KANSAS CORPORATION COMMISSION
OIL & GAS CONSERVATION DIVISION

1127699

Form ACO-1
June 2009
Form Must Be Typed
Form must be Signed
All blanks must be Filled

WELL COMPLETION FORM
WELL HISTORY - DESCRIPTION OF WELL & LEASE

OPERATOR: License # 32283
Name: Western Operating Company
Address 1: 518 17TH ST STE 200
Address 2:
City: DENVER State: CO Zip: 80202 + 4117
Contact Person: Steven D. James
Phone: (303) 893-2438
CONTRACTOR: License # 30606
Name: Murfin Drilling Co., Inc.
Wellsite Geologist: Pete Debenham
Purchaser:

Designate Type of Completion:

- [x] New Well
- [ ] Re-Entry
- [ ] Workover

- [ ] Oil
- [ ] WSW
- [ ] SWD
- [ ] SIOW
- [ ] Gas
- [x] 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
- [ ] Conv. to GSW
- [ ] Plug Back: Plug Back Total Depth
- [ ] Commingled Permit #:
- [ ] Dual Completion Permit #:
- [ ] SWD Permit #:
- [ ] ENHR Permit #:
- [ ] GSW Permit #:

12/23/2012	01/04/2013	01/05/2013
Spud Date or Recompletion Date	Date Reached TD	Completion Date or Recompletion Date

API No. 15 - 15-075-20865-00-00
Spot Description:
_ - _ - W2 - SE Sec. 6 Twp. 25 S. R. 42 [ ] East [x] West
1320 Feet from [ ] North / [x] South Line of Section
1980 Feet from [x] East / [ ] West Line of Section

Footages Calculated from Nearest Outside Section Corner:

- [ ] NE
- [ ] NW
- [x] SE
- [ ] SW

County: Hamilton
Lease Name: HELFRICH Well #: 1-6
Field Name: Helfrich
Producing Formation: Morrow
Elevation: Ground: 3574 Kelly Bushing: 3586
Total Depth: 5400 Plug Back Total Depth:
Amount of Surface Pipe Set and Cemented at: 843 Feet
Multiple Stage Cementing Collar Used? [ ] Yes [x] 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: 2300 ppm Fluid volume: 2000 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

- [ ] **Letter of Confidentiality Received**
  Date:
- [ ] **Confidential Release Date:**
- [x] **Wireline Log Received**
- [ ] **Geologist Report Received**
- [ ] **UIC Distribution**

ALT [x] **I** [ ] **II** [ ] **III** **Approved by:** Deanna Garrison **Date:** 04/08/2013

Side Two

[redacted]

1127699

Operator Name: Western Operating Company Lease Name: HELFRICH Well #: 1-6

Sec. 6 Twp. 25 S. R. 42 ☐ East ☑ West County: Hamilton

INSTRUCTIONS: Show important tops and base 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. Attach complete copy of all Electric Wire-line Logs surveyed. Attach final geological well site report.

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

Electric Log Submitted Electronically ☑ Yes ☐ No
(If no, Submit Copy)

List All E. Logs Run:

Microresistivity
Array Induction
Compensated Neutron Density

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

Name	Top	Datum
Atoka	4820	
Morrow	4986	
Keys SS	5296	
Miss	5320	

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	24	843	Lite	300	

ADDITIONAL CEMENTING / SQUEEZE RECORD

Purpose:
☐ Perforate
☐ Protect Casing
☐ Plug Back TD
☐ Plug Off Zone

Depth Top Bottom	Type of Cement	# Sacks Used	Type and Percent Additives
-			
-			

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:

Mail to: KCC - Conservation Division, 130 S. Market - Room 2078, Wichita, Kansas 67202

ALLIED OIL & GAS SERVICES, LLC

KB 052638

Federal Tax I.D.# 20-5975804

REMIT TO P.O. BOX 31
RUSSELL, KANSAS 67665

SERVICE POINT: Liberal Ks.

DATE 12-28-12	SEC. 6	TWP. 25	RANGE 42	CALLED OUT	ON LOCATION 4:00 pm	JOB START 7:30	JOB FINISH 8:30
LEASE HEALRICH	WELL # 1-6	LOCATION S.W. Syracuse Ks.				COUNTY Hamilton	STATE Ks.
OLD OR (NEW) (Circle one)							

CONTRACTOR

OWNER Western Operating

TYPE OF JOB 8 5/8 Surface
HOLE SIZE 12 1/4 T.D. 845 feet
CASING SIZE 8 5/8 24# DEPTH 843 feet
TUBING SIZE DEPTH
DRILL PIPE DEPTH
TOOL DEPTH
PRES. MAX 800 - 1000 PSI MINIMUM
MEAS. LINE SHOE JOINT 40 feet
CEMENT LEFT IN CSG. 40 feet
PERFS.
DISPLACEMENT 51.15 BBls H2O

EQUIPMENT

PUMP TRUCK CEMENTER Ruben Chavez
531/541 HELPER Cesar Pavia 2
BULK TRUCK
#456/251 DRIVER Angel Garcia - 3
BULK TRUCK
DRIVER Aldo Espinoza 3

REMARKS:

Pump 10 BBls H2O - spacer ahead. Mix + pump 450 sk of Cement 137 BBls of Slurry; Displaced it with 51 BBls of H2O, Bump plug at 800 PSI; Released pressure Flow held. Rig down. Job finished. Thank you

CHARGE TO: Western Operating

STREET

CITY STATE ZIP

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 Raymond Black

SIGNATURE

CEMENT

AMOUNT ORDERED 300 sk 65/35 6% 6el, 3% cc, 1/4 lb/sk F. Seal, 150 sk "A" 3% c.c.

COMMON	150 sk	@ 17.90	2,685.00
POZMIX		@	
GEL		@	
CHLORIDE	15 sk	@ 64.00	960.00
ASC		@	
ALCIA	300 sk	@ 16.50	4,950.00
F/c Seal	75 lb	@ 2.97	222.75
HANDLING	468 Cuft	@ 2.48	1,160.64
MILEAGE	1614.26 Ton Mi	2.60	4,197.08
		TOTAL	14,181.87

10% 14,26

SERVICE

DEPTH OF JOB			845 feet
PUMP TRUCK CHARGE			2,058.50
EXTRA FOOTAGE		@	
MILEAGE	heavy Veh. 75	@ 7.70	577.50
MANIFOLD + Cem head	1	@ 275.00	275.00
Light Vehicle	75 M.	@ 4.40	330.00
		@	
		TOTAL	3,241.00

PLUG & FLOAT EQUIPMENT

8 5/8

Centralizers	3	@ 74.88	224.64
AFU Float Valve	1	@ 446.94	446.94
Wooden plug		@ 107.64	107.64
		@	
		@	
		TOTAL	779.22

SALES TAX (If Any)	701.04
TOTAL CHARGES	18,202.09
DISCOUNT	3640.42 IF PAID IN 30 DAYS

NET = 14,561.67

ALLIED OIL & GAS SERVICES, LLC

KB 052639

Federal Tax I.D.# 20-5975804

REMIT TO P.O. BOX 31
RUSSELL, KANSAS 67665

SERVICE POINT: Liberal ks.

DATE	SEC	TWP.	RANGE	CALLED OUT	ON LOCATION	JOB START	JOB FINISH
01-04-13	6	25	42		6:00 P.m.	10.00	11.00 P.m.

LEASE Helfrich | WELL # 1-6 | LOCATION S.W. Syracuse Ks | COUNTY Hamilton | STATE Ks

OLD OR NEW (Circle one) — NEW circled

1-03 7.3

CONTRACTOR
TYPE OF JOB PTA
HOLE SIZE 7 7/8 T.D. 1860
CASING SIZE 8 5/8 24# DEPTH 843 feet
TUBING SIZE DEPTH
DRILL PIPE 4 1/2 16.6# DEPTH 1860
TOOL DEPTH
PRES. MAX MINIMUM
MEAS. LINE SHOE JOINT
CEMENT LEFT IN CSG. 504 feet
PERFS.
DISPLACEMENT 32.5 BBls Mud + H2O

OWNER Western operating

CEMENT

AMOUNT ORDERED 170sk 60/40 4% Gel 1/4 lb/sk flo Seal

		@		
COMMON		@		
POZMIX		@		
GEL		@		
CHLORIDE		@		
ASC		@		
ALC2A	170sk	@	15.95	2,711.50
Flo-Seal	43 lb	@	2.97	127.71
HANDLING	178 Cu.ft	@	2.48	441.44
MILEAGE	588.56 Ton Mi		2.60	1,530.26
			TOTAL	4,810.92

588.56

EQUIPMENT

PUMP TRUCK # 531/541 CEMENTER Ruben Chavez 1
HELPER Cesar Pavia 2
BULK TRUCK # 562/554 DRIVER Jaime Torres 3
BULK TRUCK # DRIVER

REMARKS:

Pump 10 BBls H2O-Spacer; Mix+pump 50sk at 1860 feet, 3.5 H2O Behind, displace it with 19.7 BBls Mud-Rig
Mix+pump 50sk at 870 feet displace it with 9.3 BBls H2O.
Mix+pump 20sk at 60ft; 20 sk Mouse Hole + 30 sk for Rat Hole
Thank you.

SERVICE

		@		
DEPTH OF JOB				1860 feet
PUMP TRUCK CHARGE				1,250.00
EXTRA FOOTAGE		@		
MILEAGE	heavy Ve 75	@	7.70	577.50
MANIFOLD		@		
Light Vehicle 75 Mi		@	4.40	330.00
		@		
			TOTAL	2157.50

CHARGE TO: Western Operating
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) 508.69
TOTAL CHARGES 6,968.41
DISCOUNT 1393.69 IF PAID IN 30 DAYS

PRINTED NAME Raymond Blu-l

SIGNATURE [signature]

Net = 5574.72

Petrolific Consulting Services

Peter Debenham
P.O. Box 350
Drake, Colorado 80515

Wellsite Geology
720/220-4860
petrolific@earthlink.net

WESTERN OPERATING COMPANY
Scale 1:240 (5"=100') HELFRICH #1-6
HELFRICH

Well Name:	Western Operating Company
Location:	1320'FSL & 1980'FEL, Section 6, 25S, R42W, Hamilton Co., KS
Licence Number:	API: 15-075-20865 Region: Hougoton
Spud Date:	12/27/12 Drilling Completed: 1/4/13
Surface Coordinates:	1320'FSL & 1980'FEL, Section 6, 25S, R42W, Hamilton Co., KS
Bottom Hole Coordinates:	1320'FSL & 1980'FEL, Section 6, 25S, R42W, Hamilton Co., KS
Ground Elevation (ft):	3574' K.B. Elevation (ft): 3586'
Logged Interval (ft):	3700' To: TD Total Depth (ft): 5400'
Formation:	Morrow, Mississippi
Type of Drilling Fluid:	Chemical Gel/LSND/LCM, mud up 3658'

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

OPERATOR

Company: Wester Operating Company
Address: 518th 17th Street, Suite 200
Denver, CO 80202
Pres.: Steve James

GEOLOGIST

Name: Wellsite: Peter Debenham
Company: Petrolific Consulting Services
Address: P.O. Box 350
Drake, CO 80515
720/220-4860, Petrolific@gmail.com

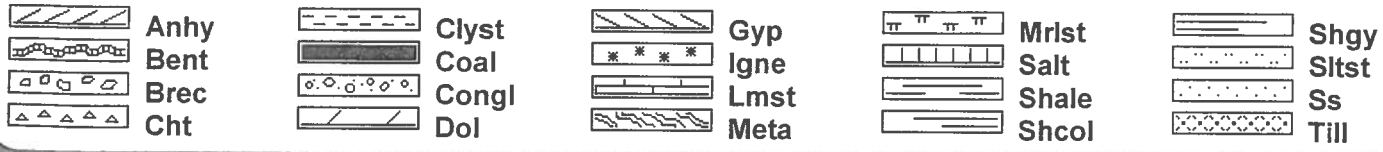
DSTs

DST No. 1(4980'-5042'), Morrow "A" SS
Blows 1/2" to weak surface
IH 2571
IF 20 - 27
ISI 60
FF 60 - 97
FSI 63
FH 2004
Recovery - 5' of mud.

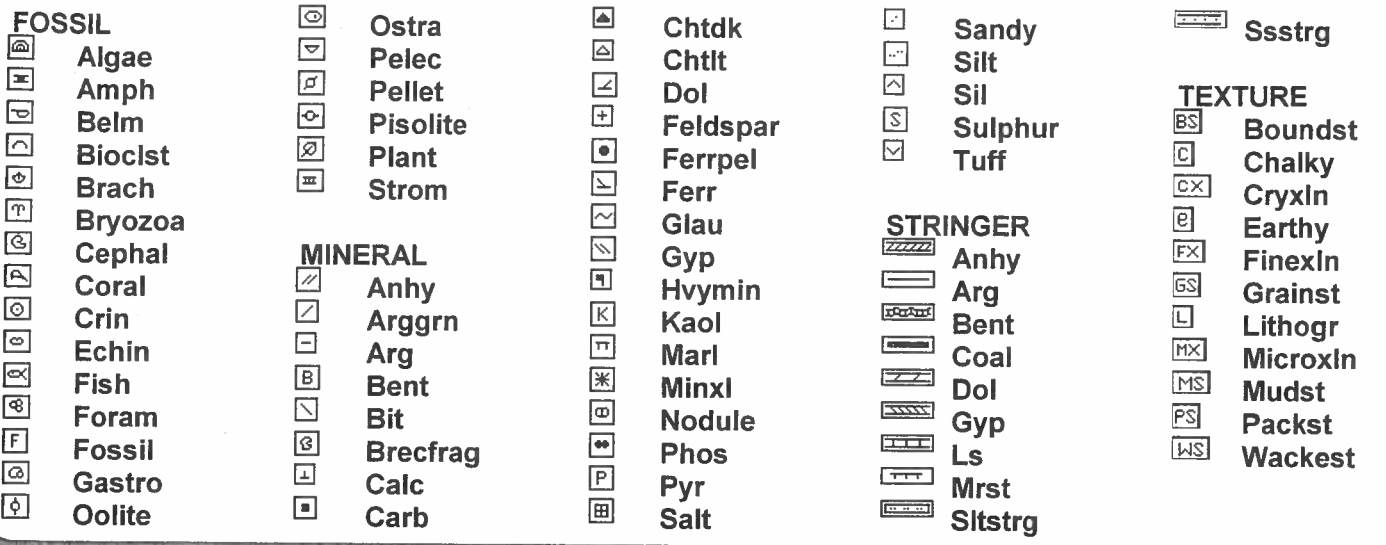
Comments

Mrufin Rig. No. 25, T.P. Ray Bland, jacknife tripple stand, Service Mud/MudCo., Engineer Tony Maestas, Trilobite Testing, Weatherford logs engineer Adam Sill, P&A 1/4/13.

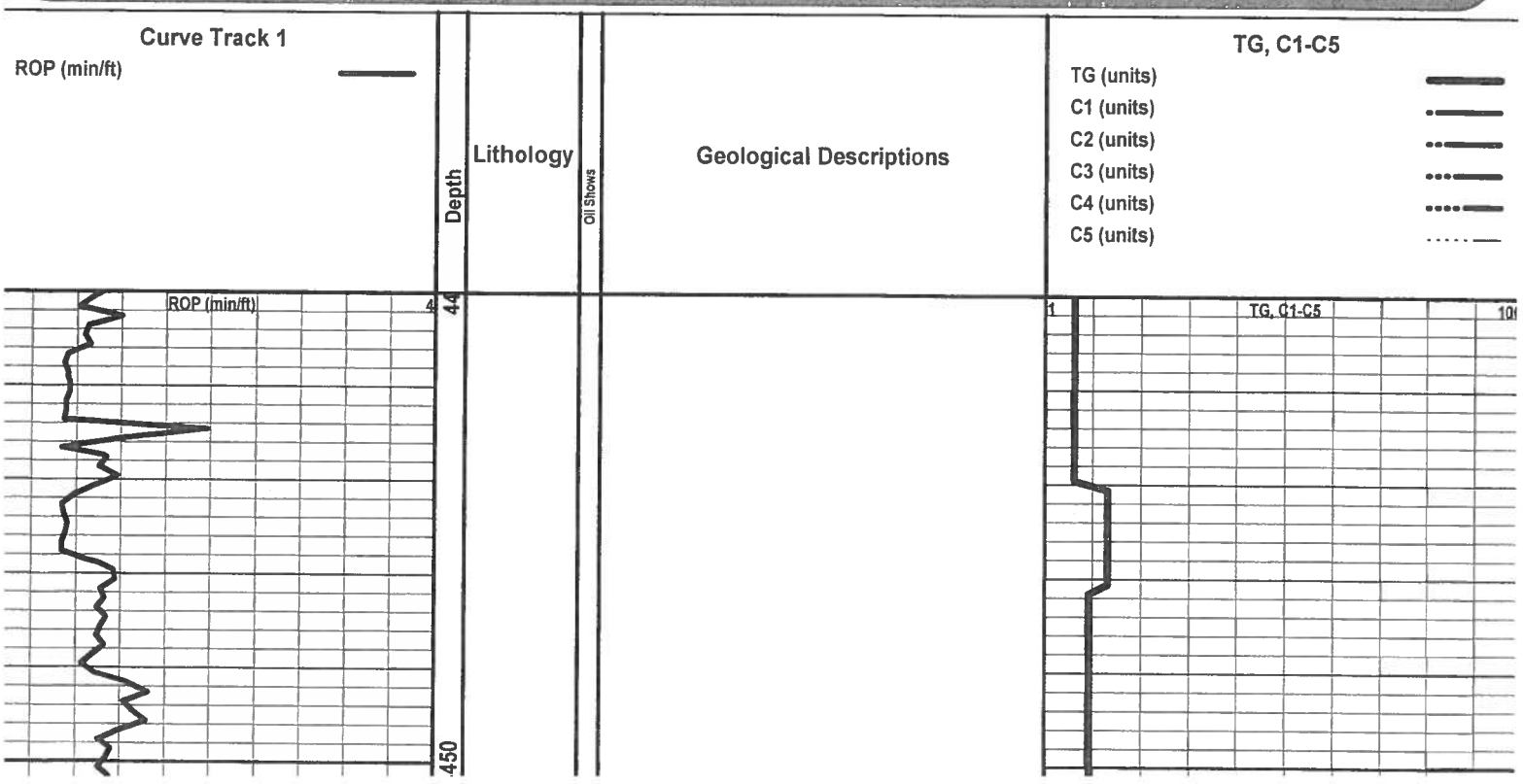
ROCK TYPES

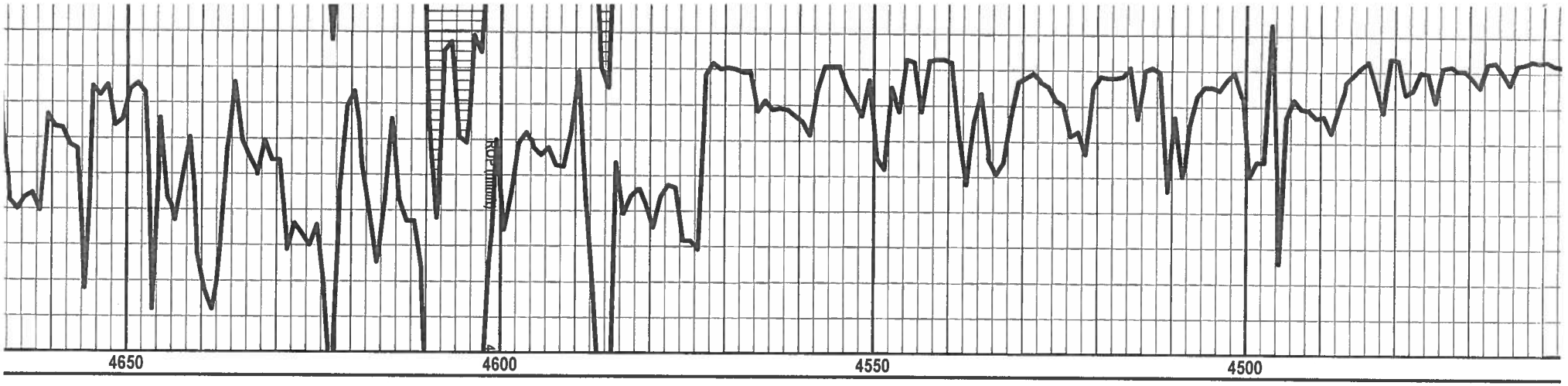


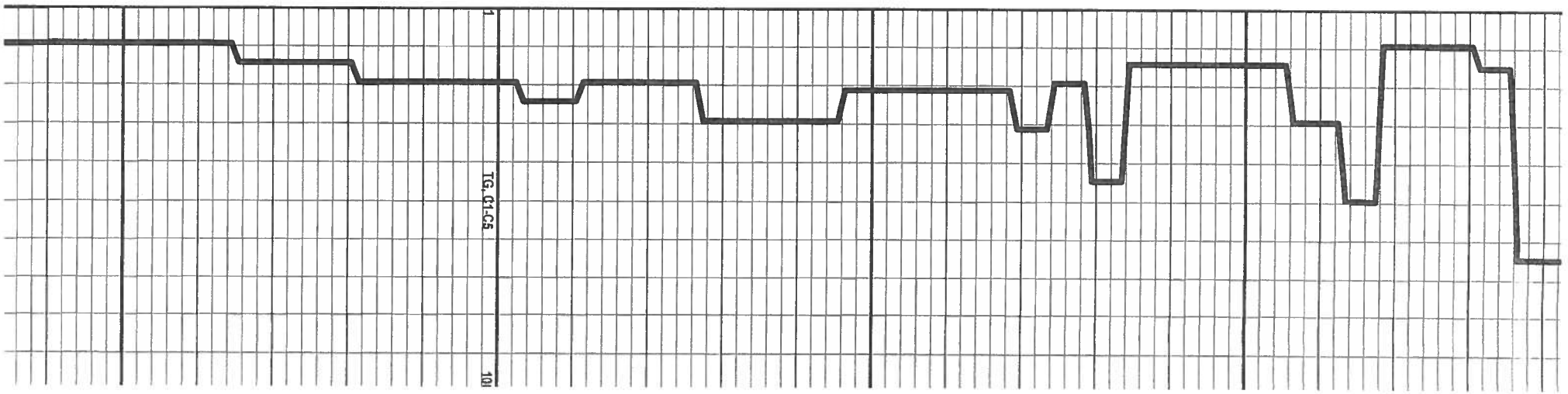
ACCESSORIES

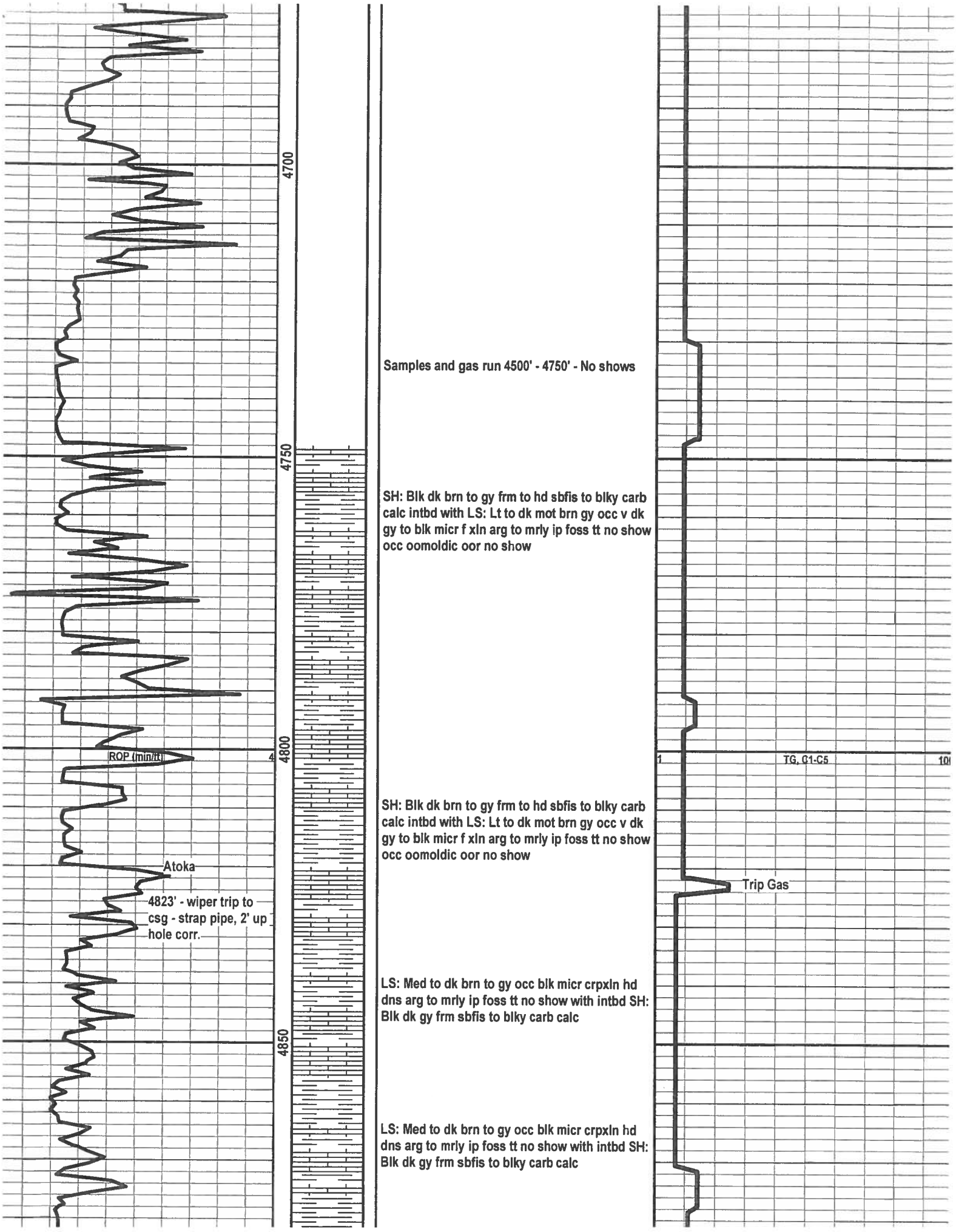


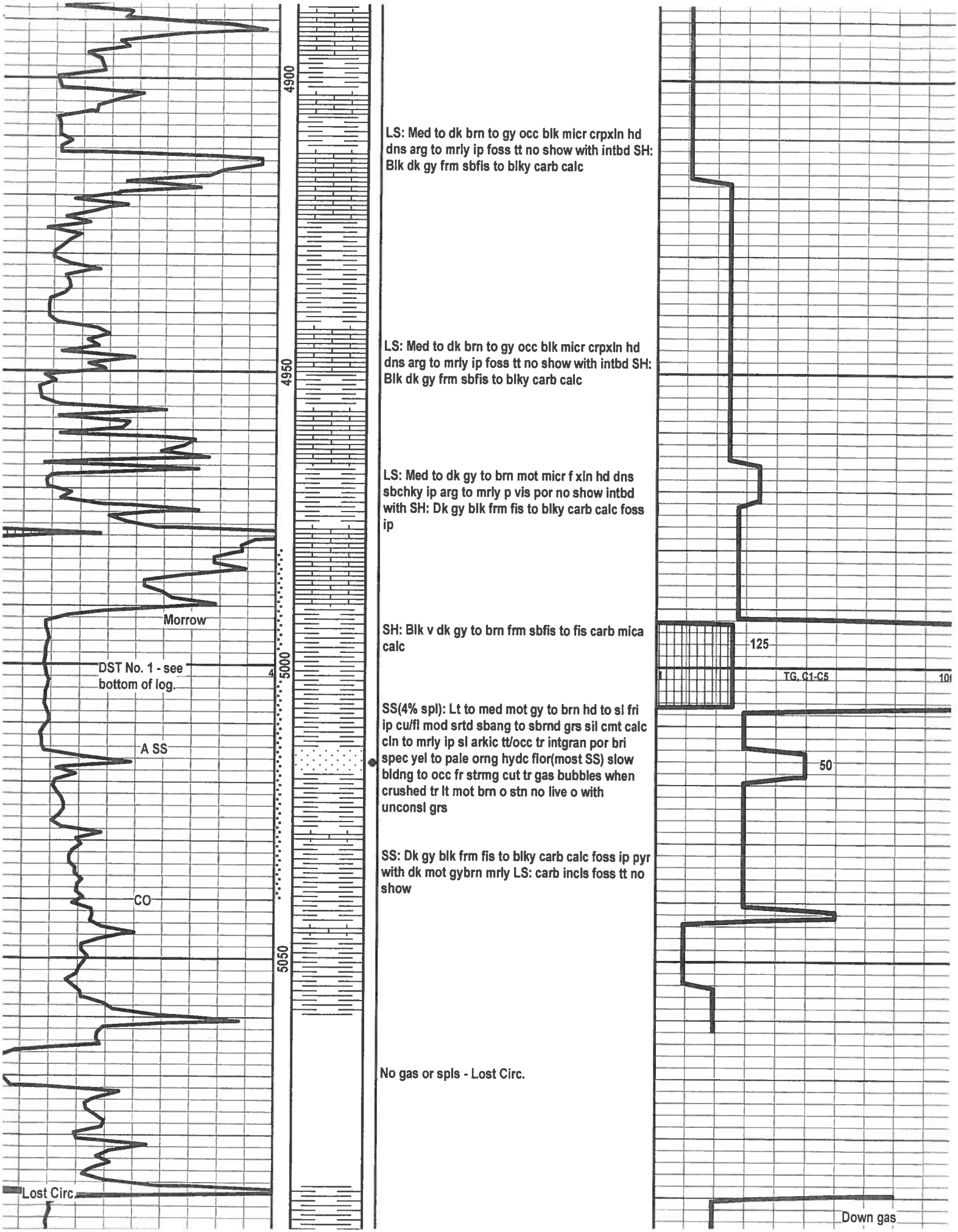
OTHER SYMBOLS

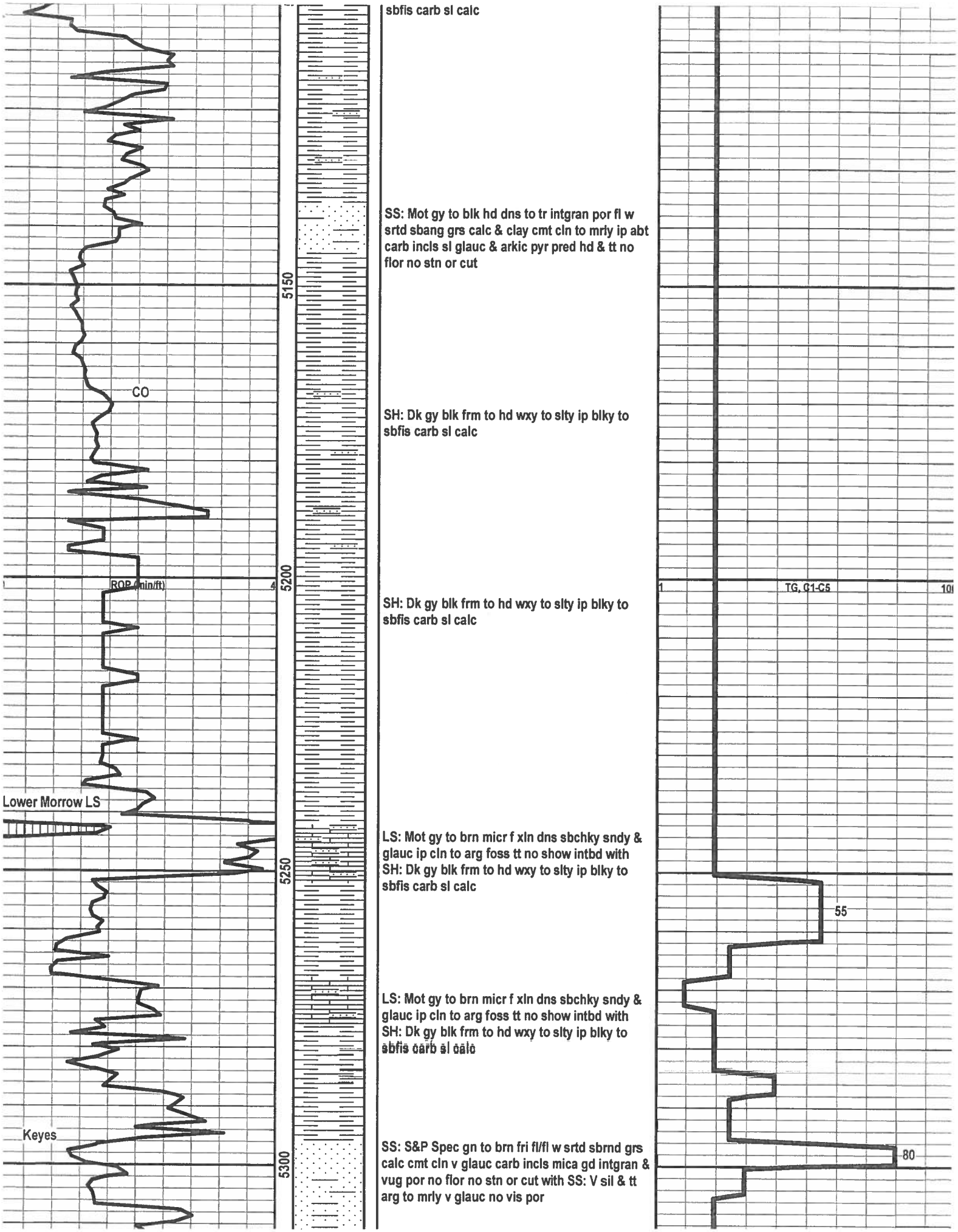


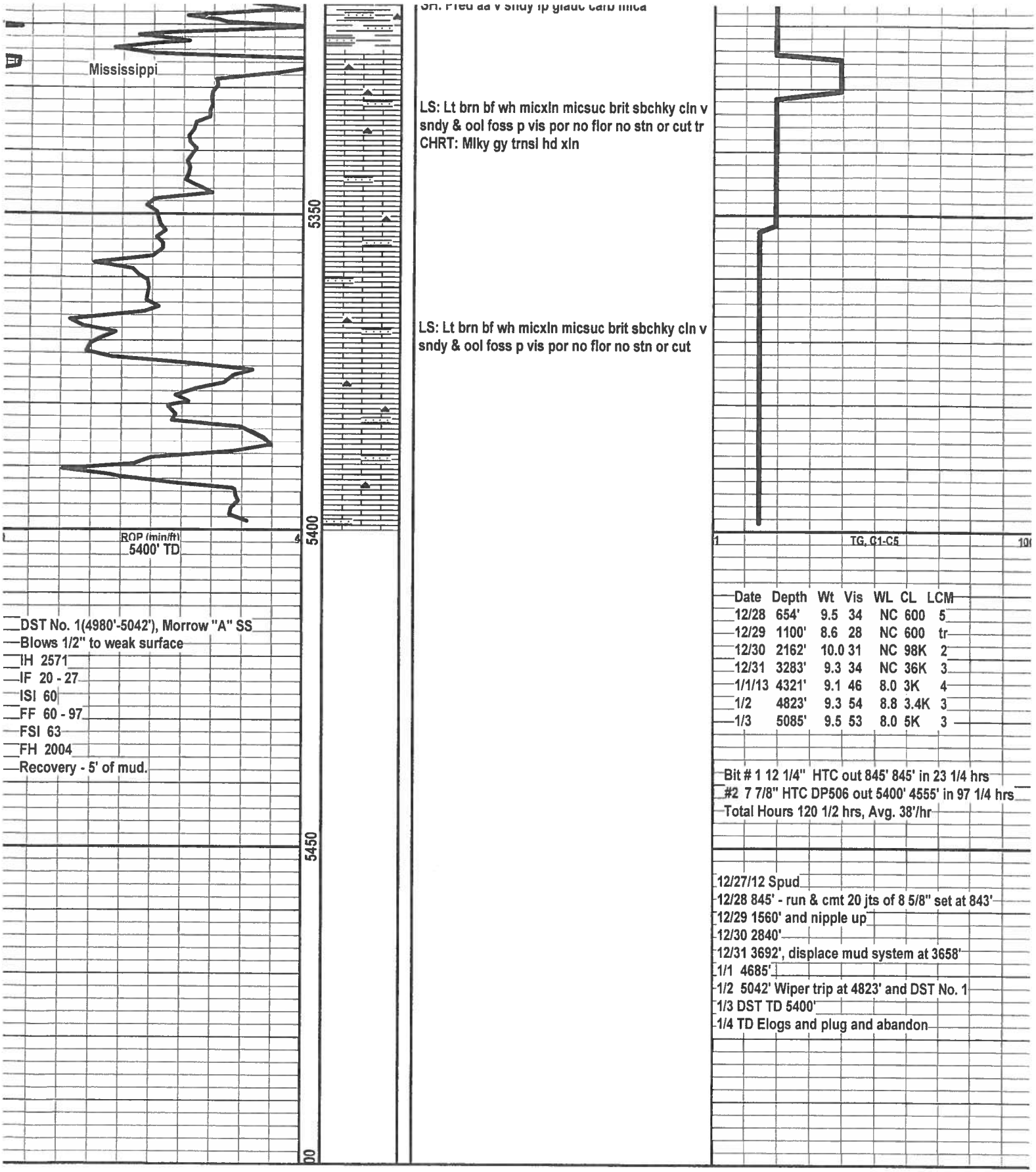

ROP (min/m)
4650
4600
4550
4500


TG, C1-C5
1
10


4700
4750
4800
4850
ROP (min/ft)
4
TG, C1-C5
1
10
Samples and gas run 4500' - 4750' - No shows
SH: Blk dk brn to gy frm to hd sbfis to blky carb calc intbd with LS: Lt to dk mot brn gy occ v dk gy to blk micr f xln arg to mrly ip foss tt no show occ oomoldic oor no show
SH: Blk dk brn to gy frm to hd sbfis to blky carb calc intbd with LS: Lt to dk mot brn gy occ v dk gy to blk micr f xln arg to mrly ip foss tt no show occ oomoldic oor no show
Atoka
4823' - wiper trip to csg - strap pipe, 2' up hole corr.
Trip Gas
LS: Med to dk brn to gy occ blk micr crpxln hd dns arg to mrly ip foss tt no show with intbd SH: Blk dk gy frm sbfis to blky carb calc
LS: Med to dk brn to gy occ blk micr crpxln hd dns arg to mrly ip foss tt no show with intbd SH: Blk dk gy frm sbfis to blky carb calc


4900
4950
5000
5050
Morrow
DST No. 1 - see bottom of log.
A SS
CO
Lost Circ.
LS: Med to dk brn to gy occ blk micr crpxln hd dns arg to mrly ip foss tt no show with intbd SH: Blk dk gy frm sbfis to blky carb calc
LS: Med to dk brn to gy occ blk micr crpxln hd dns arg to mrly ip foss tt no show with intbd SH: Blk dk gy frm sbfis to blky carb calc
LS: Med to dk gy to brn mot micr f xln hd dns sbchky ip arg to mrly p vis por no show intbd with SH: Dk gy blk frm fis to blky carb calc foss ip
SH: Blk v dk gy to brn frm sbfis to fis carb mica calc
SS(4% spl): Lt to med mot gy to brn hd to sl fri ip cu/fl mod srtd sbang to sbrnd grs sil cmt calc cln to mrly ip sl arkic tt/occ tr intgran por bri spec yel to pale orng hydc flor(most SS) slow bldng to occ fr strmg cut tr gas bubbles when crushed tr lt mot brn o stn no live o with unconsl grs
SS: Dk gy blk frm fis to blky carb calc foss ip pyr with dk mot gybrn mrly LS: carb incls foss tt no show
No gas or spls - Lost Circ.
125
TG, C1-C5
50
Down gas


sbfis carb sl calc
SS: Mot gy to blk hd dns to tr intgran por fl w srtd sbang grs calc & clay cmt cln to mrly ip abt carb incls sl glauc & arkic pyr pred hd & tt no flor no stn or cut
CO
SH: Dk gy blk frm to hd wxy to slty ip blky to sbfis carb sl calc
ROP (min/ft)
4
1
TG, C1-C5
10
5150
5200
SH: Dk gy blk frm to hd wxy to slty ip blky to sbfis carb sl calc
Lower Morrow LS
LS: Mot gy to brn micr f xln dns sbchky sndy & glauc ip cln to arg foss tt no show intbd with SH: Dk gy blk frm to hd wxy to slty ip blky to sbfis carb sl calc
55
5250
LS: Mot gy to brn micr f xln dns sbchky sndy & glauc ip cln to arg foss tt no show intbd with SH: Dk gy blk frm to hd wxy to slty ip blky to sbfis carb sl calc
Keyes
SS: S&P Spec gn to brn fri fl/fl w srtd sbrnd grs calc cmt cln v glauc carb incls mica gd intgran & vug por no flor no stn or cut with SS: V sil & tt arg to mrly v glauc no vis por
80
5300



DST No. 1(4980'-5042'), Morrow "A" SS
Blows 1/2" to weak surface
IH 2571
IF 20 - 27
ISI 60
FF 60 - 97
FSI 63
FH 2004
Recovery - 5' of mud.

Date	Depth	Wt	Vis	WL	CL	LCM
12/28	654'	9.5	34	NC	600	5
12/29	1100'	8.6	28	NC	600	tr
12/30	2162'	10.0	31	NC	98K	2
12/31	3283'	9.3	34	NC	36K	3
1/1/13	4321'	9.1	46	8.0	3K	4
1/2	4823'	9.3	54	8.8	3.4K	3
1/3	5085'	9.5	53	8.0	5K	3

Bit # 1 12 1/4" HTC out 845' 845' in 23 1/4 hrs
#2 7 7/8" HTC DP506 out 5400' 4555' in 97 1/4 hrs
Total Hours 120 1/2 hrs, Avg. 38'/hr

12/27/12 Spud
12/28 845' - run & cmt 20 jts of 8 5/8" set at 843'
12/29 1560' and nipple up
12/30 2840'
12/31 3692', displace mud system at 3658'
1/1 4685'
1/2 5042' Wiper trip at 4823' and DST No. 1
1/3 DST TD 5400'
1/4 TD Elogs and plug and abandon

DRILL STEM TEST REPORT

TRILOBITE TESTING, INC

Western Operating Co

518 17th ST #200
Denver CO, 80202

ATTN: Pete Debaham

6-25S-42W-Hamilton KS

Helfrich #1-6

Job Ticket: 51408 **DST#: 1**

Test Start: 2013.01.02 @ 20:04:03

GENERAL INFORMATION:

Formation: **Upper Morrow**
Deviated: No Whipstock: ft (KB)
Time Tool Opened: 22:43:33
Time Test Ended: 05:27:33

Test Type: Conventional Bottom Hole (Initial)
Tester: Tate Lang
Unit No: 65

Interval: 4980.00 ft (KB) To 5042.00 ft (KB) (TVD)
Total Depth: 5042.00 ft (KB) (TVD)
Hole Diameter: 7.88 inches Hole Condition: Good

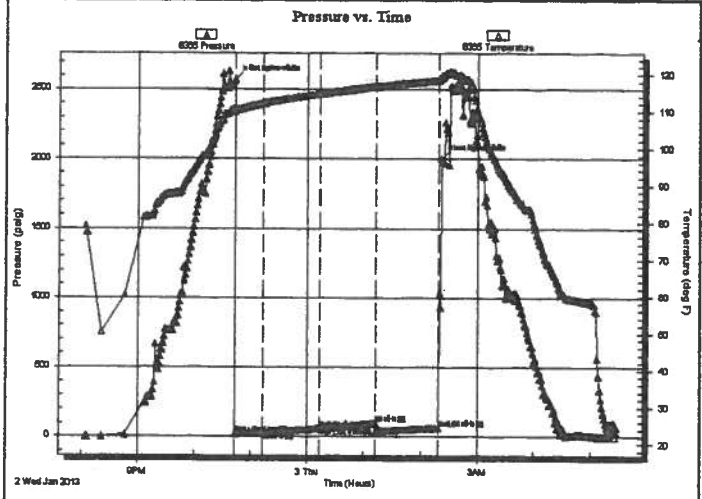
Reference Elevations: 3586.00 ft (KB)
3574.00 ft (CF)
KB to GR/CF: 12.00 ft

Serial #: 8365 **Outside**

Press@RunDepth: 97.15 psig @ 4983.00 ft (KB)
Start Date: 2013.01.02 End Date: 2013.01.03
Start Time: 20:04:03 End Time: 05:27:33

Capacity: 8000.00 psig
Last Calib.: 2013.01.03
Time On Btm: 2013.01.02 @ 22:43:18
Time Off Btm: 2013.01.03 @ 02:21:48

TEST COMMENT: IF-Weak surface blow built to 1/2 "
ISI-Dead no return blow
FF-Dead no blow
FSI-Dead no return blow



PRESSURE SUMMARY

Time (Min.)	Pressure (psig)	Temp (deg F)	Annotation
0	2571.40	111.07	Initial Hydro-static
1	19.85	109.84	Open To Flow (1)
30	26.80	112.16	Shut-In(1)
90	59.99	114.82	End Shut-In(1)
90	60.12	114.83	Open To Flow (2)
149	97.15	116.76	Shut-In(2)
216	63.01	118.44	End Shut-In(2)
219	2003.89	119.33	Final Hydro-static

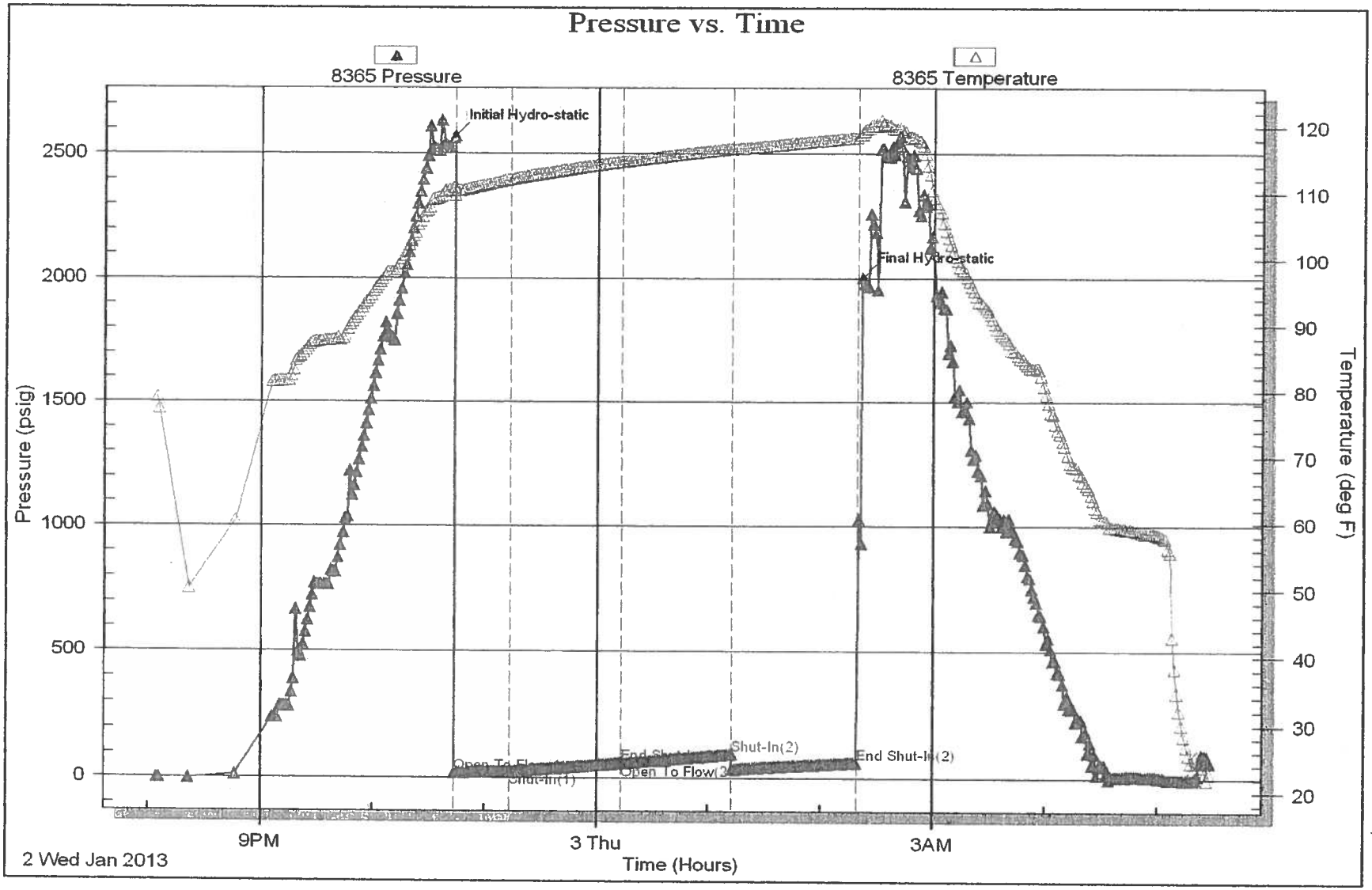
Recovery

Length (ft)	Description	Volume (bbl)
5.00	100%M	0.00

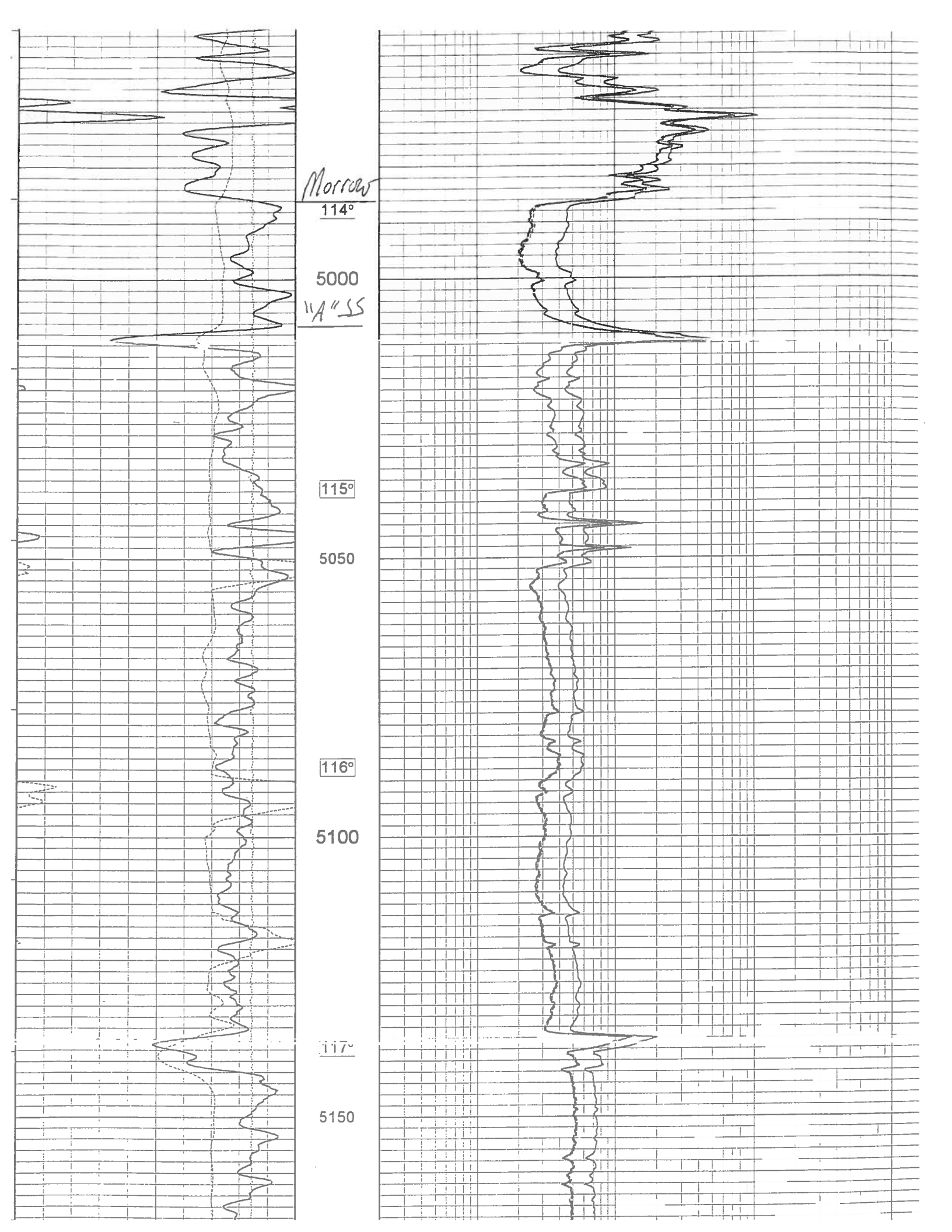
Gas Rates

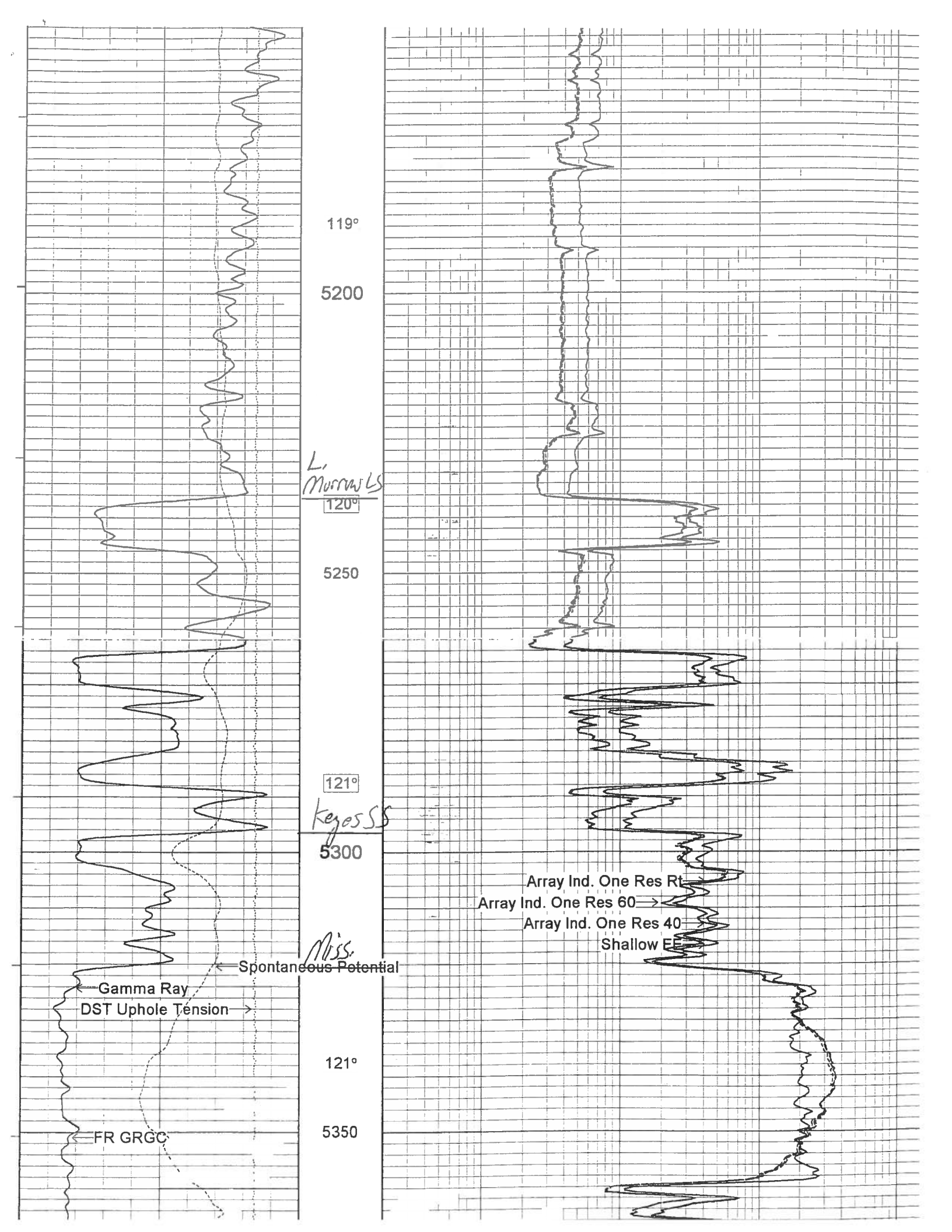
	Choke (inches)	Pressure (psig)	Gas Rate (Mcf/d)

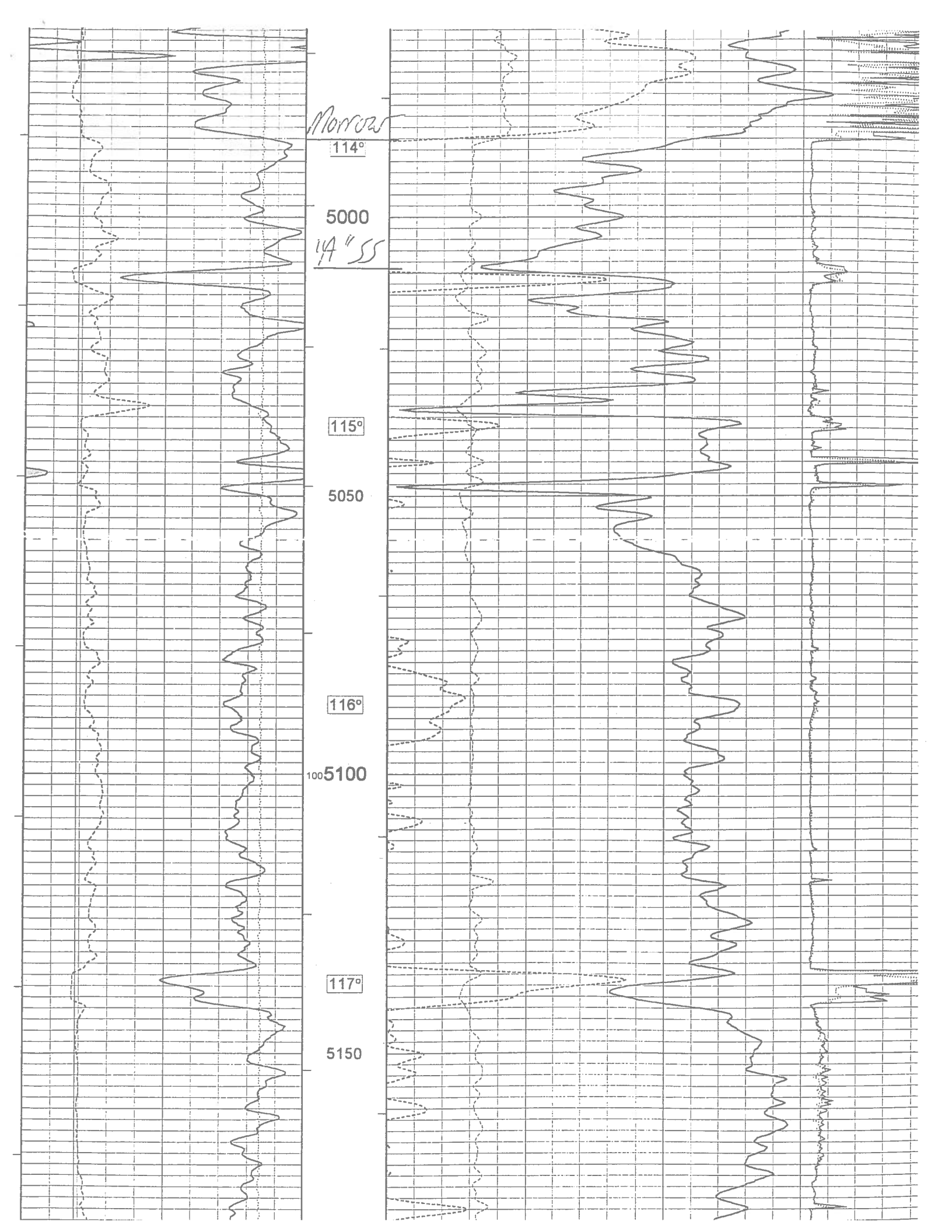
Serial #: 8365 **Outside** Western Operating Co Helfrich #1-6 DST Test Number: 1

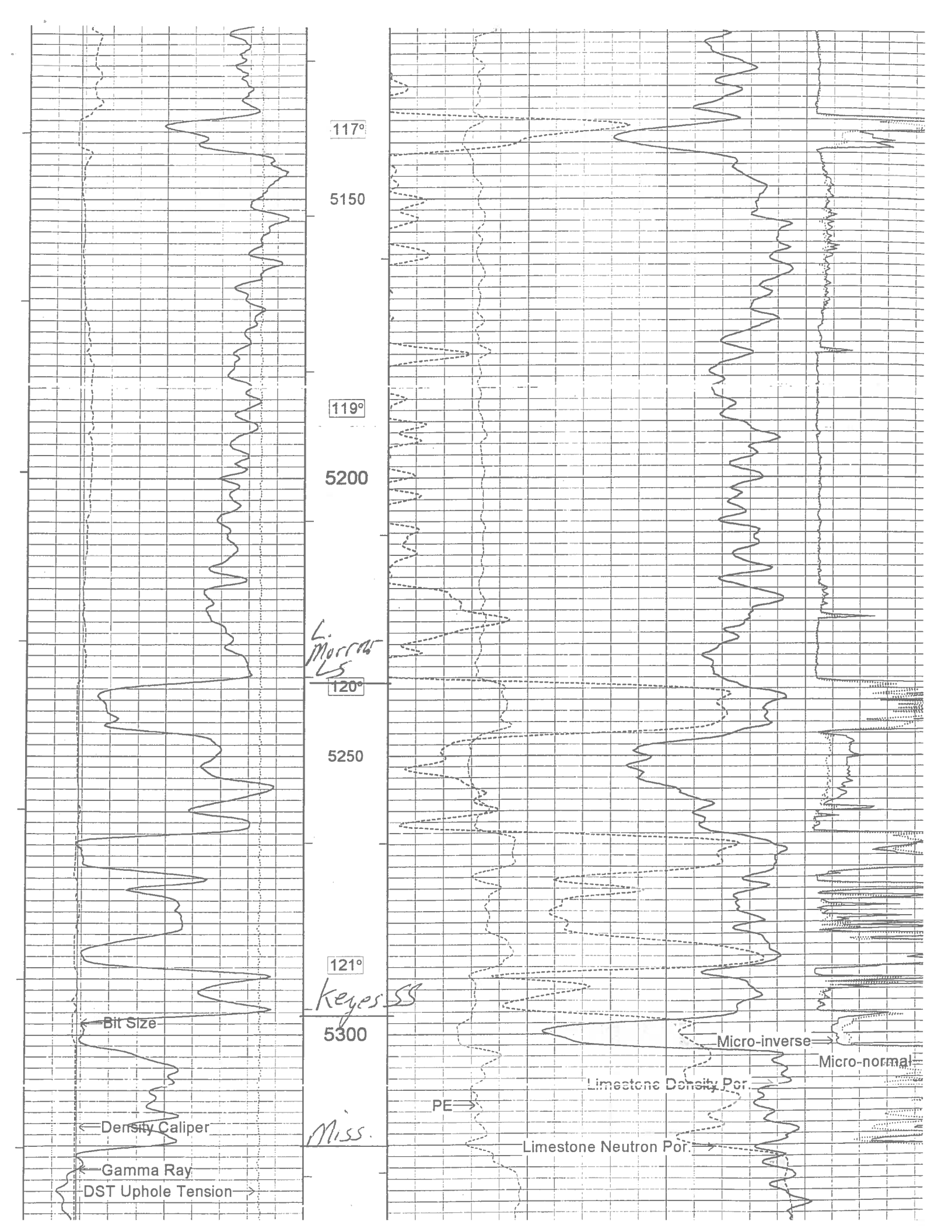


Trilobite Testing, Inc Ref. No: 51408 Printed: 2013.01.03 @ 05:50:37


Morrow
114°
5000
"A" SS
115°
5050
116°
5100
117°
5150


119°
5200
L. Morrow LS
120°
5250
121°
Keyes SS
5300
Miss.
121°
5350
Spontaneous Potential
Gamma Ray
DST Uphole Tension
FR GRGC
Array Ind. One Res Rt
Array Ind. One Res 60
Array Ind. One Res 40
Shallow EE


Morrow
114°
5000
14" SS
115°
5050
116°
100
5100
117°
5150


117°
5150
119°
5200
Morrow LS
120°
5250
121°
Keyes SS
5300
Miss.
Bit Size
Density Caliper
Gamma Ray
DST Uphole Tension
PE
Micro-inverse
Micro-normal
Limestone Density Por.
Limestone Neutron Por.

TRILOBITE TESTING, INC.

DRILL STEM TEST REPORT

Prepared For: **Western Operating Co**

518 17th ST #200
Denver CO, 80202

ATTN: Pete Debaham

Helfrich #1-6

6-25S-42W-Hamilton KS

Start Date: 2013.01.02 @ 20:04:03
End Date: 2013.01.03 @ 05:27:33
Job Ticket #: 51408 DST #: 1

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

Printed: 2013.01.04 @ 16:10:18

DRILL STEM TEST REPORT

TRILOBITE TESTING, INC

Western Operating Co

518 17th ST #200
Denver CO, 80202

ATTN: Pete Debaham

6-25S-42W-Hamilton KS

Helfrich #1-6

Job Ticket: 51408 **DST#: 1**

Test Start: 2013.01.02 @ 20:04:03

GENERAL INFORMATION:

Formation: **Upper Morrow**
Deviated: No Whipstock: ft (KB)
Time Tool Opened: 22:43:33
Time Test Ended: 05:27:33

Test Type: Conventional Bottom Hole (Initial)
Tester: Tate Lang
Unit No: 65

Interval: 4980.00 ft (KB) To 5042.00 ft (KB) (TVD)
Total Depth: 5042.00 ft (KB) (TVD)
Hole Diameter: 7.88 inches Hole Condition: Good

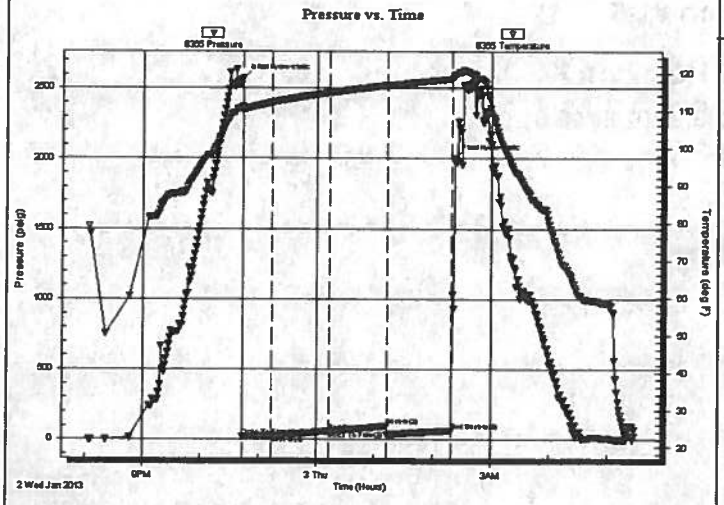
Reference Elevations: 3586.00 ft (KB)
3574.00 ft (CF)
KB to GR/CF: 12.00 ft

Serial #: 8365 **Outside**

Press@RunDepth: 97.15 psig @ 4983.00 ft (KB)
Start Date: 2013.01.02 End Date: 2013.01.03
Start Time: 20:04:18 End Time: 05:27:33

Capacity: 8000.00 psig
Last Calib.: 2013.01.03
Time On Btm: 2013.01.02 @ 22:43:18
Time Off Btm: 2013.01.03 @ 02:21:48

TEST COMMENT: IF-Weak surface blow built to 1/2"
ISI-Dead no return blow
FF-Dead no blow
FSI-Dead no return blow



PRESSURE SUMMARY

Time (Min.)	Pressure (psig)	Temp (deg F)	Annotation
0	2571.40	111.07	Initial Hydro-static
1	19.85	109.84	Open To Flow (1)
30	26.80	112.16	Shut-In(1)
90	59.99	114.82	End Shut-In(1)
90	60.12	114.83	Open To Flow (2)
149	97.15	116.76	Shut-In(2)
216	63.01	118.44	End Shut-In(2)
219	2003.89	119.33	Final Hydro-static

Recovery

Length (ft)	Description	Volume (bbl)
5.00	100%M	0.00

Gas Rates

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

TRILOBITE TESTING, INC

DRILL STEM TEST REPORT

Western Operating Co

518 17th ST #200
Denver CO, 80202

ATTN: Pete Debaham

6-25S-42W-Hamilton KS

Helfrich #1-6

Job Ticket: 51408 **DST#: 1**

Test Start: 2013.01.02 @ 20:04:03

GENERAL INFORMATION:

Formation: **Upper Morrow**
Deviated: No Whipstock: ft (KB)
Time Tool Opened: 22:43:33
Time Test Ended: 05:27:33

Test Type: Conventional Bottom Hole (Initial)
Tester: Tate Lang
Unit No: 65

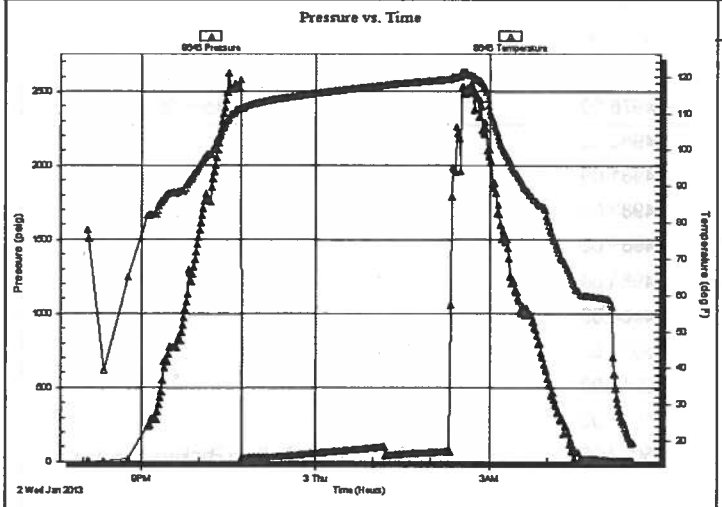
Interval: 4980.00 ft (KB) To 5042.00 ft (KB) (TVD)
Total Depth: 5042.00 ft (KB) (TVD)
Hole Diameter: 7.88 inches Hole Condition: Good

Reference Elevations: 3586.00 ft (KB)
3574.00 ft (CF)
KB to GR/CF: 12.00 ft

Serial #: 8646 Inside
Press@RunDepth: psig @ 4983.00 ft (KB)
Start Date: 2013.01.02 End Date: 2013.01.03
Start Time: 20:04:33 End Time: 05:28:03

Capacity: 8000.00 psig
Last Calib.: 2013.01.03
Time On Btm:
Time Off Btm:

TEST COMMENT: IF-Weak surface blow built to 1/2"
ISI-Dead no return blow
FF-Dead no blow
FSI-Dead no return blow



PRESSURE SUMMARY

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

Recovery

Length (ft)	Description	Volume (bbl)
5.00	100%M	0.00

Gas Rates

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

DRILL STEM TEST REPORT

TRILOBITE TESTING, INC

Western Operating Co

518 17th ST #200
Denver CO, 80202

ATTN: Pete Debaham

6-25S-42W-Hamilton KS

Helfrich #1-6

Job Ticket: 51408

Test Start: 2013.01.02 @ 20:04

Tool Information

Drill Pipe:	Length:	4417.00 ft	Diameter:	3.80 inches	Volume:	61.96 bbl	Tool Weight:		
Heavy Wt. Pipe:	Length:	547.00 ft	Diameter:	0.00 inches	Volume:	0.00 bbl	Weight set on Packer:		
Drill Collar:	Length:	0.00 ft	Diameter:	2.25 inches	Volume:	0.00 bbl	Weight to Pull Loose:		
					Total Volume:	61.96 bbl	Tool Chased		
Drill Pipe Above KB:		14.00 ft					String Weight:	Initial	
Depth to Top Packer:		4980.00 ft						Final	
Depth to Bottom Packer:		ft							
Interval between Packers:		62.00 ft							
Tool Length:		92.00 ft							
Number of Packers:		2	Diameter:	6.75 inches					

Tool Comments:

Tool Description	Length (ft)	Serial No.	Position	Depth (ft)	Accum. Lengths	
Change Over Sub	1.00			4951.00		
Shut In Tool	5.00			4956.00		
Sampler	2.00			4958.00		
Hydraulic tool	5.00			4963.00		
Jars	5.00			4968.00		
Safety Joint	3.00			4971.00		
Packer	5.00			4976.00	30.00	Bottom Of Top
Packer	4.00			4980.00		
Stubb	1.00			4981.00		
Perforations	2.00			4983.00		
Recorder	0.00	8646	Inside	4983.00		
Recorder	0.00	8365	Outside	4983.00		
Change Over Sub	1.00			4984.00		
Drill Pipe	32.00			5016.00		
Change Over Sub	1.00			5017.00		
Perforations	20.00			5037.00		
Bullnose	5.00			5042.00	62.00	Bottom Packers & Anchor
Total Tool Length:	**92.00**					

TRILOBITE TESTING, INC

DRILL STEM TEST REPORT

FLUID SUMMARY

Western Operating Co

518 17th ST #200
Denver CO, 80202

ATTN: Pete Debaham

6-25S-42W-Hamilton KS

Helfrich #1-6

Job Ticket: 51408 **DST#: 1**

Test Start: 2013.01.02 @ 20:04:03

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:	54.00 sec/qt	Cushion Volume:	bbl		
Water Loss:	8.77 in³	Gas Cushion Type:			
Resistivity:	ohm.m	Gas Cushion Pressure:	psig		
Salinity:	3400.00 ppm				
Filter Cake:	1.00 inches				

Recovery Information

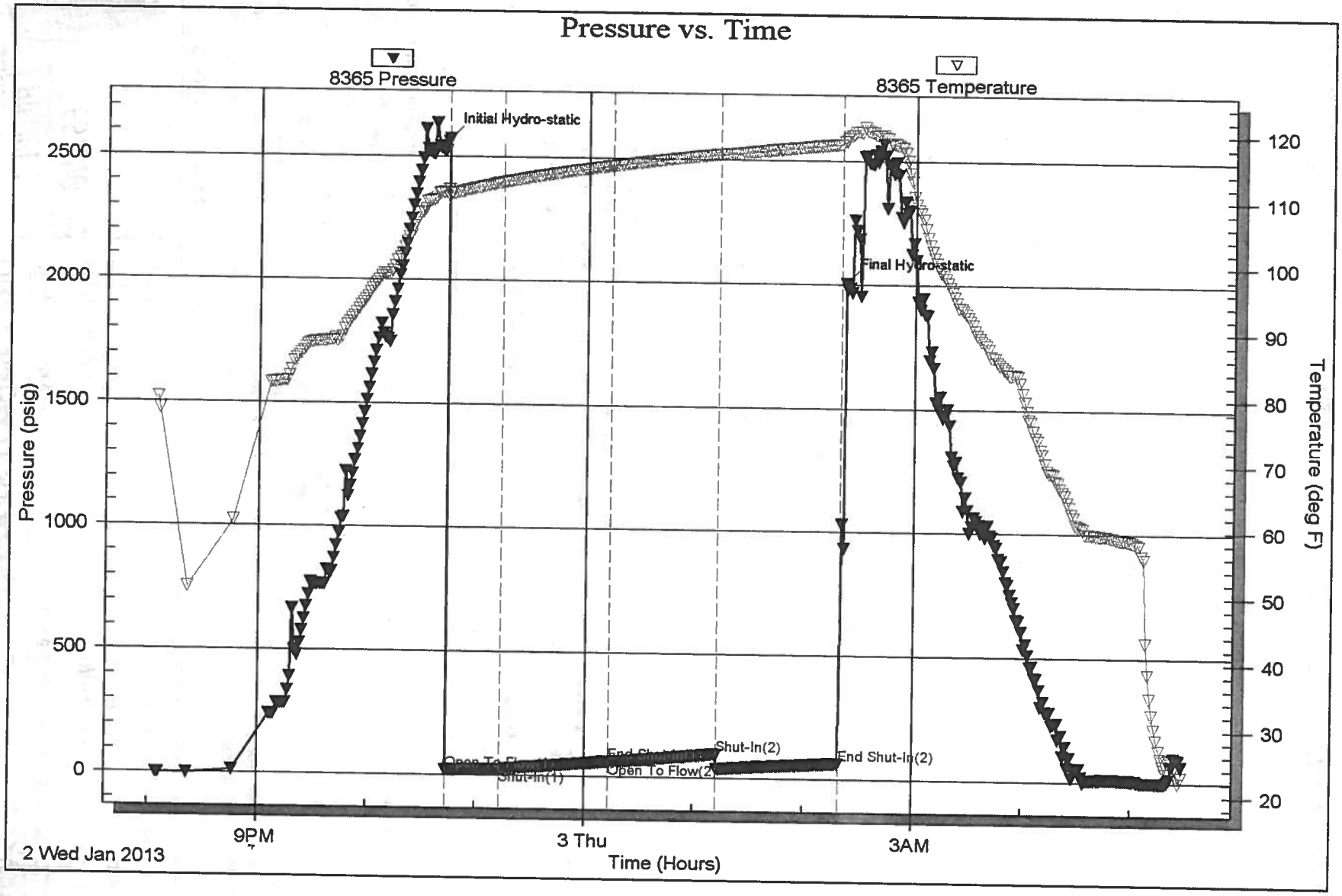
Recovery Table

Length ft	Description	Volume bbl
5.00	100%M	0.000

Total Length: 5.00 ft Total Volume: bbl

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

DST Test Number: 1

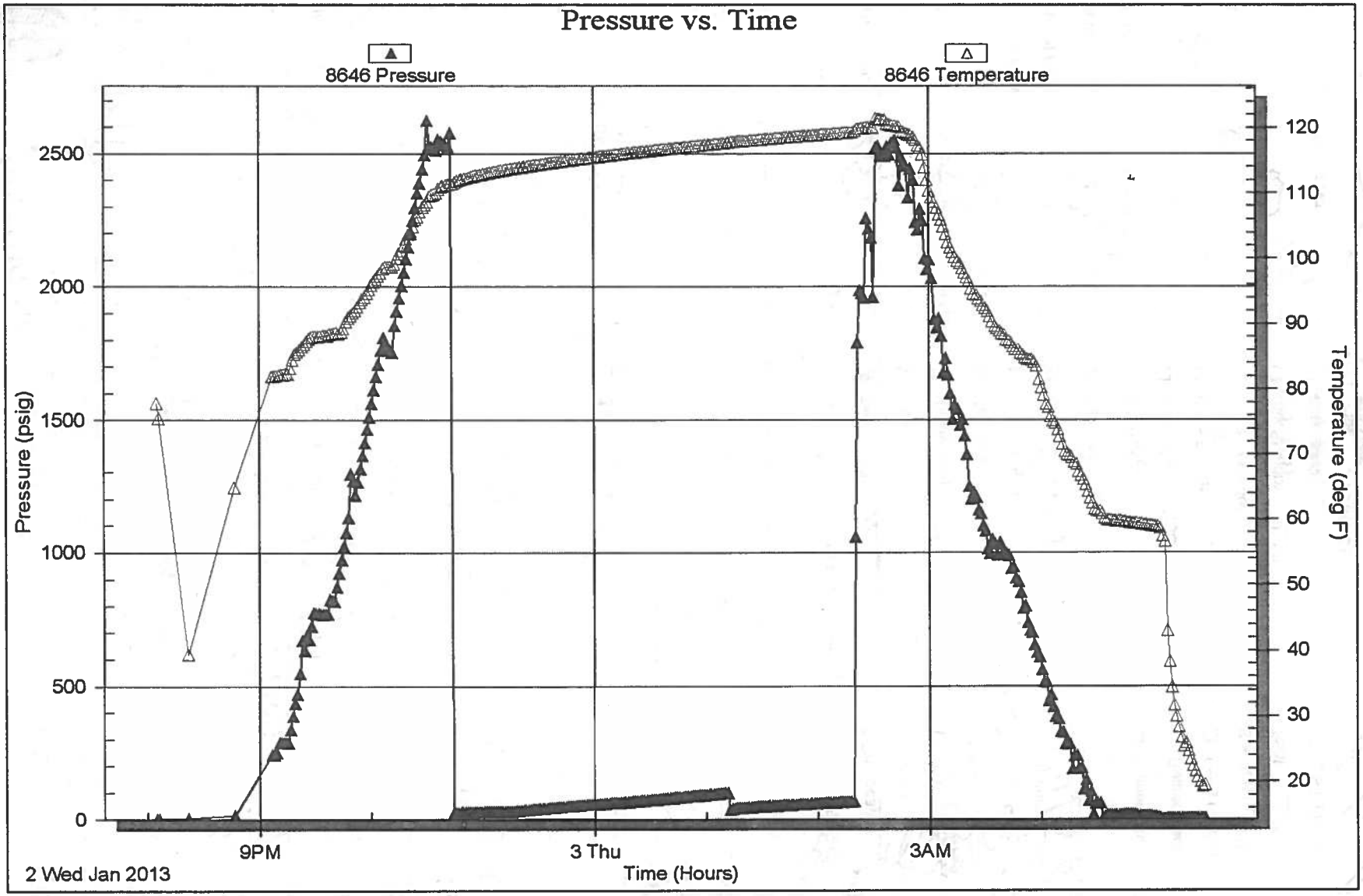


Trilobite Testing, Inc

Ref. No: 51408

Printed: 2013.01.04 @ 16:10:22

Serial #: 8646 Inside Western Operating Co Helfrich #1-6 DST Test Number: 1



Trilobite Testing, Inc Ref. No: 51408 Printed: 2013.01.04 @ 16:10:22

TRILOBITE TESTING INC.

1515 Commerce Parkway • Hays, Kansas 67601

Test Ticket

NO. 51408

Well Name & No. Helfrich #1-6 Test No. 1 Date 1-2-13

Company Western Operating Co. Elevation 3586 KB 3574

Address 518 17th ST #200, Denver CO 80202

Co. Rep / Geo. Pete Debrenham Rig Murfin #25

Location: Sec. 6 Twp. 25S Rge. 42W Co. Hamilton State KS

Interval Tested 4980 - 5042 Zone Tested Upper Morrow

Anchor Length 62 Drill Pipe Run 4417 Mud Wt. 9.3

Top Packer Depth 4976 Drill Collars Run 547 Vis 54

Bottom Packer Depth 4980 Wt. Pipe Run 0 WL 8.8

Total Depth 5042 Chlorides 3400 ppm System LCM 3#

Blow Description IF - Weak surface blow built to 1/2"

ISI - Dead no blow

FF - Dead no blow

FSI - Dead no return blow

Rec	Feet of	%gas	%oil	%water
Rec	Feet of	%gas	%oil	%water
Rec 5	Feet of Mud	%gas	%oil	%water
Rec	Feet of	%gas	%oil	%water
Rec	Feet of	%gas	%oil	%water

Rec Total 5 BHT 120 Gravity — API RW — @ — °F Chlorides —

(A) Initial Hydrostatic	2571	Test 1350	T-On Location 19
(B) First Initial Flow	20	Jars 250	T-Started 20
(C) First Final Flow	27	Safety Joint 75	T-Open 22
(D) Initial Shut-In	60	Circ Sub N/C	T-Pulled 02
(E) Second Initial Flow	60	Hourly Standby 6 hrs	T-Out 05
(F) Second Final Flow	97	Mileage 201 R/T 311.55	Comments Loaded 1/4/13 @
(G) Final Shut-In	63	Sampler	
(H) Final Hydrostatic	2004	☐ Straddle	☐ Ruined Shale Packer
		☐ Shale Packer	☐ Ruined Packer
Initial Open 30		☐ Extra Packer	☐ Extra Copies
Initial Shut-In 60		☐ Extra Recorder	Sub Total 800
Final Flow 60		☐ Day Standby 1d 6h	Total 2786.55
Final Shut-In 60		☐ Accessibility	MP/DST Disc't
		Sub Total 1986.55	

Approved By [signature] Our Representative [signature]

TRILOBITE TESTING, INC.

P.O. Box 362 • Hays, Kansas 67601

FLUID SAMPLER DATA

Ticket No. 5408 Date 1-2-13

Company Name Western Operating Co

Lease Helfrich #1-6 Test No. 1

County ~~Hodgeman~~ Hamilton Sec. 6 Twp. 25S Rng. 42W

SAMPLER RECOVERY

Gas 0 ML

Oil 0 ML

Mud 100 ML

Water 0 ML

Other 0 ML

Pressure 50 PSI ~~ML~~

Total 100 ML

PIT MUD ANALYSIS

Chlorides 3400 ppm.

Resistivity _____ ohms @ _____ F

Viscosity 54

Mud Weight 9.3

Filtrate 8.8

~~Other~~ LCM 3#

SAMPLER ANALYSIS

Resistivity _____ ohms @ _____ F

Chlorides _____ ppm.

Gravity _____ corrected @60F

PIPE RECOVERY

TOP

Resistivity _____ ohms @ _____ F

Chlorides _____ ppm.

MIDDLE

Resistivity _____ ohms @ _____ F

Chlorides _____ ppm.

BOTTOM

Resistivity _____ ohms @ _____ F

Chlorides _____ ppm.

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