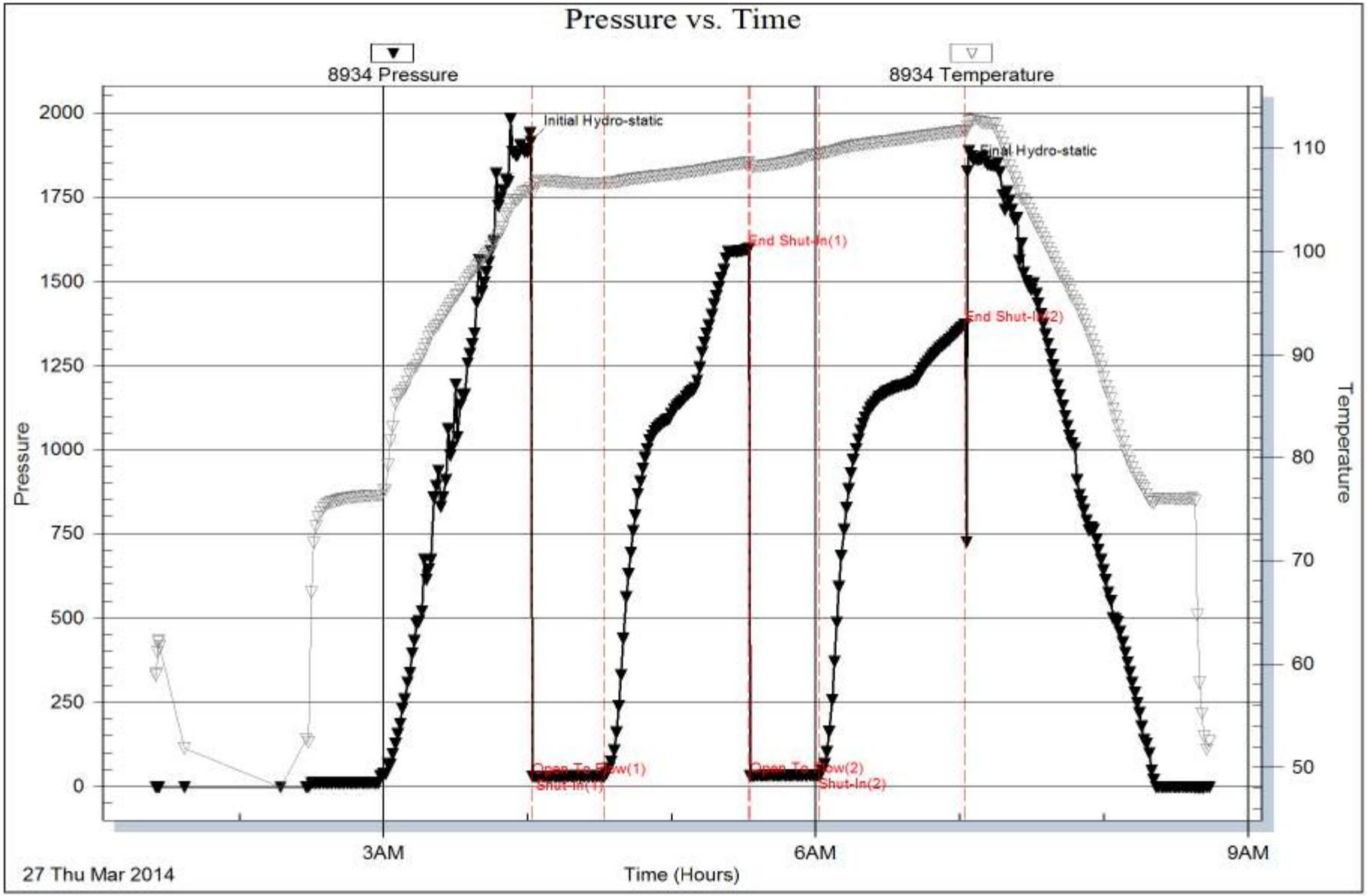
Recovery Table

Length ft	Description	Volume bbl
10.00	OS Mud	0.049

Total Length: 10.00 ft Total Volume: 0.049 bbl

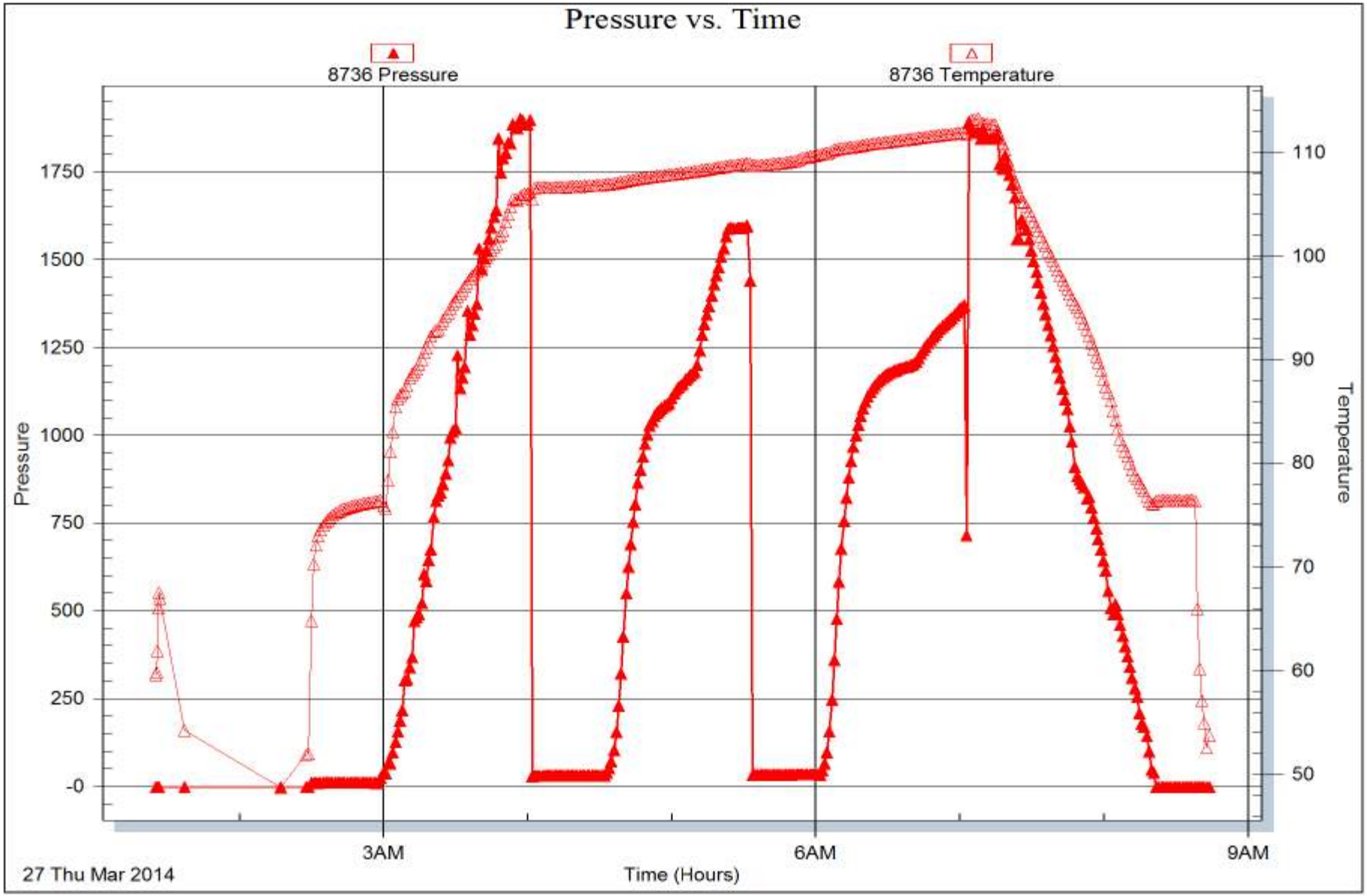
Num Fluid Samples: 0 Num Gas Bombs: 0 Serial #:
Laboratory Name: Laboratory Location:
Recovery Comments:

Serial #: 8934 **Inside** Murfin Drilling Co Inc. Keith #1-33 DST Test Number: 2



Trilobite Testing, Inc Ref. No: 54105 Printed: 2014.04.01 @ 16:49:25

Serial #: 8736 **Outside** Murfin Drilling Co Inc. Keith #1-33 DST Test Number: 2



Trilobite Testing, Inc Ref. No: 54105 Printed: 2014.04.01 @ 16:49:25

TRILOBITE TESTING, INC.

DRILL STEM TEST REPORT

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

250 N Water Ste300
Wichita KS 67202

ATTN: Charles Schmaltz

Keith #1-33

33-9s-27w Sheridan,KS

Start Date: 2014.03.28 @ 01:55:05
End Date: 2014.03.28 @ 11:23:15
Job Ticket #: 54106 DST #: 3

Trilobite Testing, Inc
PO Box 362 Hays, KS 67601
ph: 785-625-4778 fax: 785-625-5620

Printed: 2014.04.01 @ 16:48:51

DRILL STEM TEST REPORT

Murfin Drilling Co Inc.

250 N Water Ste300
Wichita KS 67202

ATTN: Charles Schmaltz

33-9s-27w Sheridan,KS

Keith #1-33

Job Ticket: 54106 **DST#: 3**

Test Start: 2014.03.28 @ 01:55:05

GENERAL INFORMATION:

Formation: **KC"I-L"**
Deviated: No Whipstock: ft (KB)
Time Tool Opened: 05:34:30
Time Test Ended: 11:23:15

Test Type: Conventional Bottom Hole (Reset)
Tester: Brett Dickinson
Unit No: 59

Interval: 3999.00 ft (KB) To 4092.00 ft (KB) (TVD)
Total Depth: 4092.00 ft (KB) (TVD)
Hole Diameter: 7.88 inches Hole Condition: Poor

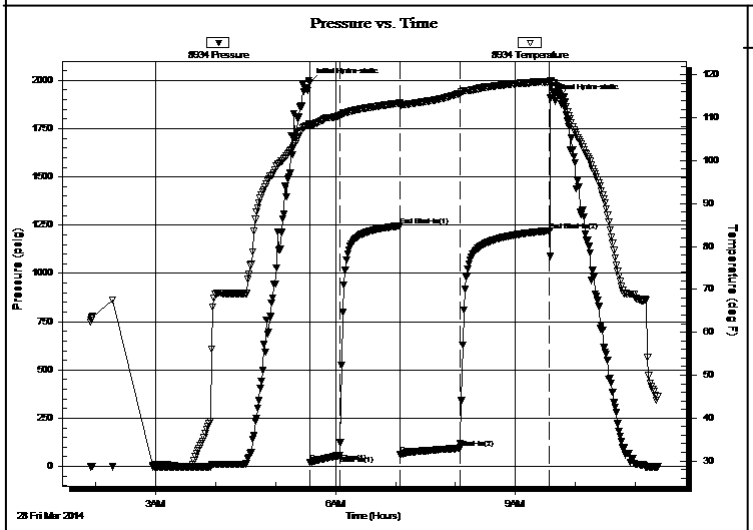
Reference Elevations: 2702.00 ft (KB)
2697.00 ft (CF)
KB to GR/CF: 5.00 ft

Serial #: 8934 **Inside**

Press@RunDepth: 96.59 psig @ 4002.00 ft (KB)
Start Date: 2014.03.28 End Date: 2014.03.28
Start Time: 01:55:05 End Time: 11:23:15

Capacity: 8000.00 psig
Last Calib.: 2014.03.28
Time On Btm: 2014.03.28 @ 05:34:00
Time Off Btm: 2014.03.28 @ 09:35:15

TEST COMMENT: IF-3 1/4" blow
ISI-No blow
FF-1/2" blow
FSI-No blow



PRESSURE SUMMARY

Time (Min.)	Pressure (psig)	Temp (deg F)	Annotation
0	1988.74	108.51	Initial Hydro-static
1	19.38	107.82	Open To Flow (1)
31	57.79	110.47	Shut-In(1)
90	1246.13	113.36	End Shut-In(1)
91	63.47	112.94	Open To Flow (2)
151	96.59	115.63	Shut-In(2)
241	1221.65	118.34	End Shut-In(2)
242	1907.90	118.70	Final Hydro-static

Recovery

Length (ft)	Description	Volume (bbl)
115.00	OS WCM 40%W 60%M	0.57
45.00	OS VSWCM 5%W 95%M	0.63

* Recovery from multiple tests

Gas Rates

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

DRILL STEM TEST REPORT

Murfin Drilling Co Inc.

250 N Water Ste300
Wichita KS 67202

ATTN: Charles Schmaltz

33-9s-27w Sheridan,KS

Keith #1-33

Job Ticket: 54106 **DST#: 3**

Test Start: 2014.03.28 @ 01:55:05

GENERAL INFORMATION:

Formation: **KC"I-L"**
Deviated: No Whipstock: ft (KB)
Time Tool Opened: 05:34:30
Time Test Ended: 11:23:15

Test Type: Conventional Bottom Hole (Reset)
Tester: Brett Dickinson
Unit No: 59

Interval: 3999.00 ft (KB) To 4092.00 ft (KB) (TVD)
Total Depth: 4092.00 ft (KB) (TVD)
Hole Diameter: 7.88 inches Hole Condition: Poor

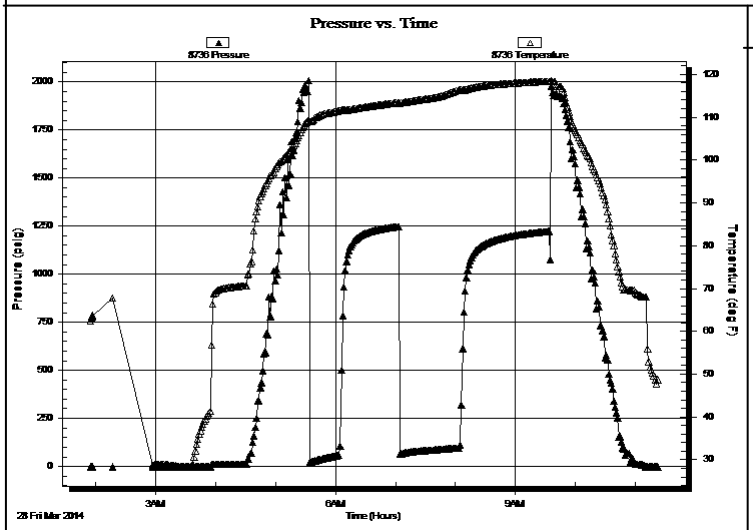
Reference Elevations: 2702.00 ft (KB)
2697.00 ft (CF)
KB to GR/CF: 5.00 ft

Serial #: 8736 **Outside**

Press@RunDepth: psig @ 4002.00 ft (KB)
Start Date: 2014.03.28 End Date: 2014.03.28
Start Time: 01:55:05 End Time: 11:23:15

Capacity: 8000.00 psig
Last Calib.: 2014.03.28
Time On Btm:
Time Off Btm:

TEST COMMENT: IF-3 1/4" blow
ISI-No blow
FF-1/2" blow
FSI-No blow



PRESSURE SUMMARY

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

Recovery

Length (ft)	Description	Volume (bbl)
115.00	OS WCM 40%W 60%M	0.57
45.00	OS VSWCM 5%W 95%M	0.63

* Recovery from multiple tests

Gas Rates

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

DRILL STEM TEST REPORT

TOOL DIAGRAM

Murfin Drilling Co Inc.

250 N Water Ste300
Wichita KS 67202

ATTN: Charles Schmaltz

33-9s-27w Sheridan,KS

Keith #1-33

Job Ticket: 54106 **DST#: 3**

Test Start: 2014.03.28 @ 01:55:05

Tool Information

Drill Pipe:	Length:	3868.00 ft	Diameter:	3.80 inches	Volume:	54.26 bbl	Tool Weight:		2500.00 lb
Heavy Wt. Pipe:	Length:	ft	Diameter:	2.70 inches	Volume:	- bbl	Weight set on Packer:		25000.00 lb
Drill Collar:	Length:	115.00 ft	Diameter:	2.25 inches	Volume:	0.57 bbl	Weight to Pull Loose:		65000.00 lb
					Total Volume:	- bbl	Tool Chased		0.00 ft
Drill Pipe Above KB:		12.00 ft					String Weight:	Initial	55000.00 lb
Depth to Top Packer:		3999.00 ft						Final	55000.00 lb
Depth to Bottom Packer:		ft							
Interval betw een Packers:		93.00 ft							
Tool Length:		121.00 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			3976.00		
Hydraulic tool	5.00			3981.00		
Jars	5.00			3986.00		
Safety Joint	3.00			3989.00		
Packer	5.00			3994.00	28.00	Bottom Of Top Packer
Packer	5.00			3999.00		
Stubb	1.00			4000.00		
Perforations	2.00			4002.00		
Recorder	0.00	8934	Inside	4002.00		
Recorder	0.00	8736	Outside	4002.00		
Change Over Sub	1.00			4003.00		
Drill Pipe	63.00			4066.00		
Change Over Sub	1.00			4067.00		
Perforations	22.00			4089.00		
Bullnose	3.00			4092.00	93.00	Bottom Packers & Anchor
Total Tool Length:	**121.00**					

DRILL STEM TEST REPORT

FLUID SUMMARY

Murfin Drilling Co Inc.

250 N Water Ste300
Wichita KS 67202

ATTN: Charles Schmaltz

33-9s-27w Sheridan,KS

Keith #1-33

Job Ticket: 54106 **DST#: 3**

Test Start: 2014.03.28 @ 01:55:05

Mud and Cushion Information

Mud Type:	Gel Chem	Cushion Type:		Oil API:	deg API
Mud Weight:	9.00 lb/gal	Cushion Length:	ft	Water Salinity:	55000 ppm
Viscosity:	70.00 sec/qt	Cushion Volume:	bbl		
Water Loss:	5.58 in³	Gas Cushion Type:			
Resistivity:	ohm.m	Gas Cushion Pressure:	psig		
Salinity:	2300.00 ppm				
Filter Cake:	inches				

Recovery Information

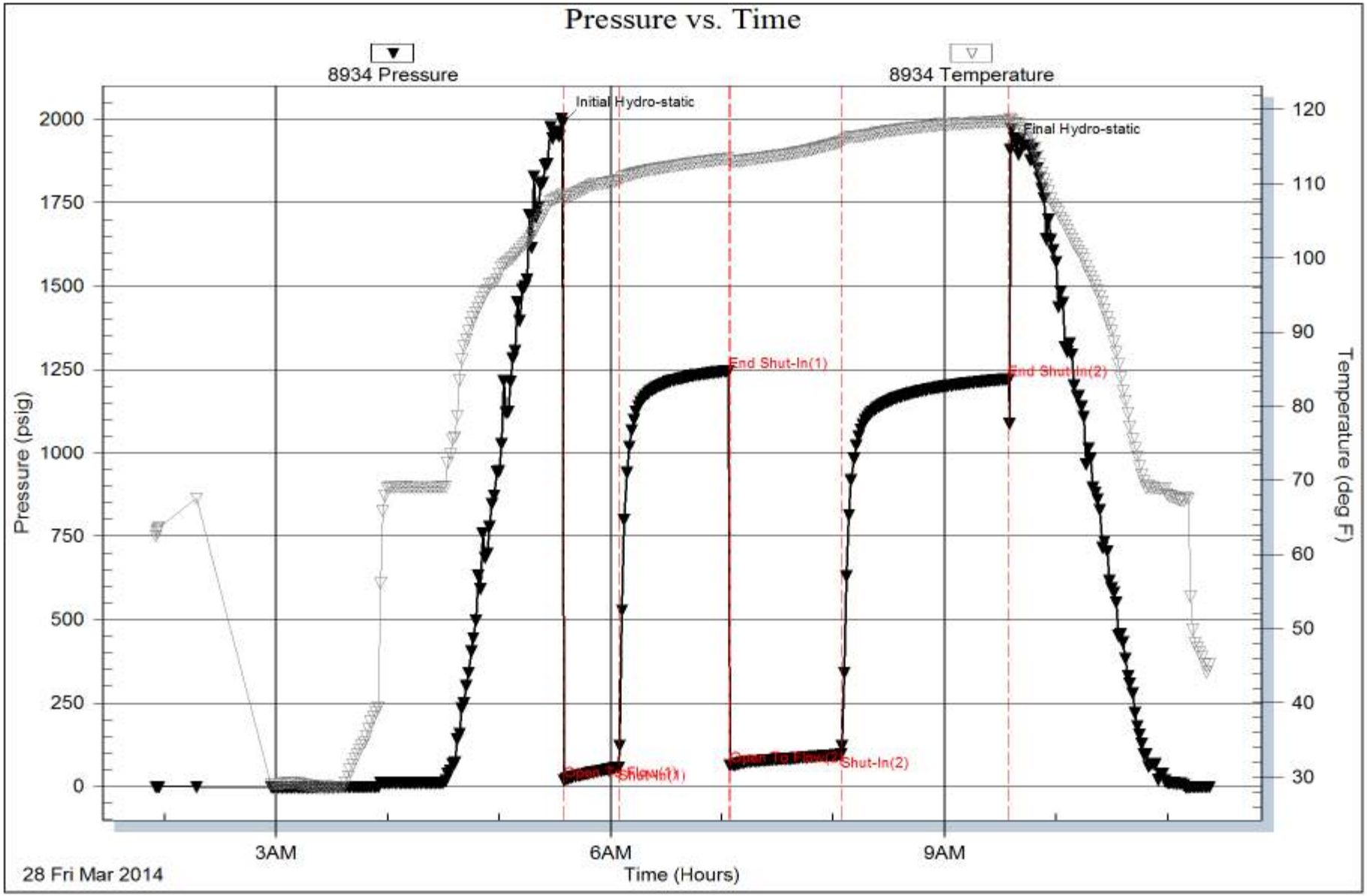
Recovery Table

Length ft	Description	Volume bbl
115.00	OS WCM 40%W 60%M	0.566
45.00	OS VSWCM 5%W 95%M	0.631

Total Length: 160.00 ft Total Volume: 1.197 bbl

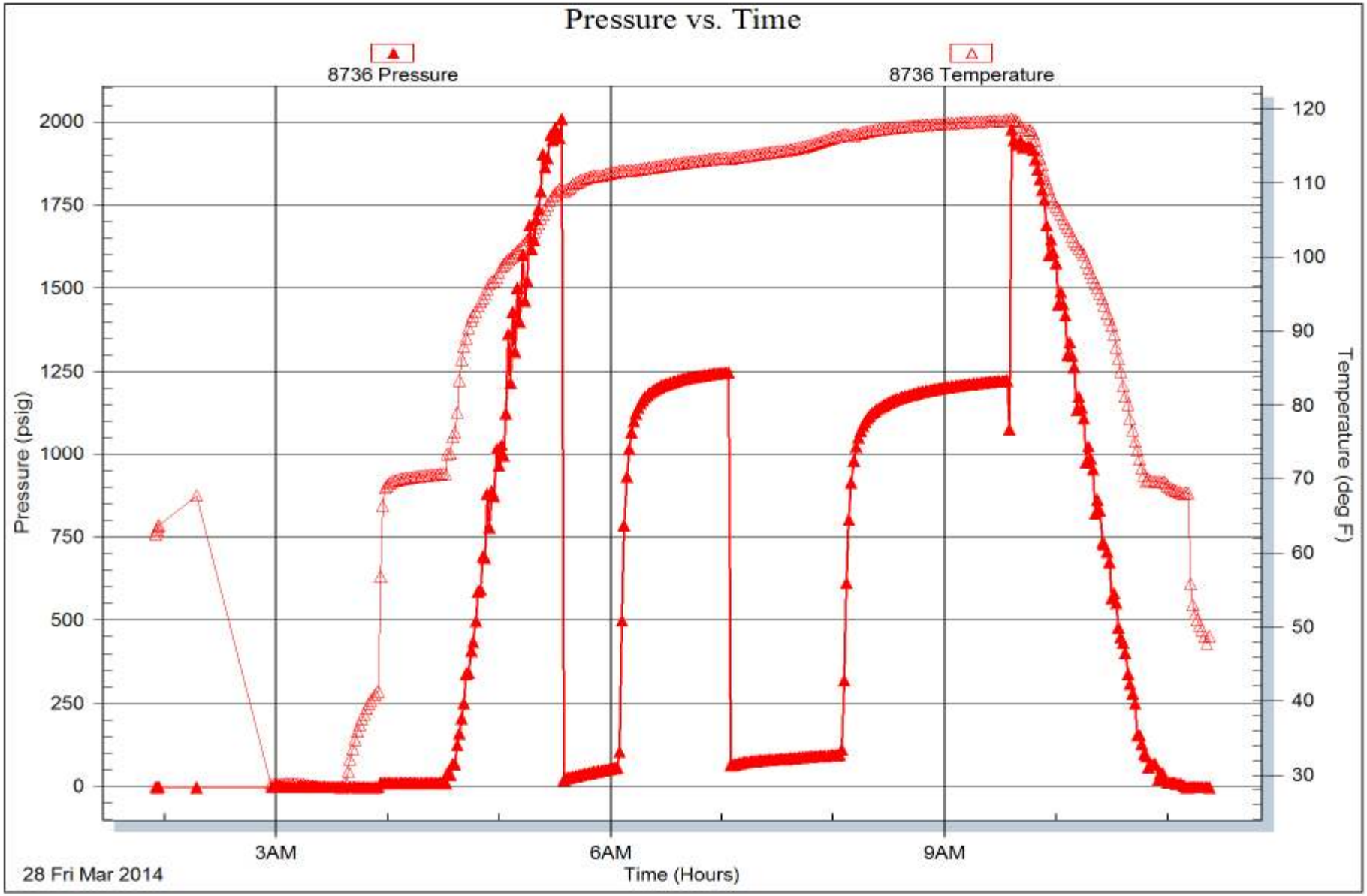
Num Fluid Samples: 0 Num Gas Bombs: 0 Serial #:
Laboratory Name: Laboratory Location:
Recovery Comments:

Serial #: 8934 **Inside** Murfin Drilling Co Inc. Keith #1-33 DST Test Number: 3



Trilobite Testing, Inc Ref. No: 54106 Printed: 2014.04.01 @ 16:48:53

Serial #: 8736 **Outside** Murfin Drilling Co Inc. Keith #1-33 DST Test Number: 3



Trilobite Testing, Inc Ref. No: 54106 Printed: 2014.04.01 @ 16:48:53

TRILOBITE TESTING INC.
1515 Commerce Parkway • Hays, Kansas 67601

4/10

Test Ticket

NO. 54104

Well Name & No. Keith Well #1-33 Test No. 1 Date 3/26/14
Company Murfin Drilling Co, Inc. Elevation 2702 KB 2697 GL
Address 250 N Water STE 300 Wichita KS 67202
Co. Rep / Geo. Charles Schmaltz Rig Murfin #24
Location: Sec. 33 Twp. 9 Rge. 27 Co. Sheridan State KS

Interval Tested 3882 - 3922 Zone Tested KC "B-D"
Anchor Length 40 Drill Pipe Run Mud Wt. 8.7
Top Packer Depth 3877 Drill Collars Run 115 Vis 56
Bottom Packer Depth 3882 Wt. Pipe Run WL 5.6
Total Depth 3922 Chlorides 3,000 ppm System LCM 3

Blow Description IF - 1¼in blow died back to 1in
ISI - No blow
FF - weak surface blow
FSI - No blow

Rec 8	Feet of Free Oil	%gas	%oil	%water	%mud
Rec 55	Feet of VSOCM	%gas	5 %oil	%water	95 %mud
Rec	Feet of	%gas	%oil	%water	%mud
Rec	Feet of	%gas	%oil	%water	%mud
Rec	Feet of	%gas	%oil	%water	%mud

Rec Total 63 BHT 115 Gravity 22 API RW @ °F Chlorides ppm

(A) Initial Hydrostatic 1,908	☒ Test 1150	T-On Location 5:20
(B) First Initial Flow 30	☒ Jars 250	T-Started 6:30
(C) First Final Flow 37	☒ Safety Joint 75	T-Open 10:00
(D) Initial Shut-In 1,091	☐ Circ Sub	T-Pulled 14:00
(E) Second Initial Flow 39	☒ Hourly Standby	T-Out 15:57
(F) Second Final Flow 46	☒ Mileage 144rT 102rt 158.10	Comments
(G) Final Shut-In 1,037	☐ Sampler	
(H) Final Hydrostatic 1,895	☐ Straddle	☐ Ruined Shale Packer
	☐ Shale Packer	☐ Ruined Packer
Initial Open 30	☐ Extra Packer	☐ Extra Copies
Initial Shut-In 60	☐ Extra Recorder	Sub Total 0
Final Flow 60	☐ Day Standby	Total 1633.10
Final Shut-In 90	☐ Accessibility	MP/DST Disc't
	Sub Total 1633.10	

Approved By Our Representative Brett Dickson

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

4/10

Test Ticket

NO. 54105

Well Name & No. Keith Well #1-33 Test No. 2 Date 3/27/14

Company Murfin Drilling Co, Inc. Elevation 2702 KB 2697 GL

Address 250 N Water STE 300 Wichita KS 67202

Co. Rep / Geo. Charles Schmaltz Rig Murfin #24

Location: Sec. 33 Twp. 9 Rge. 27 Co. Sheridan State KS

Interval Tested 3919 - 3942 Zone Tested KC

Anchor Length 23 Drill Pipe Run _____ Mud Wt. 9.0

Top Packer Depth 3914 Drill Collars Run 115 Vis 56

Bottom Packer Depth 3919 Wt. Pipe Run _____ WL 5.6

Total Depth 3942 Chlorides 1,500 ppm System LCM _____

Blow Description IF- 1 ¼ in blow
ISI- No blow
FF- No blow
FSI- No blow

Rec 10	Feet of oil spotted Mud	%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 _____	Feet of _____	%gas	%oil	%water	%mud

Rec Total 10 BHT _____ Gravity _____ API RW _____ @ _____ °F Chlorides _____ ppm

(A) Initial Hydrostatic 1914	☒ Test 1150	T-On Location 1:10	
(B) First Initial Flow 29	☒ Jars 250	T-Started 1:25	
(C) First Final Flow 29	☒ Safety Joint 75	T-Open 4:00	
(D) Initial Shut-In 1,597	☐ Circ Sub _____	T-Pulled 7:00	
(E) Second Initial Flow 31	☐ Hourly Standby _____	T-Out 8:12	
(F) Second Final Flow 33	☒ Mileage 144mi 158.10	Comments _____	
(G) Final Shut-In 1,372	☐ Sampler _____		
(H) Final Hydrostatic 1,826	☐ Straddle _____	☐ Ruined Shale Packer _____	
	☐ Shale Packer _____	☐ Ruined Packer _____	
Initial Open 30	☐ Extra Packer _____	☐ Extra Copies _____	
Initial Shut-In 60	☐ Extra Recorder _____	Sub Total 0	
Final Flow 30	☐ Day Standby _____	Total 1633.10	
Final Shut-In 60	☐ Accessibility _____	MP/DST Disc't _____	
	Sub Total 1633.10		

Approved By _____ Our Representative _____

TRILOBITE TESTING INC.

1515 Commerce Parkway • Hays, Kansas 67601

4/10

Test Ticket

NO. 54106

Well Name & No. Keith Well #1-33 Test No. 3 Date 3/28/14

Company Murfin Drilling Co, Inc. Elevation 2702 KB 2697 GL

Address 250 N Water STE 300 Wichita KS 67202

Co. Rep / Geo. Charles Schmaltz Rig Murfin #24

Location: Sec. 33 Twp. 9 Rge. 27 Co. Sheridan State KS

Interval Tested 3999 - 4092 Zone Tested KC "I-L"

Anchor Length 93 Drill Pipe Run 3868 Mud Wt. 9.1

Top Packer Depth 3994 Drill Collars Run 115 Vis 70

Bottom Packer Depth 3999 Wt. Pipe Run — WL 5.6

Total Depth 4092 Chlorides 2,300 ppm System LCM 3

Blow Description IF - 3 1/4 in blow
ISI - No blow
FF - 1/2 in blow
FSI - No blow

Rec 115	Feet of oilspotted WCM	%gas	%oil	40 %water	60 %mud
Rec 45	Feet of oilspotted vsWCM	%gas	%oil	5 %water	95 %mud
Rec	Feet of	%gas	%oil	%water	%mud
Rec	Feet of	%gas	%oil	%water	%mud
Rec	Feet of	%gas	%oil	%water	%mud

Rec Total 160 BHT 118 Gravity ____ API RW .25 @ 40 °F Chlorides 55,000 ppm

(A) Initial Hydrostatic	1,989	☒ Test	1250	T-On Location	1:55
(B) First Initial Flow	19	☒ Jars	250	T-Started	1:55
(C) First Final Flow	58	☒ Safety Joint	75	T-Open	5:35
(D) Initial Shut-In	1,246	☐ Circ Sub		T-Pulled	9:35
(E) Second Initial Flow	63	☐ Hourly Standby		T-Out	11:25
(F) Second Final Flow	97	☒ Mileage 144mT	158.10	Comments	
(G) Final Shut-In	1,222	☐ Sampler			
(H) Final Hydrostatic	1,908	☐ Straddle		☐ Ruined Shale Packer	
		☐ Shale Packer		☐ Ruined Packer	
Initial Open	30	☐ Extra Packer		☐ Extra Copies	
Initial Shut-In	60	☐ Extra Recorder		Sub Total	0
Final Flow	60	☐ Day Standby		Total	1633.10
Final Shut-In	90	☐ Accessibility		MP/DST Disc't	
		Sub Total	1633.10		

Approved By ____ Our Representative Brett Duckwitz

CHARLES SCHMALTZ
CONSULTING GEOLOGIST
WICHITA, KANSAS

GEOLOGIC REPORT LOG

COMPANY: MURFIN DRILLING CO.

WELL: KEITH # 1-33

FIELD:

LOCATION: 1850 FNL 660 FWL

SEC 33 TWP 9S RGE 27W

COUNTY: SHERIDAN

STATE: KANSAS

27W

9S | 33

PRODUCTION:

ELEVATION: KB 2702
DF
GL 2697

DRILLING MEASURED FROM:

SAMPLES SAVED FROM 10' - 3500 TO RTD
DRILLING TIME KEPT FROM 1' - 3500 TO RTD
SAMPLES EXAMINED FROM 3500 TO RTD
GEOLOGICAL SUPERVISION FROM 3397 TO TOTAL DEPTH
DRILL STEM TESTS TRILOBITE TESTING CO.
ELECTRICAL SURVEYS PIONEER ENERGY SER
DIL
CNL/CDL
MEL/BHCS

MUD DISTRIBUTOR MORGAN MUD CO
CONTRACTOR MURFIN DRILLING CO. RIG # 24
COMMENCED 21 MAR 14 COMPLETED 29 MAR 2014

CASING RECORD:
SURFACE 8 5/8 @ 262' PRODUCTION
TOTAL DEPTH DRLG. 4200
TOTAL DEPTH LOG 4198

FORMATION TOPS & STRUCTURAL POSITION

FORMATION	SAMPLE TOP	ELECTRIC LOG TOP	SUB-SEA DATUM	STRUCTURAL POSITION
ANHYDRITE - TOP	2285	2288	+414	+6
ANHYDRITE - BASE	2320	2322	+380	+6
TOPEKA	3606	3603	-901	-2
HEEBNER	3824	3821	-1119	-6
LANSING	3861	3860	-1158	-6
STARK	4044	4040	-1338	-4
BKC	4088	4085	-1383	-5
MARMATON	4121	4120	-1418	-6
TOTAL DEPTH	4200	4198	-1496	+275

REFERENCE WELL FOR STRUCTURE: MURFIN DRILLING CO. HAAS-GOETZ # 1-33
2130' FNL, 2570' FEL, SEC 33-T9S-R27W, SHERIDAN CTY

DRILL STEM TESTS

No.	Interval	IBP/Time	ISIP/Time	FBP/Time	FSIP/Time	IHH-FHH	
1	3882-3922 LANS 'B'-'D'	30#-37# 30"	1091# 60"	39#-46# 60"	1037# 90"	1908# 1898# 115°F	8' C 55' V
2	3919-3942 LANS 'F'	29#-29# 30"	1597# 60"	31#-33# 30"	1372# 60"	1914# 1826# 113°F	10' Dil
3	3999-4092 LANS 'I'-'L'	19#-58# 30"	1246# 60"	63#-97# 60"	1222# 90"	1989# 1908# 118°F	45' Sv 115' W

BIT RECORD

NO	SIZE	MAKE	TYPE	DEPTH OUT	FEET	HOURS
1	12 1/4		G44C	262	262	3 1/2
2	7 7/8		GX20C	3922	2660	79 3/4
3	7 7/8		GX20C	4200	278	16 1/4

PIPE STRA
PIPE S
@ 4D
DEVIATIO
@ 2
@ 3
@ 4

DAILY PENETRATION

DATE	DEPTH
3-21	MIRT - SPUD
3-22	380
3-23	2095
3-24	2995
3-25	3605
3-26	3922
3-27	3942
3-28	4092
3-29	4200

MUD RECORD

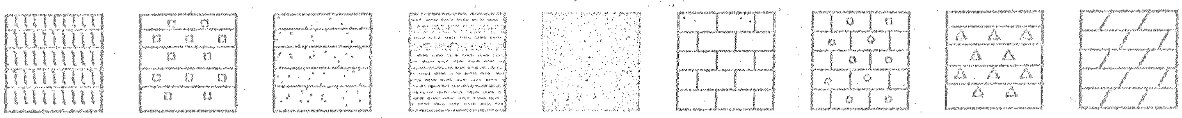
MUD TYPE:				PUMP SIZE:				
NO	DATE	DEPTH	ACTIVITY	WT	VIS	WL	PV	YP
4	3-25	3798	DRLG	8.7	56	5.6	20	12.0
5	3-26	3922	DST#1	9.0	56	5.6	19	12.0
6	3-27	3963	DRLG	9.1	70	5.6	27	11.5
7	3-28	4093	DRLG	9.0	54	6.4	19	11.0

8/29 3# 3000
8/24 3# 1500
10/31 3# 2300
8/28 3# 1800

TRAPS:
92 - 1.18 SHORT
ON SURVEYS:
2 - 1/4°
22 - 1 1/4°
00 - 1°

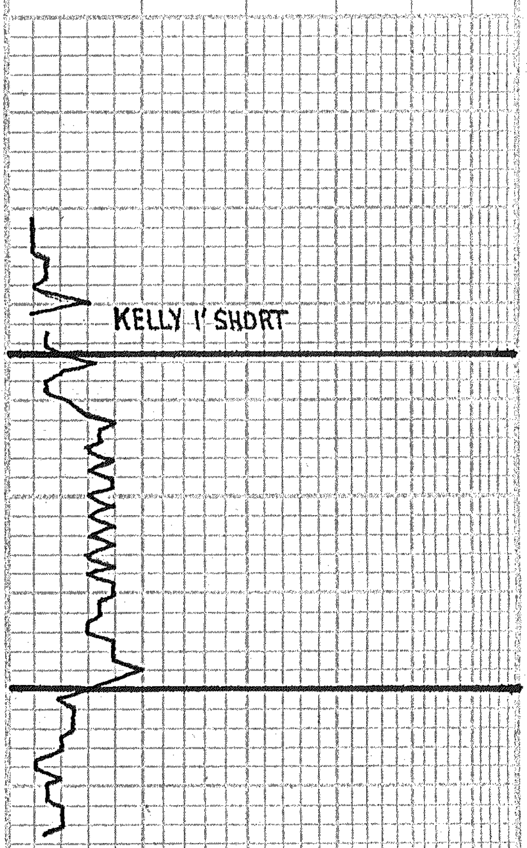
WCM w/ OIL SPOTS
CM w/ OIL SPOTS
SPOTTED MUD
SOCM (5%O, 95%M)
(22 GR)

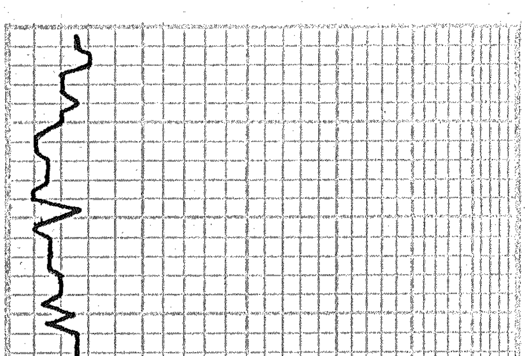
LEGEND

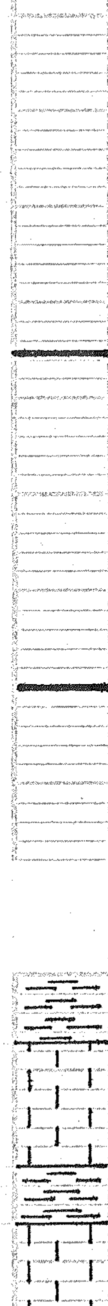


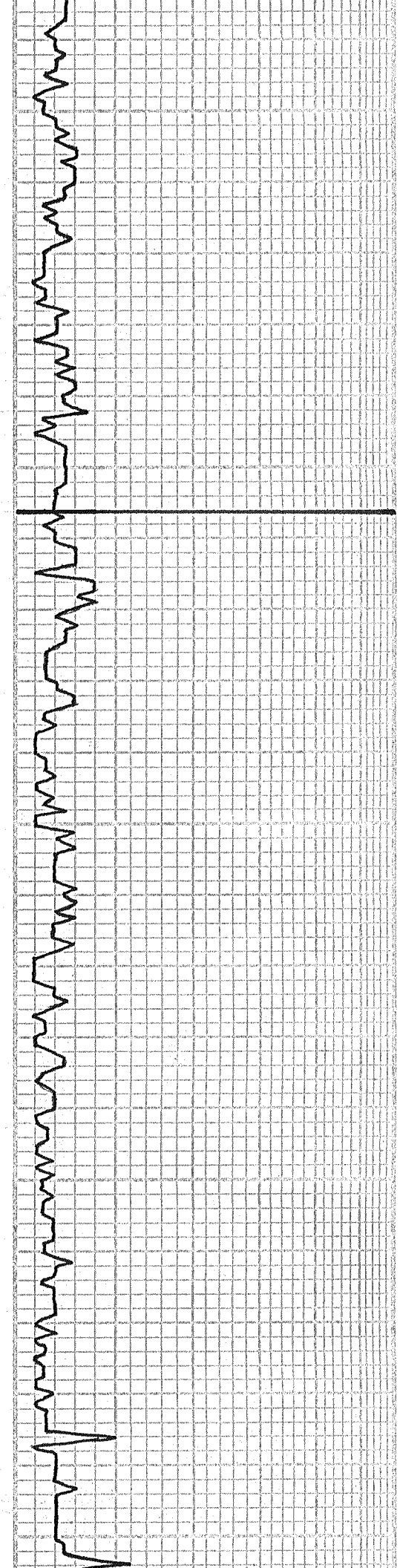
Anhydrite | Salt | Sandstone | Shale | Carb sh | Limestone | Ool.Lime | Chert | Dolomite

DRILLING TIME IN MINUTES PER FOOT (Rate of Penetration Decreases) 5" 10" 15" 20" 25"	DEPTH	LITHOLOGY	SAMPLE DESCRIPTIONS	OIL SHOWS	REMARKS
	2250				
	60				
	70				
	80				
KELLY 1' SHORT	90				ANHYDRITE - TOP 2285 (+417)
	2300				
	10				
	20				ANHYDRITE - BASE 2320 (+382)
	30				
	3500		ls: brown lt, grey fn-medxtln, sli foss scat pr interxtln ø no show w/considerable grey, grey-green sh		
	10		ls: tan, brown, grey, fn-medxtln sli foss, scat pr interxtln & vuggy ø, no show		
	20		ls: as above; w/ sh; grey, green; some brown rust		
	30		ls: tan, lt brown, fn-medxtln, foss		









granular in part, scat pr inter-
xtln & vuggy ø, no show

40

ls: tan, lt. brown fn-medxtln no vis ø w/ ls: grey, brown fn-medxtln, shaley to shale; grey, calc in pt.

3550

ls: beige, tan, fn-medxtln, sli foss, tr. oil scat pr interxtln & foss ø no show: ls: grey, fn-medxtln, dense

60

sh: grey, green; w/ ls: brown, grey, fn-medxtln, mottled in part, no vis ø, no show

70

ls: grey, fn-medxtln, sli foss, shaley mottled in part; considerable grey shale; some calc; few pcs silty to sli sandy

80

ls: brown, dk brown, dk grey, vfn-medxtln, no vis ø, no show

90

ls: as above w/ sh: grey dk grey

3600

ls: dk grey, fn-medxtln, shaley sandy in part, some mottled, no vis ø, NS; shale: grey, calc, mica

TOPEKA

3606 (-904)

10

ls: tan, lt. grey, fn-medxtln, sli foss, few pcs pr interxtln ø, no show; sh: grey, few pcs dk grey

20

ls: tan, brown, fn-medxtln, sli foss, scat pr interxtln & ppt vuggy ø NS some w/ interbedded green sh; few pcs wh, fnxtln, chalky ls.

30

ls: tan, lt brown, fn-medxtln, sli foss, granular, pr-fr interxtln/intergranular ø; no show; few pcs Δ, beige, fresh, opaque

40

Δ

3650

ls: tan, brown, fn-medxtln, no vis ø no show; ls: grey, vfn-fnxtln, dense

60

ls: grey, fn-medxtln, sli foss, shaley in part; sh: grey, calc, some interbedded ls frags

70

ls: brown, fn-medxtln, oolitic, most w/ calcite cement, scat pr-fr intraoolitic ø, no show, fr amount wh chalk

80

ls: tan, brown, fn-medxtln, tr foss, v sli oil, scat pr interxtln ø, no sho wh, fnxtln, chalky, ls

90

ls: as above w/ considerable wh chalky ls & wh chalk

3700

ls: tan, fn-medxtln, no vis ø, no show; w/ chalk & chalky ls

10

few pcs blk carb sh

ls: dk grey fn-medxtln dense

20

sh: grey, some mica, calc

some lt grey siltstone: dolo fnxtln, mottled, shaley

30

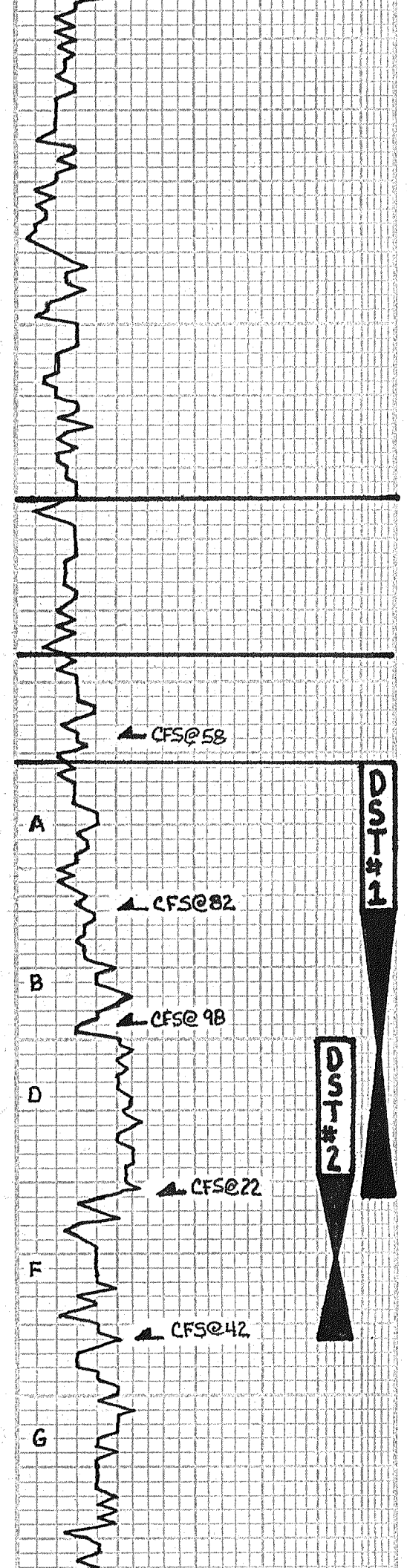
sh: grey, silty; lt. grey siltstone; few clusters grey, vfn grained ss, friable, shaley; no show: dolo; as above

40

ls: tan, fn-medxtln, granular, sli foss; few pcs w/ v. pr interxtln ø N.S.

3750

sh: grey, mica; brown, silty



60 ls: tan lt. brwn some grey fn-xtlnr, few pcs sli oolitic, no vis ø no show

70 ls: as above w/ few pcs grey green sh

80 ls: tan, lt brown, fn-medxtln, sli foss, granular, scat app pr inter-granular/interxtl n.ø, no show

90 ls: tan, grey, fn-medxtln, dense w/ sh: grey

3800 ls: tan, lt. brown, grey, fn-med xtln, sli foss, chalky in part some mottled, no vis ø, no show

10 ls: tan, brown, grey, fn-medxtln, no vis ø, no show; ls: grey fnxtln, sli foss, mottled, chalky in part; no vis ø; no show

20 sh: black, carb
ls: tan, fnxtln, dense

30 sh: grey, pale grey, mica, sli silty, few pcs sandy

40 sh: as above w/ few pcs grey, shaley, fnxtln ls

3850 ls: tan fn-medxtln, oolithic/pellets calcite cement, poss v pr intercool ø no show; ls: most lt grey, grey, vfn-fnxtln dense.: few pcs tan, fnxtln ls. sh: mostly grey, some green, brown

60 ls: tan, grey-tan, fn-medxtln, sli foss, few pcs ool in part, pr inter-ool por, most calcite filled, app pr interxtln ø, no st, cut ydor, no show live oil.

70 ls: as above, becoming chalky in part

80 sh: grey, sli calc, mica.

90 ls: tan, lt grey, fn-medxtln, ool in part, scat pr-fr interool ø, fr-some gd interxtln ø & vuggy ø, p-F (few pcs B) SFO on break pr-gd med-dk st w/ sat, no odor

3900 sh: grey, lt. grey

10 ls: lt grey, fnxtln, scat pr ppt & vuggy ø, (most dense), vss ppts FO on break vpr-pr, spotty med-dk st, vp sat, scat live & dd oil st on few faces/fracs, no odor

20 ls: lt grey, some tan, fnxtln, no vis ø, no show

sh: grey, dk grey, few pcs black w/ ls: tan, vfn-fnxtln, dense w/ sh grey, mica

30 ls: off wh, lt grey fnxtln, few pcs ool, w/ pr interool por, scat pr-vpr interxtln & vuggy por, 3-4 pcs/tray w/ few ppts FO on break scat pr spotty dk st, no odor

40 sh: lt grey, grey, some brown

3950 ls: wh, v. lt. grey, lt. tan, vfn-fnxtln sli calcitic, chalky in pt, v scat. vpr interxtln por, no show

ls: as above, no show

60 ls: tan lt grey vfn-fnxtln, no vis ø no show w/ Δ blue-grey, tan-grey, fresh, opaque

70 ls: brown, grey, fn-medxtln,

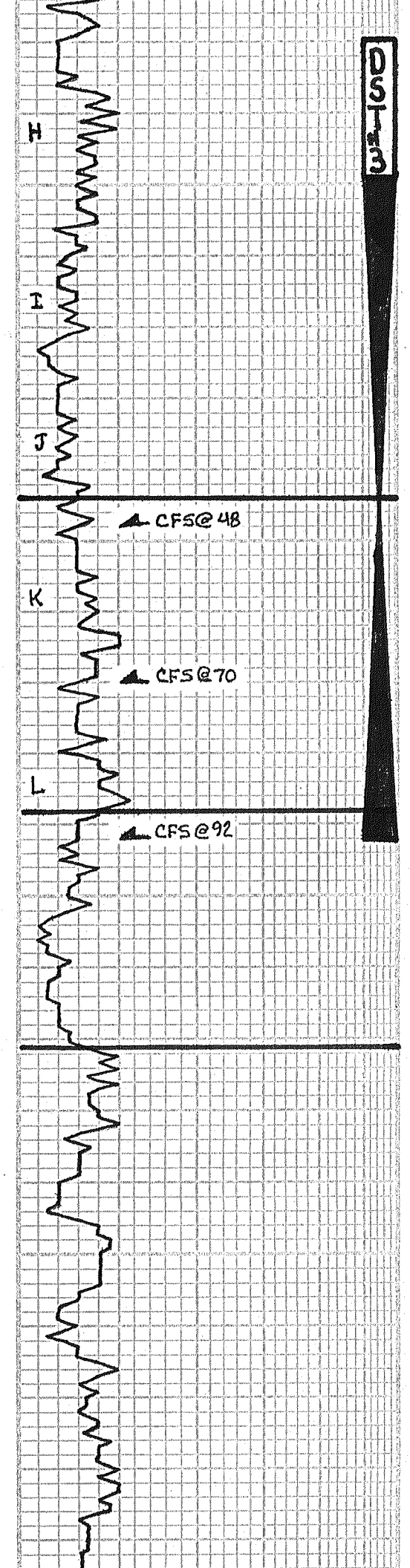
HEEBNER
3824 (-1122)

TORONTO
3846 (-1144)

LANSING
3861 (-1159)

DST #1
(3882 - 3922)
30" - 60" - 60" - 90"
IFP: 1¼" BLOW DEC TO ("
FFP: SURF BLOW THRU OUT
RECOVERY:
8' CO (GR 22°)
55' VSOCM (5%O, 95%M)
HSP: 1908# - 1898#
FP: 30#-37# / 39#-46#
SIP: 1091# - 1037#
BHT: 115° F

DST #2 (*)
(3919 - 3942)
30" - 60" - 30" - 60"
IFP: STEADY 1¼" BLOW
FFP: NO BLOW
RECOVERY:
10' OIL SPOTTED MUD
HSP: 1914# - 1826#
FP: 29#-29# / 31#-33#
SIP: 1597# - 1372#



80 sh: lt grey, grey, some brown

90 ls: tan, brown lt. grey, fn-medxtln, sli foss, no vis Ø, no show

ls: tan, lt grey, vfn-fnxtln, dense

4000 ls: brown, medxtln, sli oolitic & foss, cpl pcs w/pr interxtln Ø. NS,

cpl pcs wh, fnxtln, ls w/ vpr interxtln Ø, few spots dd oil residue, no show live oil

10 sh: lt. grey, green-grey, some w/ interbedded ls frags → shaley ls

20 ls: grey, brown, fn-medxtln, sli foss mottled in pt, no vis Ø, no show

sh: lt. grey, grey, some brown, w/

30 ls: tan-grey, medxtln, foss, inter-

bedded green sh: no vis Ø NS

40 ls: wh, tan, fnxtln, few pcs sli ool, app vpr-pr interxtln Ø, cpl pcs w/ pr spotty hvy inert oil/tar & hvy blk st, no show live oil

sh: blk carb

4050 ls: tan, brown, lt. grey, fnxtln, sli ool, scat pr interxtln Ø, vpr-pr ppt Ø, few pcs w/ PS hvy dk oil, some tarry, 2-3 pcs/tray w/few minute ppts FO on break, pr spotty dk st, vss dd oil residue: becoming chalky & more dense toward base

60

70 ls: grey, brown, fn-medxtln some interbedded grey, brown sh → sh: grey, calc, some included ls frags

80 ls: off wh, tan, fnxtln, chalky in part, cpl pcs w/ tr pr interxtln Ø (most dense) & vss dk brown hvy inert oil, tr spots blk st, no show live oil

90 sh: grey, green, some brown purple calc in part

4100 sh: mostly brown, grey, some green, purple, few pcs lt. grey siltstone

sh: as above w/ considerable ss: (red from shale) fn grained,

10 well-sorted, firm-friable, no vis Ø no show

sh: brown, grey, few pcs green

20 ls: tan, brown, grey, mostly micro-fnxtln dense, few pcs brown, medxtln, dense

30 sh: grey, calc; rust-brown; ls: grey, fn-medxtln, mottled, dense

40 sh: as above

4150 ls: grey, micro-fnxtln, dense w/ ls: tan, lt. brown, fn-medxtln, sli sandy, interbedded & porosity filled red shale

sh: mostly grey, calc, some brown

60 ls: tan, brown, fn-medxtln, tr ool, sli sandy in pt, no vis Ø, no show

70 sh: mostly brown, rust, silty → sandy, in part; sh: grey, purple-grey; dolomitic → few pcs fnxtln purple/grey, shaley, dolomite

80 as above

90 sh: pale pinkish-brown, very

BHT: 113 F

(*) SLID TOOL 6' TO BOTTOM

DST #3
(3999 - 4092)
30"-60"-60"-90"
IFP: 1" BLOW BLDG TO 3¼"
ISIP: NO BLOW
FFP: SURF BLOW BLDG TO ½"
FSIP: NO BLOW

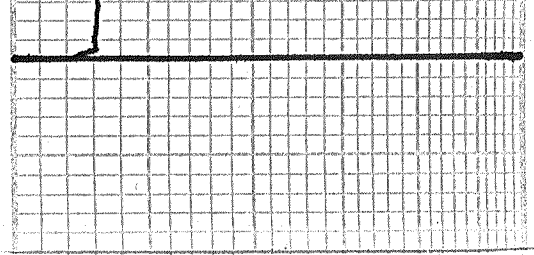
RECOVERY:
- 45' SWCM w/ OIL SPOTS (5% W, 95% M)
- 115' WCM w/ OIL SPOTS (40% W, 60% M)

CHL: 55000 PPM, SYS: 2300 PPM
HSP: 1989# - 1908#
FP: 19#-58# / 63#-97#
SIP: 1246# - 1222#
BHT: 118° F

STARK 4044 (-1342)

BKC 4088 (-1386)

MARMATON 4121 (-1419)



4200

gummy, sh: brown, grey, few pcs brown fn-med xtln & grey, vfnxtln, dense ls: few pcs grey, purple-grey, shaley, dolomite.

RTD 4200 (-1498)

LTD 4198 (-1496)

5" 10" 15" 20" 25"

DRILLING TIME Minutes/Foot

Rate of Penetration Decreases

DEPTH

LITHOLOGY

SAMPLE DESCRIPTIONS

SHOWS TID

REMARKS