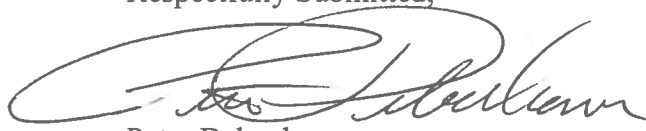


Western Operating Company
Martin-Peterson No. 16-1, Arroyo Field
Section 16, T29S, R41W
Stanton County, Kansas
January, 2019

Well Summary

The Western Operating Martin-Peterson No. 16-1 was drilled to a total depth of 5708' in the St. Louis Formation. No Keyes Sandstone was documented. No hydrocarbon shows or gas increase noted. The Martin-Peterson No. 16-1 was plugged and abandoned 1/9/19.

Respectfully Submitted,

A handwritten signature in black ink, appearing to read "Peter Debenham", written over a large, stylized circular flourish.

Peter Debenham

WELL DATA

Operator: Western Operating , 1165 Delaware St., Suite 200, Denver, CO 80204,
President/owner Steve James, Geologist Jim Anderson

Well: Martin-Peterson No. 16-1, Arroya Field

API No.: 15-187-21342

Location: 2100'FSL & 2150'FWL, Section 16, 29S, R41W, Stanton Co., KS

Elevation: Ground Level 3404', Kelly Bushing 3417'

Contractor: Duke Drilling Rig No. 9, Type: Double jackknife, double stand, Toolpusher
Emidgio Rojas & Victor Martinez, Drillers: Jose Cervantes, Alejandro V.,
Fernando Jurado

Spud Date: 1/2/19

Total Depth: 1/8/19, Driller 5800', Logger 5797', Mississippi St. Louis

Casing Program: 38 joints of 8 5/8", J55, 24Lbs/ft, set at 1656', cement did circulate.

Mud Program: Mud Co./Service Mud Inc., Engineer Justin Whiting, mud up 3437'.

Wellsite Consultant: Peter Debenham with mudlogging trailer, Call depth 3000', Box 350, Drake,
CO 80515, 720/220-4860.

Samples: 30' to 4900', 10' & 20' to TD.

Electric Logs: Weatherford engineer Adam Sill, 1) Array Induction, 2) Neutron/Density, 3)
Microlog

Status: Plugged and abandoned 1/9/19 with 50 sacks cement at 1680', 50 at 710', 20 at
60' and 30 in rat hole and 10 in mouse hole.

WELL CHRONOLOGY

<u>DATE</u>	<u>DEPTH</u>	<u>FOOTAGE</u>	<u>RIG ACTIVITY</u>
1/2	700'	700'	Move to location and rig up rotary tools. Mix spud mud and spud in 12 ¼" to 700'.
1/3	1668'	968'	Surveys(1/4 – ½ deg.). To 1668' and circulate. Trip for surface casing and run and cement 8 5/8" set at 1657' – did circulate. Nipple up BOP.
1/4	3280'	1612'	Pressure test BOP. Drill plug and cement and 7 7/8" to 1612'. Surveys(1/2 – ¾ deg.).
1/5	4370'	1090'	Displace mud system at 3437'. Survey(3/4 deg.).
1/6	4920'	550'	Survey(1/2 deg.). To 4744' and wiper trip 50 stands and wait on parts and service mud pump. To 4920' and wiper trip to casing.
1/7	5500'	580'	Wiper trip and wait on parts and work on mud pump.
1/8	5708'TD	208'	Survey(3/4 deg.). To 5708'TD and circulate and wiper trip. Trip out for logs.
1/9	TD		Trip for logs and run Elogs. Trip in and circulate. Trip out laying down and plug and abandon well. Rig down.

BIT RECORD

<u>NO.</u>	<u>MAKE</u>	<u>TYPE</u>	<u>SIZE</u>	<u>OUT</u>	<u>FOOTAGE</u>	<u>HOURS</u>
1	PLS 519		12 ¼"	1668'	1668'	11 ½
2	TXT 516		7 7/8"	5708'	4040'	82 ¼
Total Rotating Hours:						93 ¾
Average:						60.9 Ft/hr

DEVIATION RECORD - degree

799' ¼, 1668' ½, 2182' ½, 2715' ¾, 3437' ¾, 4000' ½, 4502' ½, TD ¾

MUD PROPERTIES

<u>DATE</u>	<u>DEPTH</u>	<u>WT</u>	<u>VIS</u>	<u>PV</u>	<u>YP</u>	<u>pH</u>	<u>WL</u>	<u>CL</u>	<u>LCM-LBS/BBL</u>
1/3	1668'	9.65	35	4	4	7.5	--	300	8
1/4	2377'	9.05	31	3	3	7.5	--	3.6	3
1/5	3868'	9.0	45	14	15	11.0	6.4	1.9K	6
1/6	4744'	9.05	58	19	19	10.5	6.8	1.1K	7
1/7	5195'	9.1	64	20	20	9.5	6.4	600	10
1/8	5581'	9.15	53	17	18	10.0	6.4	550	10

ELECTRIC LOG FORMATION TOPS- KB Elev. 3400'

<u>FORMATION</u>	<u>DEPTH</u>	<u>DATUM</u>	<u>*Fritz Trust No. 1</u>	
			<u>DATUM</u>	<u>POSITION</u>
Surface casing	1656'			
Heebner	3672'	-255	-232'	-23'
Toronto	3695'	-278'	-256'	-22'
Lansing	3774'	-357'	-338'	-19'
✓ Marmaton	4308'	-891'	-867'	-24'
Cherokee	4518'	-1101'	-1075'	-26'
✓ Morrow	5028'	-1611'	-1583'	-28'
Morrow LS	5374'	-1957'	-1928'	-29'
✓ Keyes	5474'	-2057'	-2071'	+14'
Mississippi	5606'	-2189'	-2113'	-76'
✓ St. Louis	5670'	-2253'	-2255'	+2'
TD	5711'			

*Western Operating, Fritz Trust No. 1, 2285'FSL & 660'FWL, Section 15 – to the East, K.B. Elevation 3421'.

Petrolific Consulting Services

Peter Debenham

P.O. Box 350
Drake, Colorado 80515

Wellsite Geology

720/220-4860
petrolific@earthlink.net

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

Well Name: Western Operating, Martin-Peterson No. 16-1, Arroyo Field
Location: 2100'FSL & 2150'FWL, Sec. 16, 29S, 41W, Stanton Co. KS
Licence Number: API: 15-187-21342 Region: Hougoton
Spud Date: 1/2/19 Drilling Completed: 1/8/19
Surface Coordinates: 2100'FSL & 2150'FWL, Sec. 16, 29S, 41W, Stanton Co. KS

Bottom Hole Coordinates: 2100'FSL & 2150'FWL, Sec. 16, 29S, 41W, Stanton Co. KS
Ground Elevation (ft): 3404' K.B. Elevation (ft): 3417'
Logged Interval (ft): 3600' To: TD Total Depth (ft): 5708'
Formation: Cherokee, Morrow, Keyes, Mississippi
Type of Drilling Fluid: Chemical Gel/LSND/LCM, mud up 3400'

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

OPERATOR

Company: Western Operating Company
Address: 1165 Delaware Street, Suite 200
Denver, CO 80202
Pres.: Steve James, Geologist Jim Anderson

GEOLOGIST



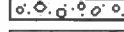

Name: Wellsite: Peter Debenham
Company: Petrolific Consulting Services
Address: P.O. Box 350
Drake, CO 80515
720/220-4860, Petrolific@gmail.com




Comments

38 joints of 8 5/8", J55, 24Lbs/ft, set at 1656', cement did circulate. Duke Drilling Rig No. 9, Type: Double jackknife, double stand, Toolpusher Emidgio Rojas & Victor Martinez, Drillers: Jose Cervantes, Alejandro V., Fernando Jurado, Service Mud engineer Justin Whiting, Weatherford Logs engineer Adam Sill, Plugged and abandoned 1/9/19 with 50 sacks cement at 1680', 50 at 710', 20 at 60' and 30 in rat hole and 10 in mouse hole.


ROCK TYPES

 Anhy
 Bent
 Brec
 Cht

 Clyst
 Coal
 Congl
 Dol

 Gyp
 Igne
 Lmst
 Meta

 Mrlst
 Salt
 Shale
 Shcol

 Shgy
 Sltst
 Ss
 Till

ACCESSORIES

FOSSIL

- Algae
- Amph
- Belm
- Bioclst
- Brach
- Bryozoa
- Cephal
- Coral
- Crin
- Echin
- Fish
- Foram
- Fossil
- Gastro
- Oolite

- Ostra
- Pelec
- Pellet
- Pisolite
- Plant
- Strom

MINERAL

- Anhy
- Arggrn
- Arg
- Bent
- Bit
- Breclrag
- Calc
- Carb

- Chtdk
- Chtlt
- Dol
- Feldspar
- Ferrpel
- Ferr
- Glau
- Gyp
- Hvymin
- Kaol
- Marl
- Minxl
- Nodule
- Phos
- Pyr
- Salt

- Sandy
- Silt
- Sil
- Sulphur
- Tuff

STRINGER

- Anhy
- Arg
- Bent
- Coal
- Dol
- Gyp
- Ls
- Mrst
- Sltstrg

- Ssstrg

TEXTURE

- Boundst
- Chalky
- Cryln
- Earthy
- Finexln
- Grainst
- Lithogr
- Microxln
- Mudst
- Packst
- Wackest

OTHER SYMBOLS

INTERVALS

- Core
- Dst

EVENTS

- Rft
- Sidewall

POROSITY TYPE

- Earthy
- Fenest
- Fracture
- Inter
- Moldic
- Organic

- Pinpoint
- Vuggy

SORTING

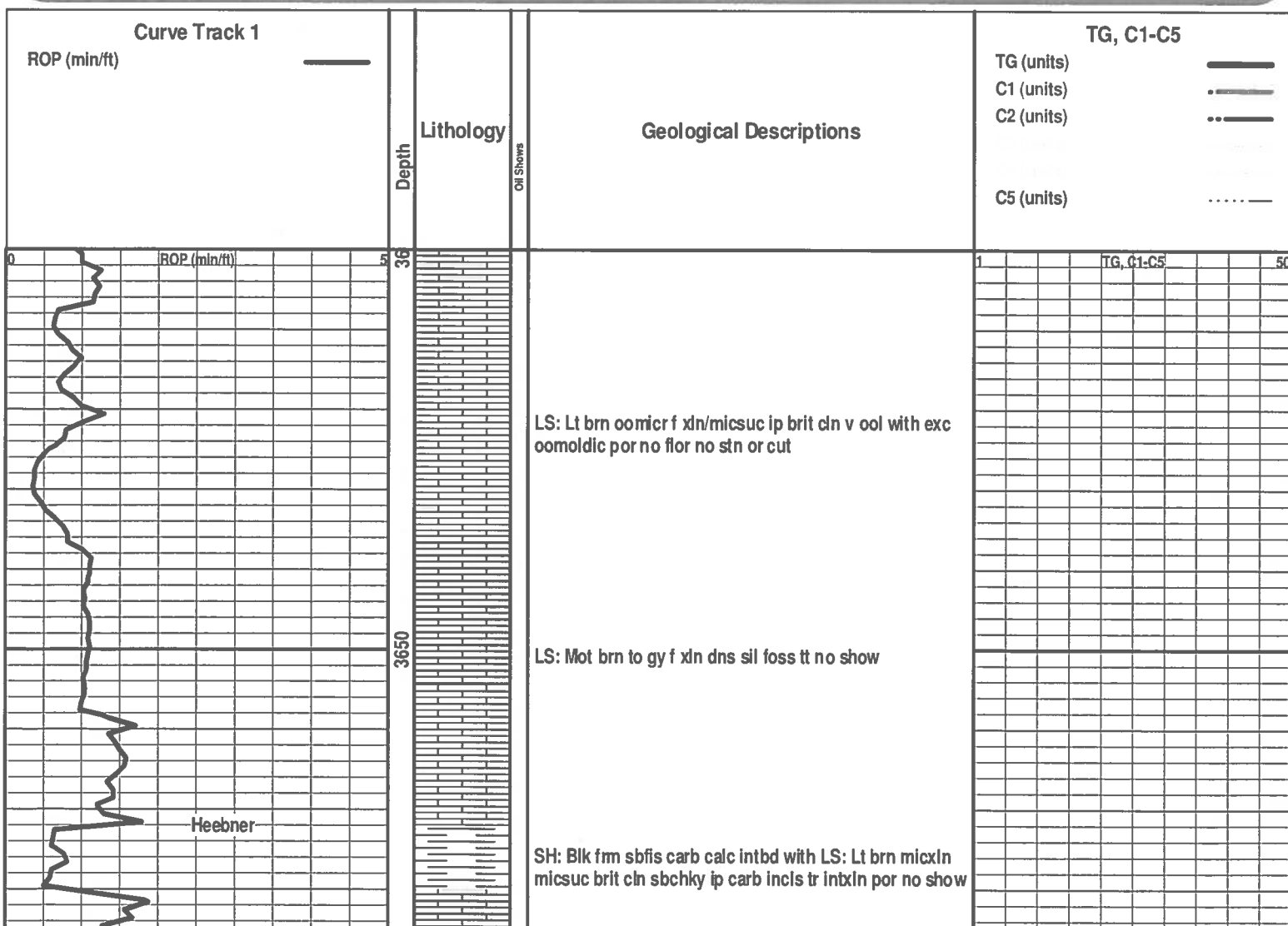
- Well
- Moderate
- Poor

ROUNDING

- Rounded
- Subrnd
- Subang
- Angular

OIL SHOWS

- Even
- Spotted
- Ques
- Dead



Toronto

Lt brn micxn micsuc brit cln sbchky ip carb inclc tr
intxn por occ gd moldic por no show

SH: Blk dk brn to gy frm fis to blk carb calc mica with
intbd LS: Mot brn mic/crpxln hd dns to tr intxn por sil &
tt ip tripolic foss carb no show tr CHRT: Mot gy tripolic
hd dns

LS: Lt to med brn bf micr micxn micsuc cln sbchky &
brit ip foss occ oomoldic por no show with SH: Gy brn
gygn frm sbfis wxy carb

SH: Gy brn gygn frm sbfis wxy carb

Lansing

LS: Pred aa occ v chky & brit micsuc with intxn por no
show intbd with SH: Gy brn gygn frm sbfis wxy carb

ROP (min/ft)

LS: Lt to med brn to gy micr micxn micsuc ip cln foss tr
intxn & occ moldic por no show

LS: Lt to med brn gy bf micr micxn micsuc ip cln foss tr
intxn por occ moldic por no show

LS: Mot brn to gy pred aa pred hd & tt no show occ intbd
with SH

LS: Lt brn bf oomicr micxn micsuc brit cln foss ool with
moldic por no flr no stn or cut intbd with LS: Brn tan
crpxln hd dns sil tt no show

3700

3750

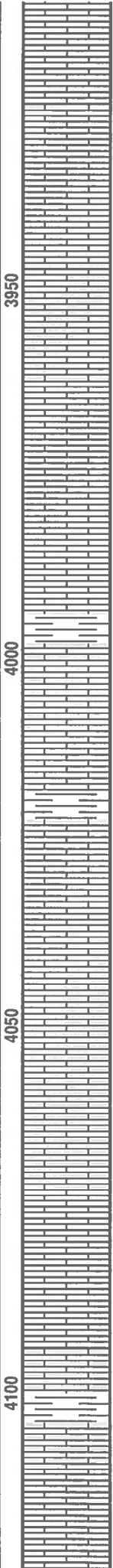
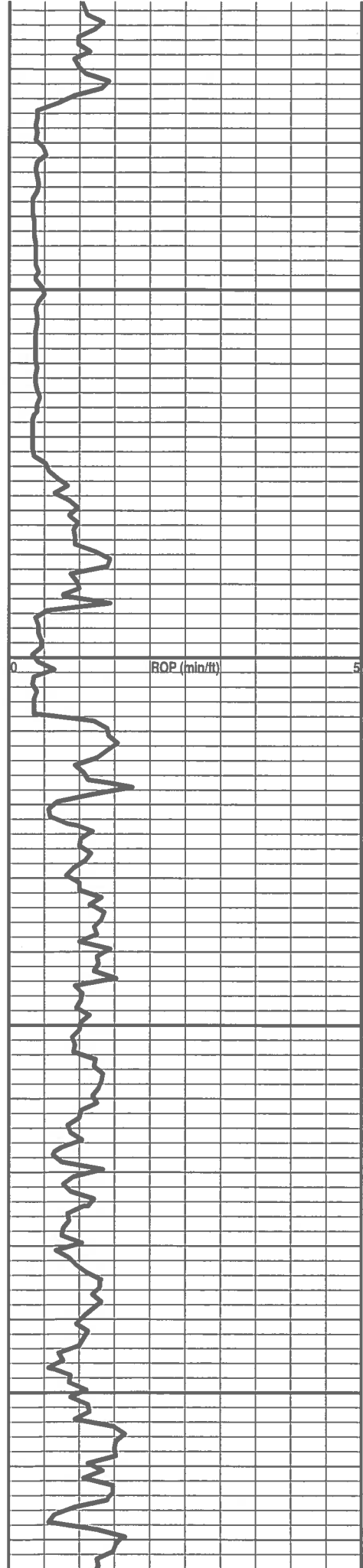
3800

3850

3900

TG, C1-C5

50



LS: Lt brn bf oomicr v brit cln v ool with exc oomoldic por no show

LS: Lt brn bf oomicr v brit cln v ool with exc oomoldic por no show

LS: Lt to med brn micxn to crpxn hd dns to tr intxn & occ moldic por cln foss sbchky ip occ sil & tt no show with SH: Brn gy gygn blk y wxy to sndy lp carb

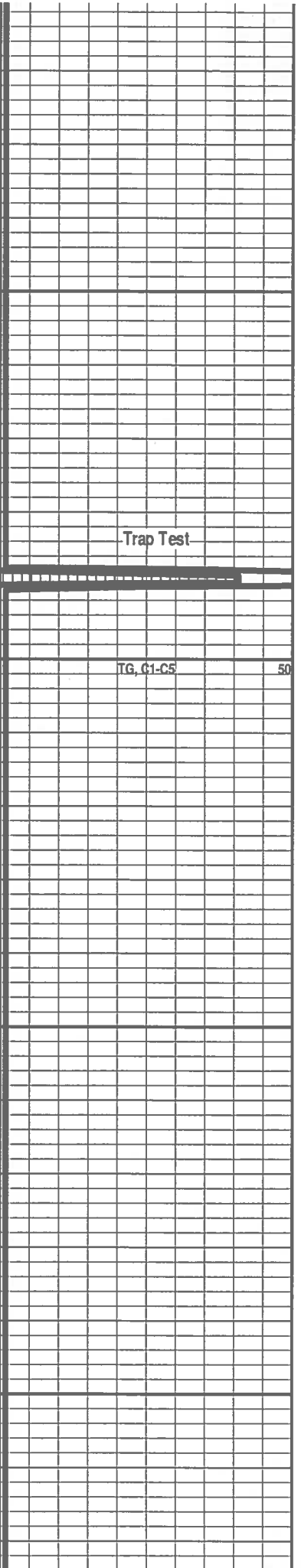
LS: Pred aa suc with occ fr intxn por no show

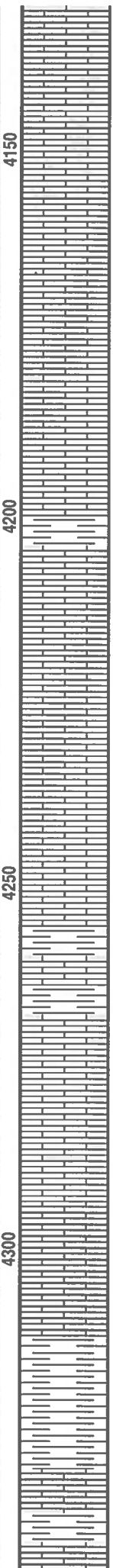
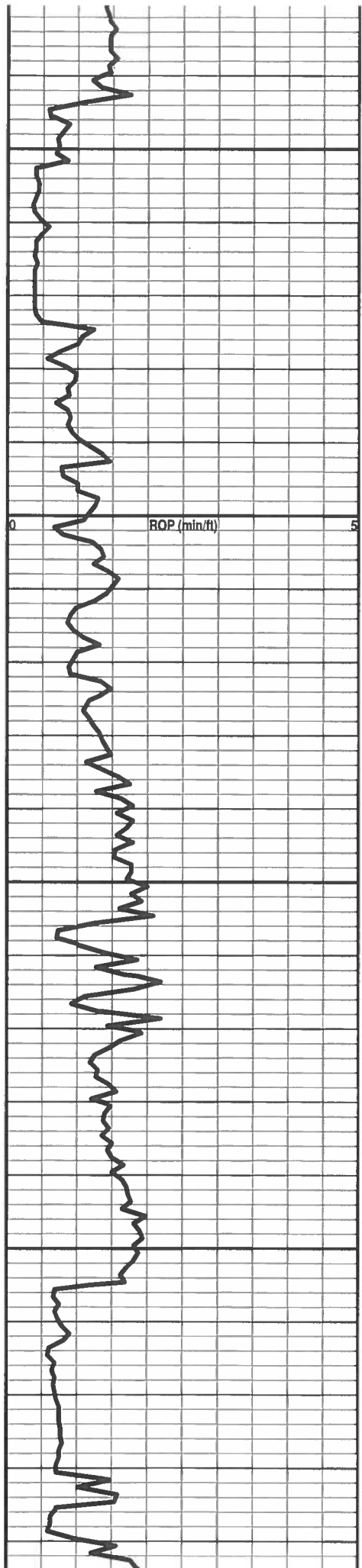
LS: Med to dk brn to gy dk gy crpxn hd dns arg to mrl y ip tt no show intbd with SH: Gy brn frm sbfis to blk y carb calc

LS: Med brn to gy f xdn dns arg to mrl y ip foss pred tt no flor no stn or cut intbd with SH: Med gy brn hd blk y carb calc sity mica

LS: Lt brn gy micxn micsuc ip brit cln to arg chky occ intxn por no show

LS: Lt brn oomicr f xdn brit cln v ool with exc oomoldic por no flor no sth or cut occ intbd with LS: Brn to gy frm blk y carb calc





LS: Lt brn oomcr f xln brit cln v ool with exc oomoldic por no flor no sth or cut with LS: Mot brn brit sbchky foss cln tr intxn por no show

LS: Lt brn oomcr f xln brit cln v ool with exc oomoldic por no flor no sth or cut with LS: Mot brn brit sbchky foss cln tr intxn por no show
occ intbd with SH: Gy brn gygn blkly calc carb

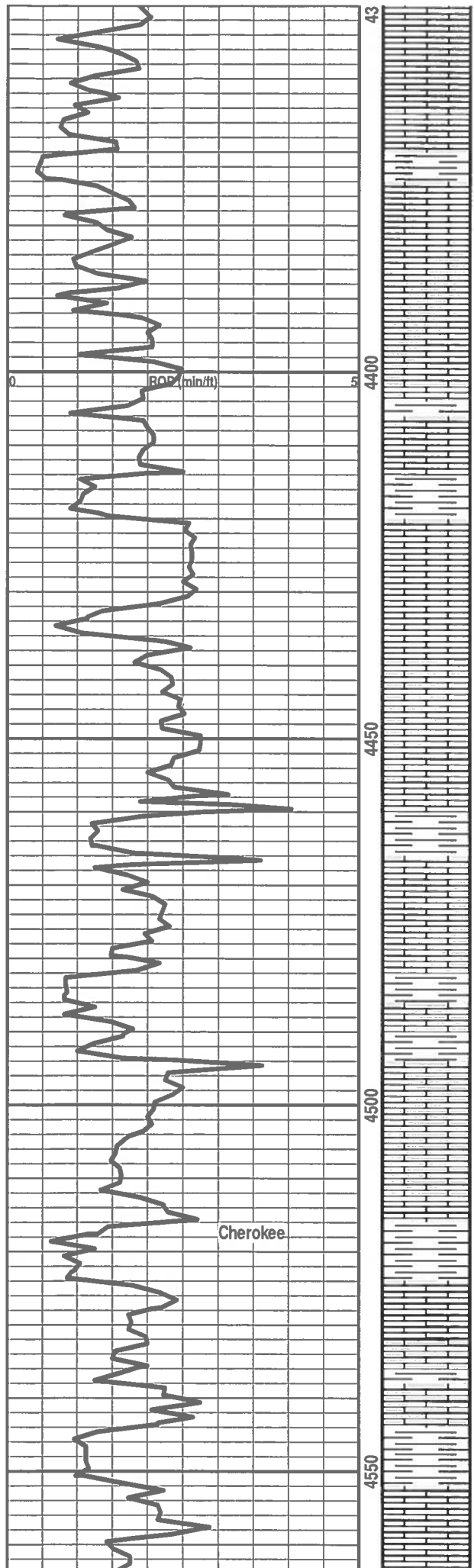
LS: Lt brn oomcr f xln brit cln v ool with exc oomoldic por no flor no sth or cut with LS: Mot brn brit sbchky foss cln tr intxn por no show

LS: Mot brn gy mlcr f xln sbchky dns cln to mrlly ip foss ool with occ moldic por no flor no stn or cut

LS: Med to dk brn to gy f xln dns arg foss pred tt no show

LS: Med to lt mot brn biomcr micxln micsuc brit cln to arg foss pyr tr intxn and moldic por no flor no stn or cut

SH: Brn hd blkly calc foss ip



with SH: Brn hd blk calc foss ip

LS: Lt brn oomicr brit cln v foss & ol with moldic por no flor no stn or cut

SH: Med to dk brn to gy occ blk frm sbfis to blk carb calc intbd with LS: aa no show

LS: Mot brn gy f xln micsuc ip sbchky arg to mrlly ip tr intxln & occ moldic por no flor no stn or cut

SH: Blk frm sbfis carb sl calc with LS: aa

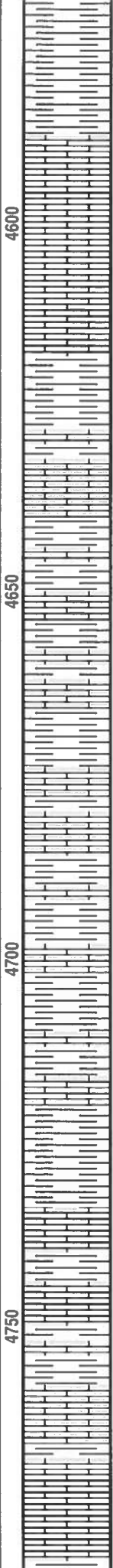
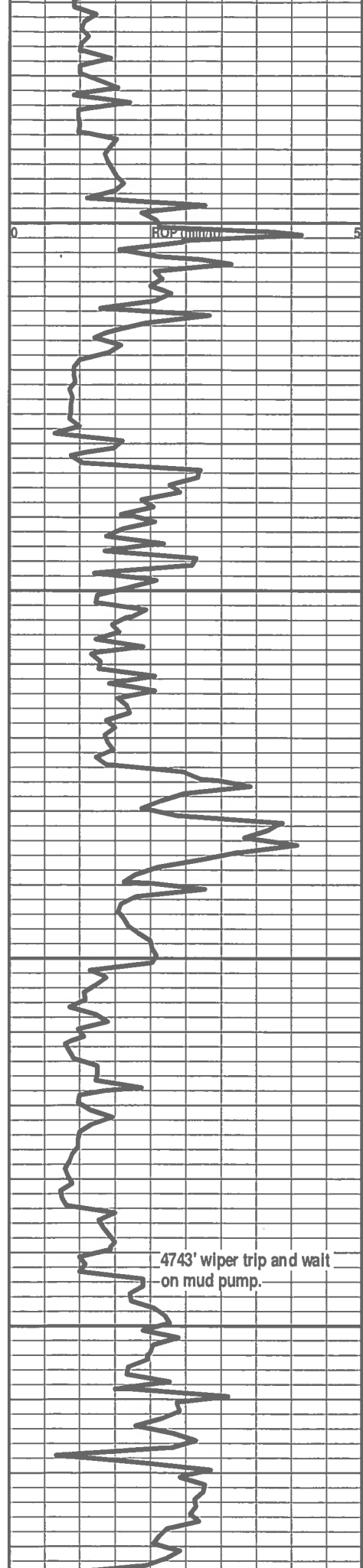
LS: Mot brn gy f xln micsuc ip sbchky arg to mrlly ip tr intxln & occ moldic por no flor no stn or cut

SH: dk brn to gy occ blk frm sbfis to blk calc stly intbd with LS: Mot brn gy f xln micsuc ip sbchky arg to mrlly ip tr intxln & occ moldic por no flor no stn or cut

LS: Brn gy crpxln hd dns sil ip foss carb pyr tt no show

TG, C1-C5

50



SH: Dk brn gy gygn frm blkly calc

LS: Lt to med brn to gy f xln dns to tr intxln por cln foss pred tt no show intbd with SH: aa with LS: Lt brn bf micxln micsuc brit cln sbchky foss ool pyr tr intxln & moldic por no flor no stn or cut CHRT: Mot gy milky gy trnsi hd xln

SH: Dk gy blkly hd slty to sndy ip carb calc mica

LS: Lt to med brn to gy biomcr micro to crpxn pred hd & dns cln foss carb sil p vis por no show with tr CHT: aa intbd with SH: Dk gy blkly hd slty to sndy ip carb calc mica

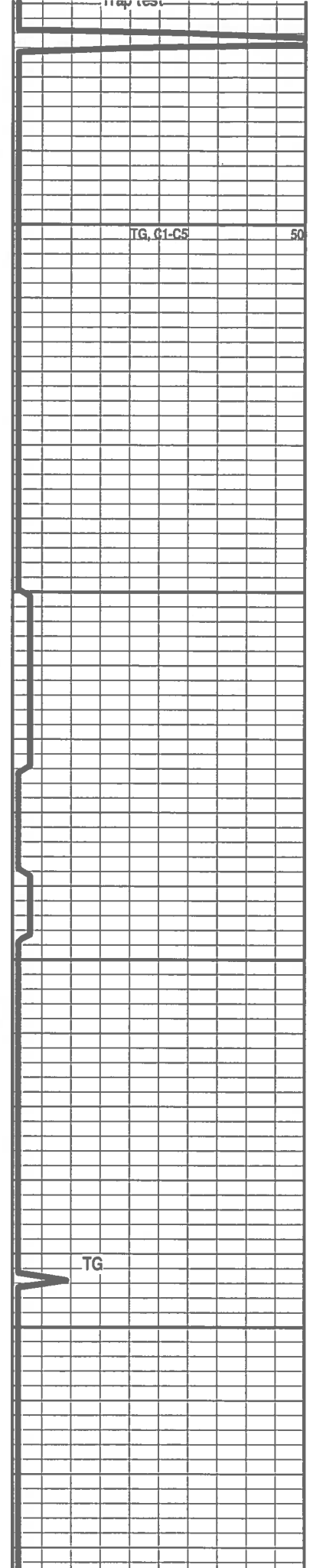
SH: Dk gy blkly hd slty to sndy ip carb calc mica

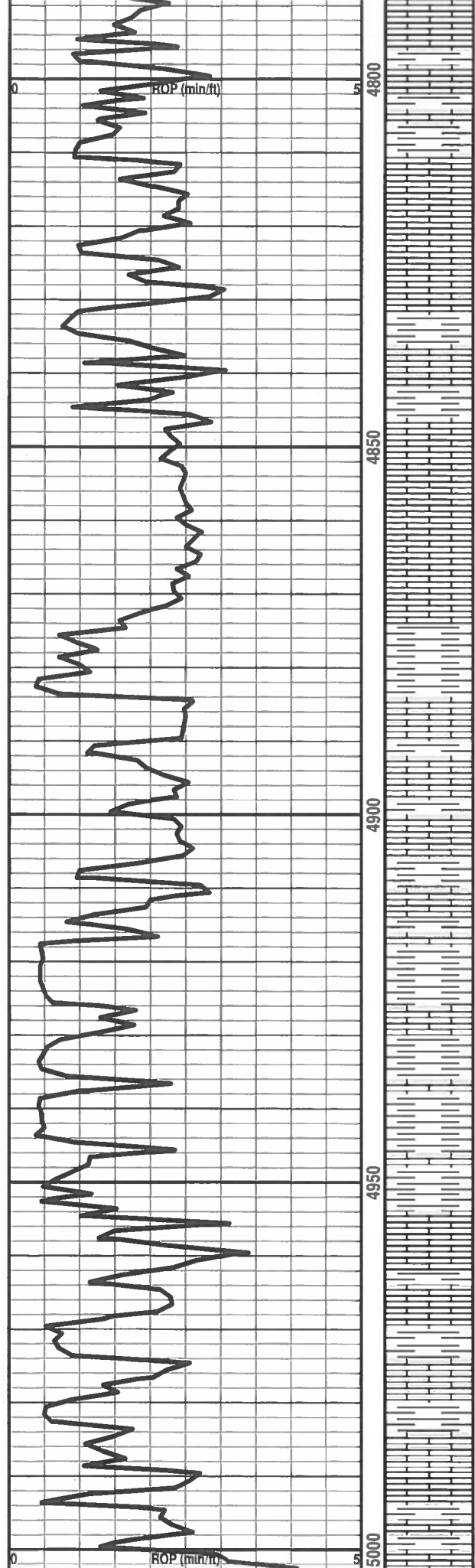
LS: Med to dk mot gy to brn f xln micsuc ip cln to mrlly foss carb occ por no flor no stn or cut intbd with SH: Dk gy blkly hd slty to sndy ip carb calc mica with CHRT: aa

SH: Dk gy blk mot hd blkly calc carb sndy occ foss occ intbd with LS: aa

4743' wiper trip and wait on mud pump.

LS: Med to dk mot gy to brn f xln micsuc ip cln to mrlly foss carb occ por no flor no stn or cut CHRT: Milky gy brn trnsi hd xln





LS: Med to dk mot brn to gy f xln micsuc ip cln to mry sil ip foss sndy carb tt no show

TG, C1-C5 50

LS: Med to dk mot brn to gy f xln dns cln to arg slty to sndy ip carb foss p vis por no flor no stn or cut intbd with SH: aa Blk frm fis carb

SH: Blk gy to brn hd blk calc carb slty pyr

LS: Med to dk mot brn to gy f xln micsuc ip cln to mry ip foss carb tt to occ intxln por no flor no stn or cut

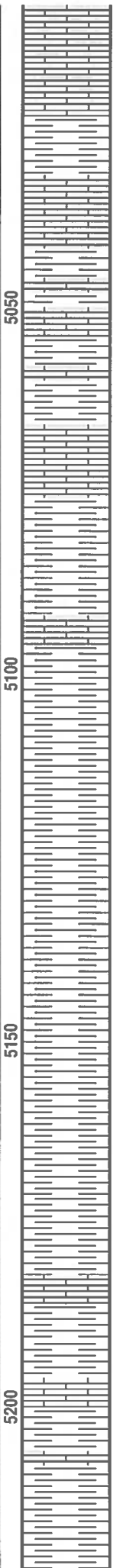
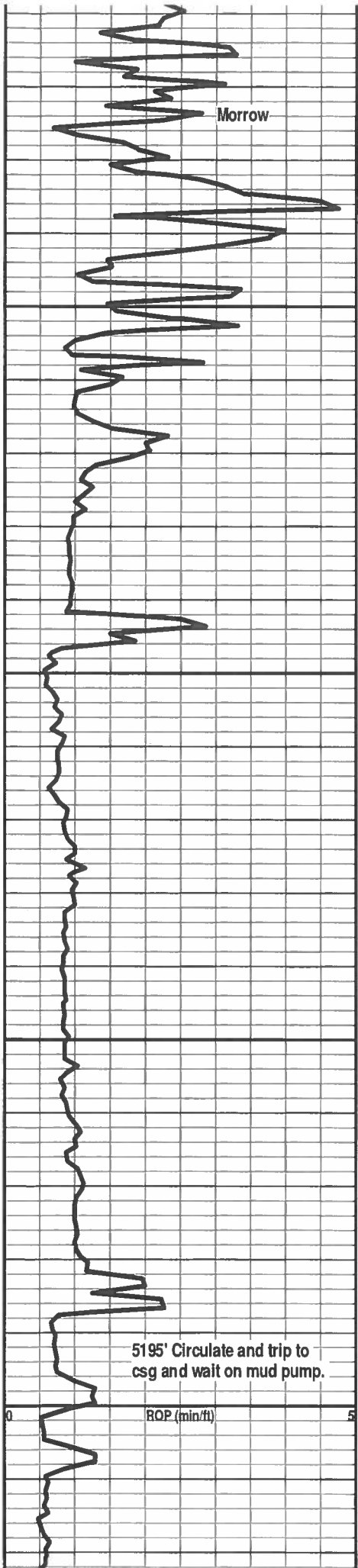
SH: Blk frm sbfis carb mica calc

LS: Brn crpxln hd dns foss tt no show with CHRT: Mlky gy trnsln brn hd xln foss ip

SH: Blk dk gy frm sbfis to fis carb slty foss ip CHRT: Dk mot gy mky hd xln intbd with LS: Lt to med brn gy f xln arg to mry dns tt no show

SH: Blk frm fis carb mica with SH: Gy blk & slty carb incld intbd with LS: Med to dk mot brn to gy micr crpxln hd dns ar to mry foss tt no show occ micsuc with tr intxln por no flor no stn or cut

TG, C1-C5 50



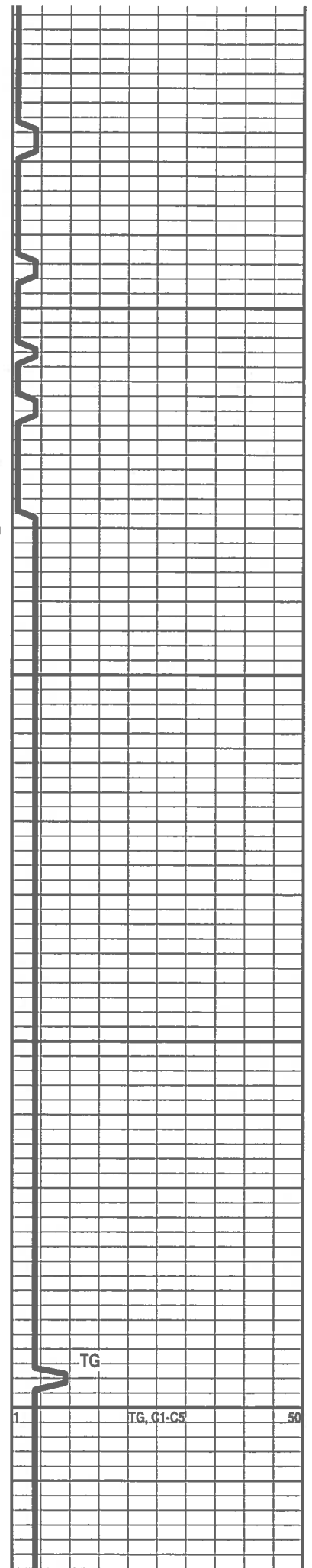
arg to mry foss tt no show intbd with SH: aa

LS: Lt mot bm bf micxn micsuc ip sbchky foss arg tt/tr
 Intxn por no flor no stn or cut
 Intbd with SH: Bk dk gy frm fis wxy carb

SH: Bk frm fis wxy to slty ip v carb mics with LS: Dk bm
 to gy occ bkl micr crpxin hd dns marl tt no show

SH: Bk frm fis wxy to slty ip v carb mica occ intbd with
 mry LS: tt no show

SH: Bk frm fis wxy to slty ip v carb mica occ intbd with
 mry LS: tt no show

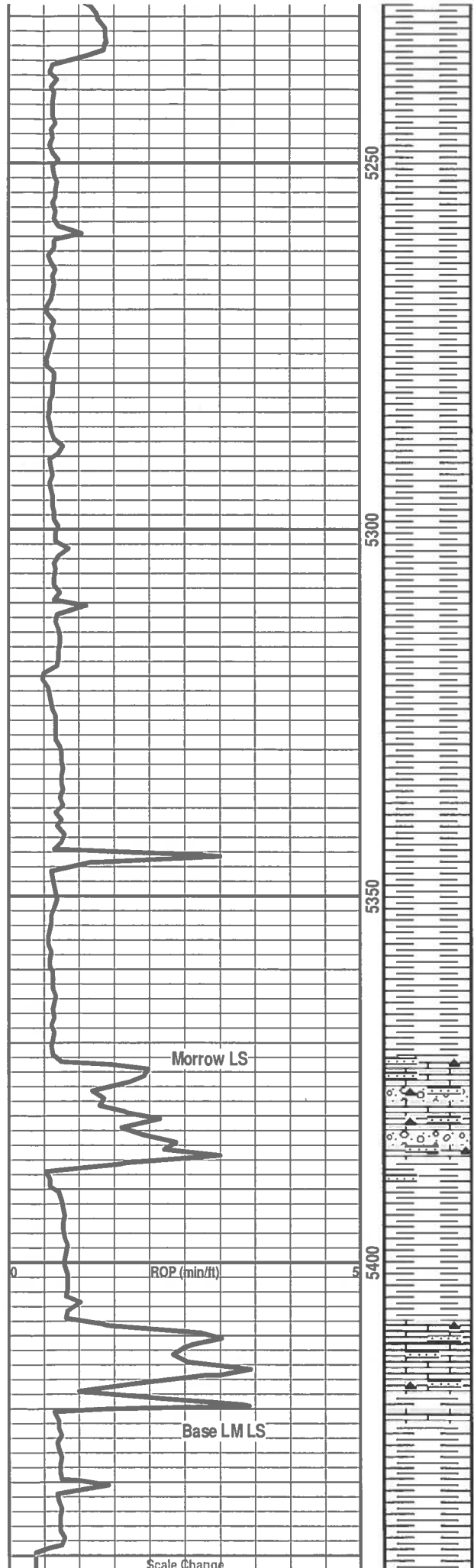


5195' Circulate and trip to csg and wait on mud pump.

TG

ROP (min/ft)

TG, C1-C5



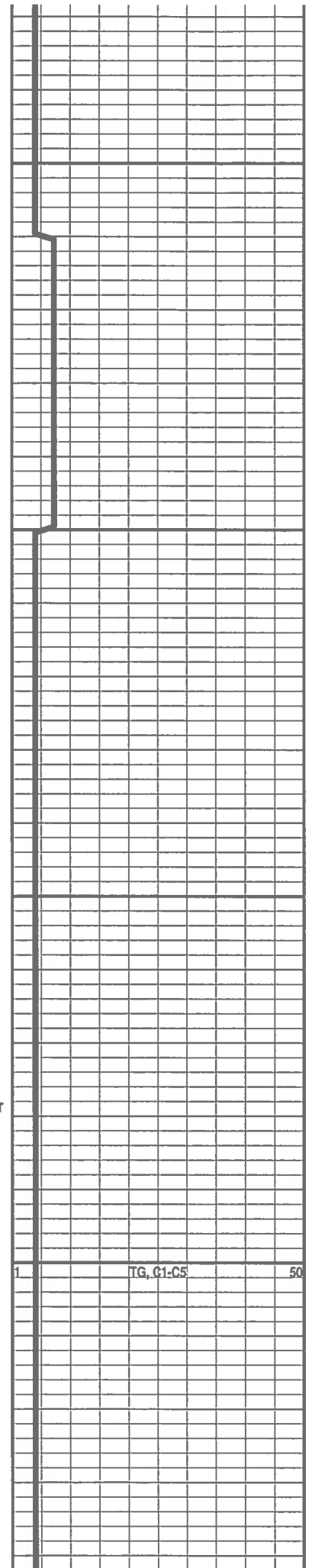
SH(100% sp): Bik dk gy frm asbfis to fis carb wxy mica

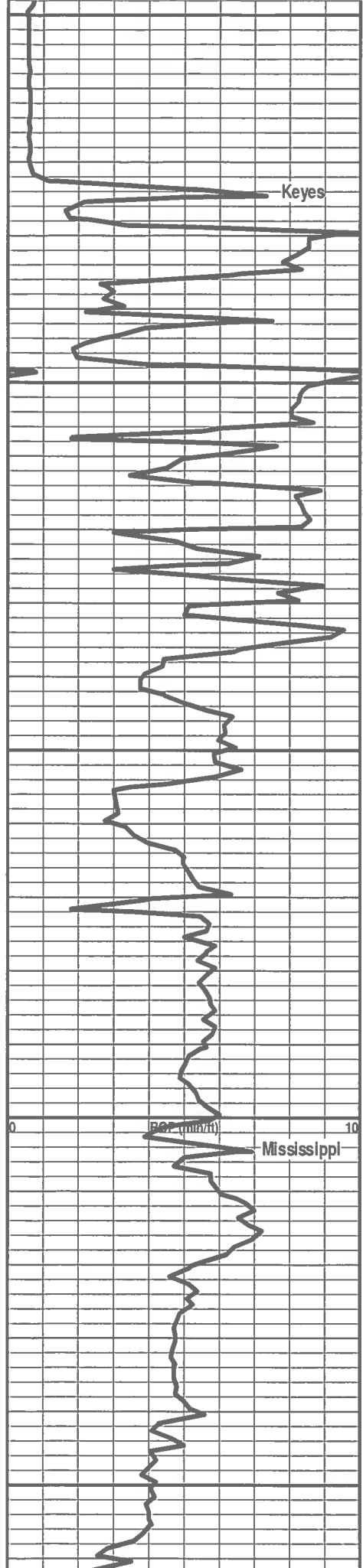
SH(100% sp): Bik dk gy frm fis wxy carb

LS: Mot gy to gn s&p spec gn frm dns f xin sbchky ip micsuc v sndy with m/vc & conglc ip p srt d sbang grs glauc ip pyr p vis por no flor no stn or cut grdng to & Intbd with Congl: Cir s&p spec gn hd to frl ip vc/conglc p srt d sbrng to sbrnd grs calc cmt cln to arg ip glauc pyr occ intgran por no show with abt unconsi grs intbd with SH: Bik dk gy frm sbfis to biky wxy to sndy ip carb

Abt c p srt d unconsi grs

LS: Mot brn to gy spec gn s&p spec gn frm dns f xin sbchky ip micsuc v sndy with f/vc & conglc ip p srt d sbang grs glauc ip pyr p vis por no flor no stn or cut tr unconsi grs





SH: Dk gy blk frm biky to sbfis wxy to sndy ip carb mica pyr

LS: Wh tan to bf micxn micsuc sbchky brit v sndy w f w srt d sbrnd grs p vis por no show Intbd with SH: Blk frm fis to biky carb, Chert: Trnsl wh mot org hd xln

LS: aa v sndy with vf w srt d sbrnd grs no show Tr SS: Spec gn gy s&p gy hd dns fl w srt d sbrnd grs ca cmt cln to arg glauc pyr carb p vis por no flor no stn or cut Intbd with SH: aa with c p srt d unconsl grs no show

LS: Wh tan to bf micxn micsuc sbchky brit v sndy w f w srt d sbrnd grs p vis por no show occ Intbd with SH: Blk frm fis to biky carb

LS: Lt brn bf micxn micsuc brit v sndy & ool foss cin sl glauc p vis por no show

LS: Wh lt brn bf micxn micsuc sbchky sft brit cin ool foss sndy with f w srt d sbrnd grs p vis por no flor no stn or cut tr CHRT: Org mlky wh to gy hd xln tripol ip

CHRT: Trnsl mlky hd xln LS: Lt to med brn bf micxn sbchky v sndy ool occ por pred tt no flor no stn or cut

LS: Med to lt brn to bf wh biomic micxn sbchky cin ool & foss sndy ip p vis por no show

LS: Med to lt mot brn bf micr micxn sbchky cin brit v ool with tr Intpart por tr Intxn por no flor no stn or cut with

1	TG, C1-C5	50
---	-----------	----

St. Louis



5708' TD

5700

5750

00



LS: Lt mot bm bf micr micxn sbchky cln brit v ool with tr
Intpart por tr intxin por no flor no stn or cut with CHRT

