Geo Dynamic Well Logging, Inc.

Rt. 1 Box 185
May, Ok. 73851
580/689-2272

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

Well Name:	M&M Exploration, Inc.	**Z-Bar 26-15**	
Location:	Sec. 26-T33S-R15W	Barber Co., Kansas	
License Number:	15-007-24069	**Region:**	Aetna
Spud Date:	9-6-2013	**Drilling Completed:**	9-13-2013
Surface Coordinates:	560' FSL & 2,100' FEL, SE/4		

Bottom Hole Coordinates:	As Above			
Ground Elevation (ft):	1,809'	**K.B. Elevation (ft):**	1,819'	
Logged Interval (ft):	3,900'	**To:** 5,150'	**Total Depth (ft):**	5,150'
Formation:	Pennsylvanian & Mississippian			
Type of Drilling Fluid:	Chemical			

Printed by WellSight Log Viewer from WellSight Systems 1-800-447-1534 www.WellSight.com

OPERATOR

Company: M&M Exploration, Inc.
Address: 4257 Main Street, #230
Westminster, CO 80031

GEOLOGIST

Name: Mr. Mike Pollok
Company: MAP Exploration, Inc.
Address: PO Box 106
Purcell, OK 73080

Comments

Hardt Drilling, Rig 1, Samples
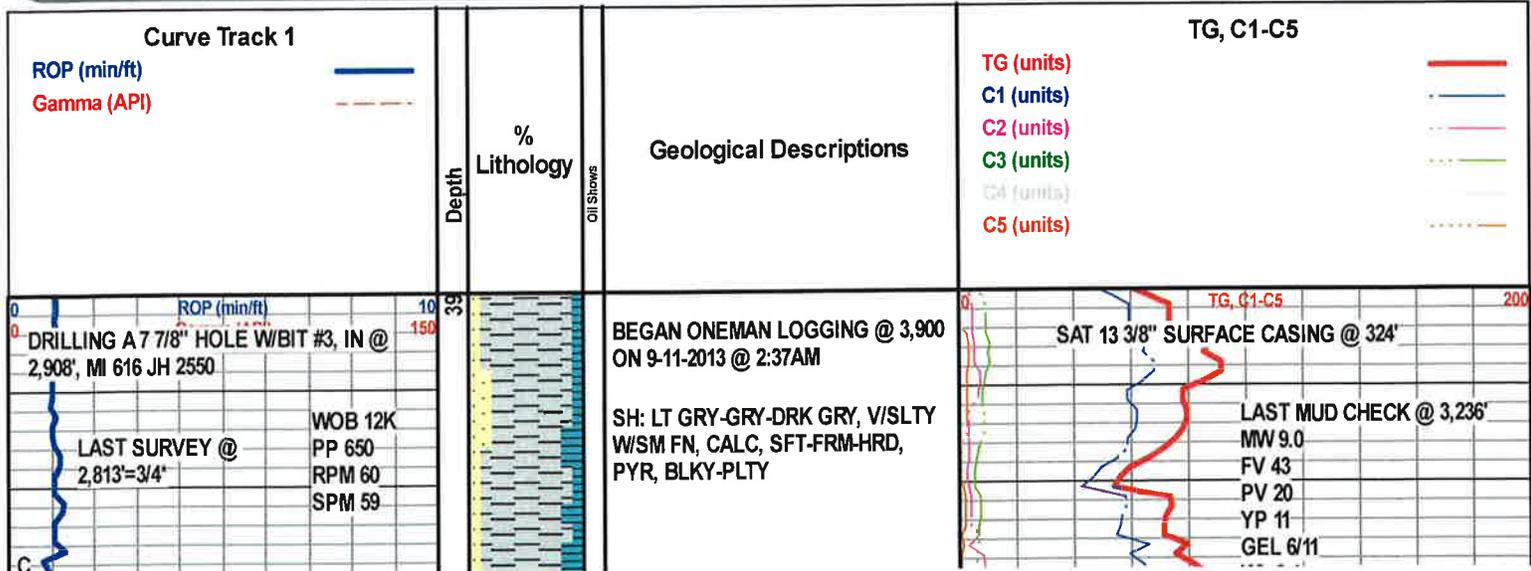Mudlogging Unit 1
Mudlogger: Bill Busch

ROCK TYPES

Anhy	Congl	Mrlst	Ss
Bent	Dol	Salt	Till
Brec	Gyp	Shale	sdy sh
Cht	Igne	Shcol	calc sh
Clyst	Lmst	Shgy	shale
Coal	Meta	Sltst	carb sh

ACCESSORIES

MINERAL
- Anhy
- Arggrn
- Arg
- Bent
- Bit
- Brecfrag
- Calc
- Carb
- Chtdk
- Chtlt
- Dol
- Feldspar
- Ferrpel
- Ferr
- Glau
- Gyp
- Hvymin
- Kaol
- Marl

- Minxl
- Nodule
- Phos
- Pyr
- Salt
- Sandy
- Silt
- Sil
- Sulphur
- Tuff

FOSSIL
- Algae
- Amph
- Belm
- Bioclst
- Brach
- Bryozoa
- Cephal
- Coral

- Crin
- Echin
- Fish
- Foram
- Fossil
- Gastro
- Oolite
- Ostra
- Pelec
- Pellet
- Pisolite
- Plant
- Strom

STRINGER
- Anhy
- Arg
- Bent
- Coal
- Dol

- Gyp
- Ls
- Mrst
- Sltstrg
- Ssstrg

TEXTURE
- BS Boundst
- C Chalky
- CX Cryxln
- E Earthy
- FX Finexln
- GS Grainst
- L Lithogr
- MX Microxln
- MS Mudst
- PS Packst
- WS Wackest

OTHER SYMBOLS

POROSITY TYPE
- E Earthy
- Fenest
- F Fracture
- X Inter
- Moldic
- Organic
- P Pinpoint
- V Vuggy

SORTING
- W Well
- M Moderate
- P Poor

ROUNDING
- R Rounded
- Subrnd
- a Subang

- A Angular

OIL SHOWS
- Even
- Spotted
- Ques
- Dead

INTERVALS
- Core
- Dst

EVENTS
- Rft
- Sidewall

Curve Track 1

ROP (min/ft)
Gamma (API)

% Lithology

Depth

Oil Shows

Geological Descriptions

TG, C1-C5

- TG (units)
- C1 (units)
- C2 (units)
- C3 (units)
- C4 (units)
- C5 (units)

ROP (min/ft) 0 — 10
150

39

DRILLING A 7 7/8" HOLE W/BIT #3, IN @ 2,908', MI 616 JH 2550

LAST SURVEY @ 2,813'=3/4"

WOB 12K
PP 650
RPM 60
SPM 59

BEGAN ONEMAN LOGGING @ 3,900 ON 9-11-2013 @ 2:37AM

SH: LT GRY-GRY-DRK GRY, V/SLTY W/SM FN, CALC, SFT-FRM-HRD, PYR, BLKY-PLTY

TG, C1-C5 0 — 200

SAT 13 3/8" SURFACE CASING @ 324'

LAST MUD CHECK @ 3,236'
MW 9.0
FV 43
PV 20
YP 11
GEL 6/11

Track 1 (left):
- ROP (min/ft) 0 ... 10
- Gamma (API) 0 ... 150
- C
- C
- C
- C
- C
- C
- BS/HEEBNER 4,066' (-2,247')
- WOB 10K
- PP 750
- RPM 90
- SPM 61

Depth: 3950, 4000, 4050, 4100

Lithology descriptions (center):

SH: AAB W/SM FOSS & MICA

SH: LT GRY-GRY, FN-SLTY, SFT-BRTL-HRD, CALC, IMBD CALC FOSS, PYR, MICA, BLKY-PLTY

SH: LT GRY-GRY, V/FN-FN-SLTY, SFT-FRM, CALC, PYR, MICA, PLTY W/SM BLKY

LS: CRM-TN-BFF-BRN-GRY, XLN-MED-DNS W/TR SUCR, BRTL-HRD W/SM FRI, FOSS, ARG I.P., TR MLD'C, SM FRAC POR, DLL YEL FLU, NO VIS STN, CUT, OR ODOR

SH: BLK, WXY, HRD, CARB, BLKY

LS: OFF WHT-WHT-CRM, MED-FN-CHKY W/TR XLN, SFT-FRM W/TR HRD, FOSS, TR SUCR, PP POR, DLL YEL-WHT FLU, NO VIS STN, CUT, OR ODOR

SH: LT GRY-GRY-DRK GRY, SLTY W/SM FN, SFT, CALC, MICA, PYR, PLTY-BLKY, TR CARB

SH: LT GRY-GRY, SLTY W/SM FN, FRM-BRTL, CALC, FOSS, MICA, PYR, SPL-BLKY-PLTY

LS: OFF WHT-CRM-BRN, XLN-FN,

Track 3 (right):
- WL 8.4
- CK 2/32
- SLD 4.6
- pH 9.5
- CHL 6,000
- CA 60
- LCM 2#
- TG, C1-C5   0 ... 200
- SHALE GAS
- SHALE GAS
- MUD CHECK @ 4,115'
- MW 9.2
- FV 5
- PV 24
- YP 13
- GEL 7/12
- WL 8.0
- CK 2/32
- SLD 6.3
- pH 10.5

Track 1 (left) — log curve scale:

ROP (min/ft) 0 — 10
Gamma (API) 0 — 150

T/LANSING 4,260'
(-2,441')

Depth markers: 4150, 4200, 4250, 4300, 4350

"C" markers along left track

Lithology column descriptions:
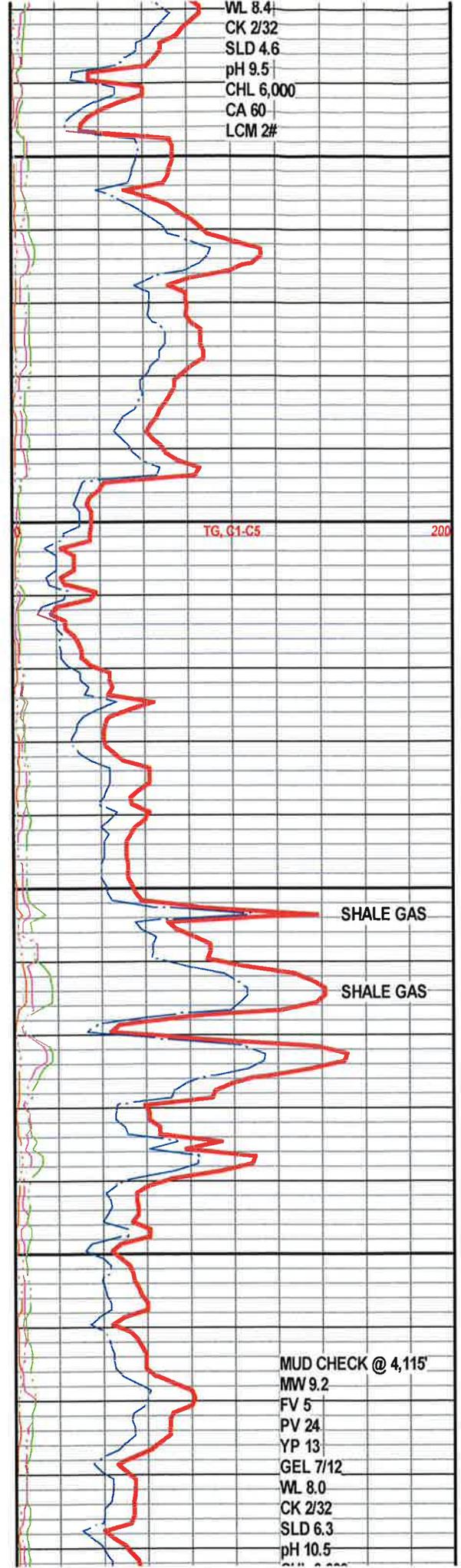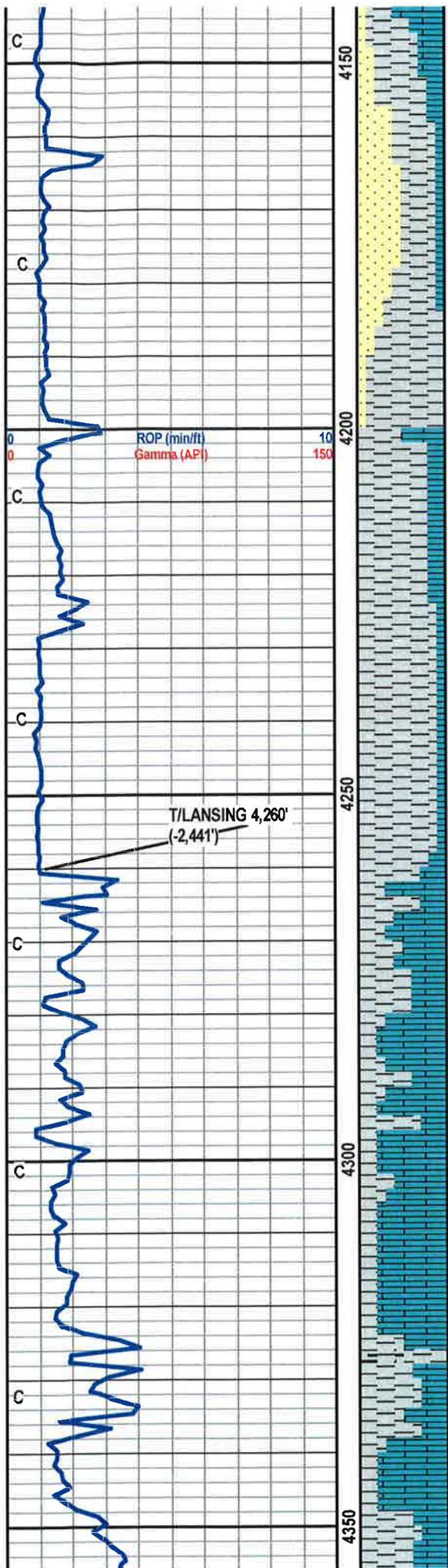
BRTL-HRD, PYR, FOSS, PP W/SM
FRAC POR, SL ARG I.P., DLL YEL
FLU, NO VIS STN, CUT, OR ODOR

SS: OFF WHT-WHT-LT GRY, FN-MED,
SUB RND-SUB ANG, FROS W/SM
CLR, CONSL, CALC, PYR, GLAU'C
SPKS, MICA, YEL FLU, SM DD OIL
STN, NO VIS CUT OR ODOR

SH: GRY W/SM LT GRY, FN-SLTY,
CALC, SFT, MICA, FOSS, PLTY

SH: LT GRY-GRY W/SM DRK GRY,
FN-SLTY, SFT-FRM, CALC, MICA,
PYR, CARB I.P., PLTY-BLKY

LS: OFF WHT-CRM-LT GRY-DRK
BRN, XLN-FN-MED-DNS, HRD W/SM
BRTL, ARG, FOSS, PP W/SM FRAC
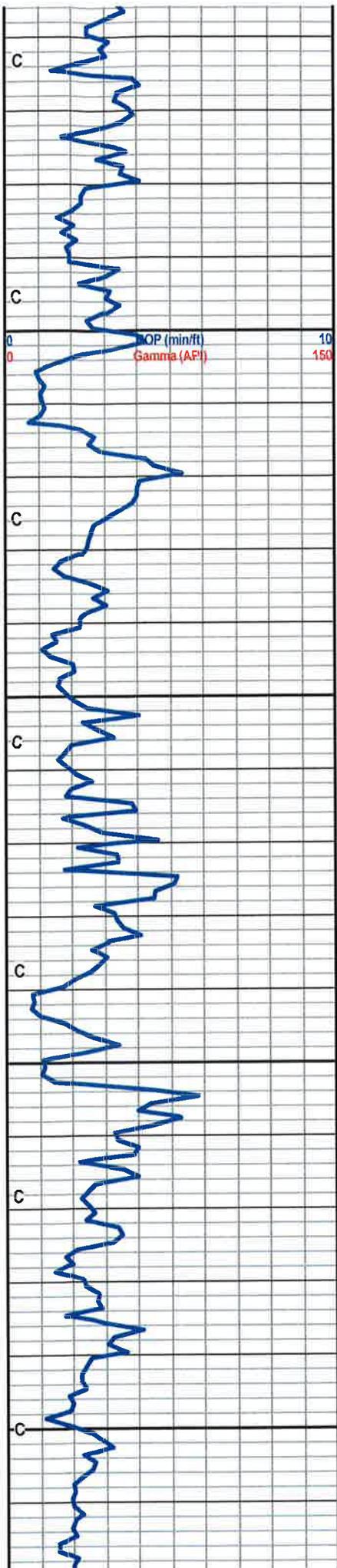POR, TR DLL FLU, NO VIS STN CUT,
OR ODOR

LS: WHT-CRM-GRY-BRN-DRK BRN,
XLN-FN W/SM MED & CHKY, HRD
W/SM SFT, FOSS, ARG, GD PP POR,
SM DLL YEL FLU, NO VIS STN, CUT,
OR ODOR

LS: OFF WTH-CRM-BRN-GRY,
XLN-FN-MED, HRD W/TR FRI, ARG,
FOSS, GD PP POR I.P., DLL FLU, SM
DD OIL STN, NO VIS CUT OR ODOR

Track (right) — gas data:

CHL 3,000
CA 40
LCM tr

TG, C1-C5   0 — 200

Track 1 (left):
ROP (min/ft) — 0 10
Gamma (API) — 0 150

C
C
C
C
C
C
C

Depth: 4400, 4450, 4500, 4550

Lithology descriptions (center):
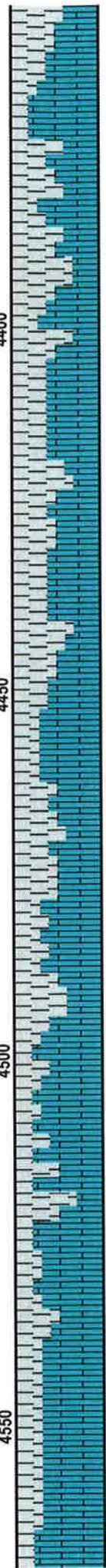
LS: WHT-OFF WHT-CRM BRN-DRK BRN-GRY, MCRO XLN-XLN-FN-MED, HRD W/TR FRI, ARG, FOSS, PP W/SM FRAC POR, DLL FLU, SM DD OIL STN, NO VIS CUT OR ODOR

LS: WHT-OFF WHT-BRN-DRK BRN W/TR GRY, DNS-MED W/TR SUCR, FRM-HRD, FOSS, TR ARG, PP W/SM VUG POR, DLL FLU, NO VIS STN, CUT, OR ODOR

LS: CRM-WHT-BFF-BRN, XLN-MED-DNS W/SM CHKY, BRTL-HRD W/SM FRI, ARG, FOSS, SM SUCR, PP W/SM FRAC POR, YEL FLU, NO VIS STN, CUT, OR ODOR

LS: CRM-BFF-BRN-GRY, FN-MED, BRTL-HRD, FOSS, ARG, PP POR, DLL FLU, NO VIS STN, CUT, OR ODOR

LS: WHT-CRM-BFF-BRN, XLN-FN-MED W/TR CHKY, BRTL-HRD W/SM FRM, FOSS, ARG, PP W/SM VUG POR, YEL & WHT FLU, NO VIS STN, CUT, OR ODOR

LS: WHT-CRM-BFF W/TR DRK BRN, XLN-FN, BRTL-HRD-DNS W/TR CHKY, FOSS, TR DOLO'C, PP W/SM FRAC POR, DLL FLU, NO VIS STN, CUT, OR ODOR

LS: CRM-BRN-GRY, XLN-FN-MED,

Track 3 (right):
TG, C1-C5 — 0 200

CLEANING GAS LINES

4,517' @ 12:00AM ON 9-12-2013
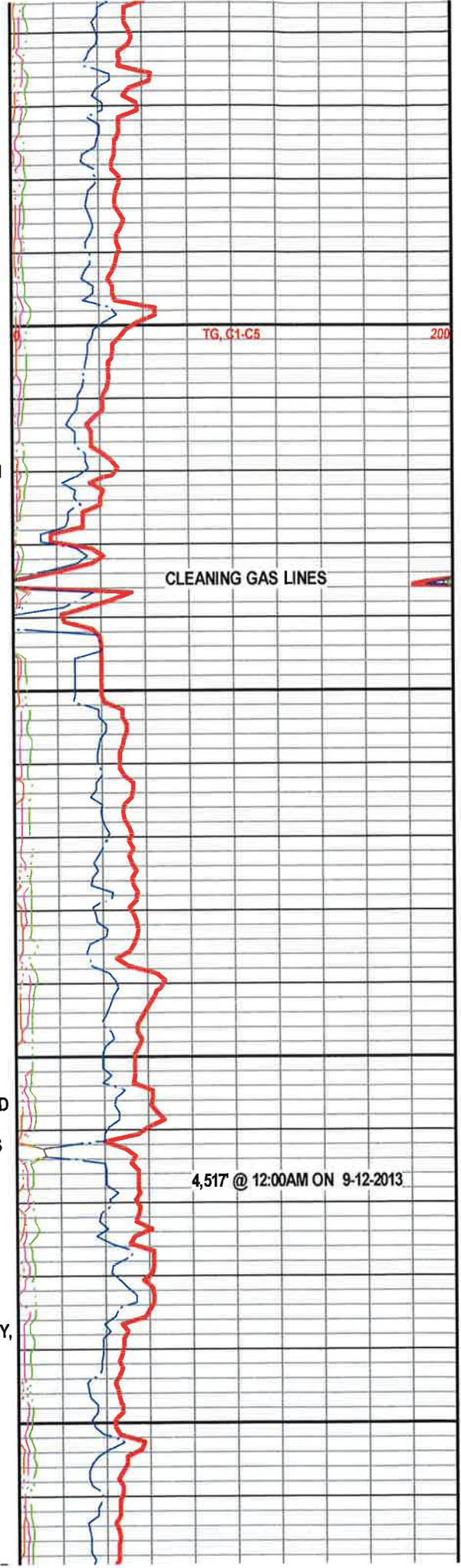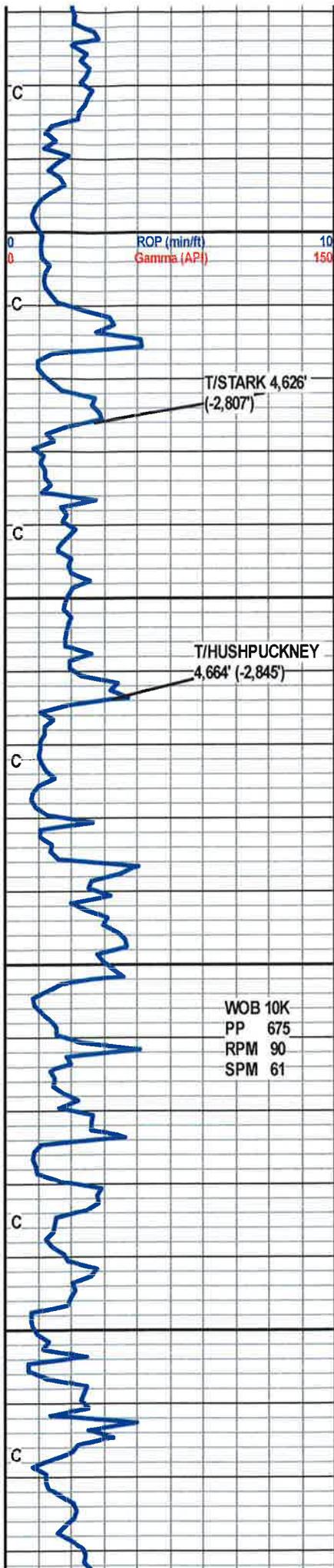
HRD W/SM BRTL, TR PYR, CHRT, TR DOLO'C, FOSS, PP W/TR VUG POR, DLL FLU, NO VIS STN, CUT, OR ODOR

LS: WHT-CRM-BRN-DRK BRN, MED W/SM XLN, HRD W/SM SFT, ARG, FOSS, SM DOLO'C, CHRT, PP W/TR VUG POR, SM DLL FLU, NO VIS STN, CUT, OR ODOR

LS: CRM-BFF-BRN-DRK BRN, XLN-FN W/SM SUCR, FRM-HRD, CHRT, SM DOLO'C, GD PP W/SM INTR XLN POR, DLL FLU, NO VIS STN, CUT, OR ODOR
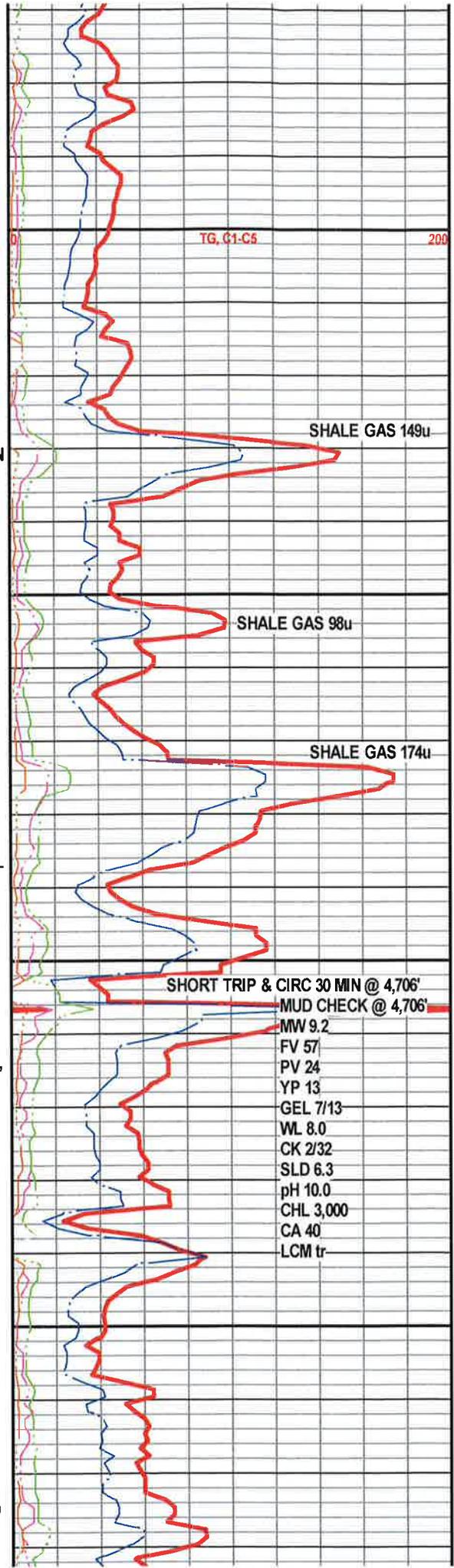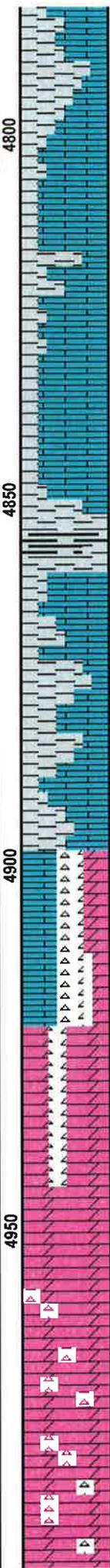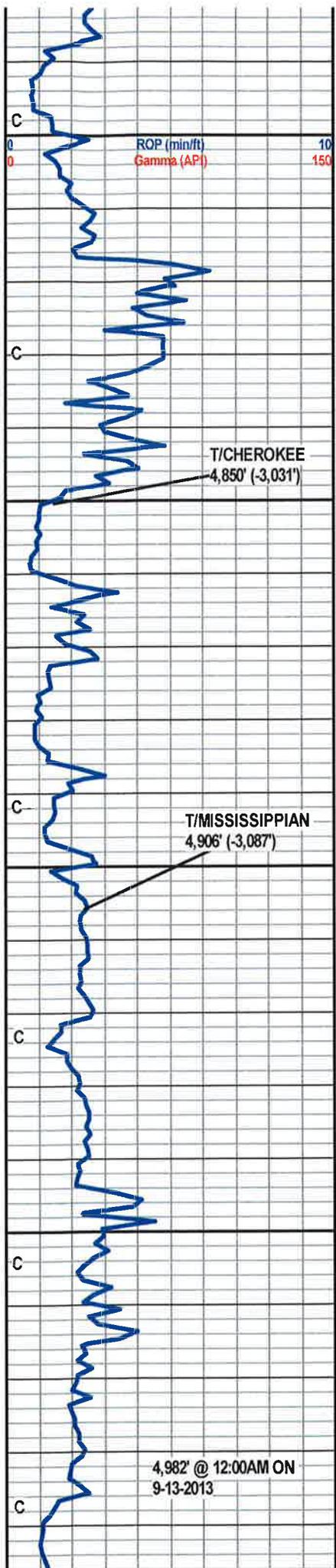
LS: AAB W/SM PYR

LS: CRM-BFF-BRN-BRN GRY, XLN-FN-DNS, HRD W/SM BRTL, TR MLD'C, PP W/TR FRAC POR, SM DLL FLU, NO VIS STN, CUT, OR ODOR

LS: BFF-BRN W/TR CRM, XLN-FN-MED-DNS, HRD W/ TR BRTL, TR ARG, FOSS, TR DOLO'C, PP W/TR FRAC POR, DLL FLU, NO VIS STN, CUT, ODOR

SH: GRY-DRK GRY-BLK W/ SM LT GRY, FN-WXY W/SM SLTY, SFT-FRM-HRD, CALC, PYR, MICA, CARB I.P., W/LS AAB W/TR OF DLL FLU, NS

LS: CRM-BFF-BRN-BRN GRY, XLN-FN-MED W/SM CHKY, FRM-HRD W/SM SFT, SM ARG, PYR, SL DOLO'C I.P., PR PP POR, DLL FLU,

T/STARK 4,626' (-2,807')

T/HUSHPUCKNEY 4,664' (-2,845')

WOB 10K
PP   675
RPM   90
SPM   61

ROP (min/ft)
Gamma (API)
0 — 10
0 — 150

4600
4650
4700
4750

C
C
C
C
C
C

TG, C1-C5
0 — 200

SHALE GAS 149u

SHALE GAS 98u

SHALE GAS 174u

SHORT TRIP & CIRC 30 MIN @ 4,706'
MUD CHECK @ 4,706'
MW 9.2
FV 57
PV 24
YP 13
GEL 7/13
WL 8.0
CK 2/32
SLD 6.3
pH 10.0
CHL 3,000
CA 40
LCM tr

SM DD OIL STN, NO VIS CUT OR ODOR

ROP (min/ft)
0 10
Gamma (API)
0 150

RIG SERVICE

TG, C1-C5
0 200

4800

LS: CRM-BFF-BRN, XLN-DNS-FN, HARD W/SM BRTL, FOSS, PR PP W/SM FRAC POR, DLL YEL WHT FLU, NO VIS STN, CUT, OR ODOR

C

C

T/CHEROKEE
4,850' (-3,031')

4850

82u

LS: WHT-CRM-BFF-BRN, XLN-FN-MED, HARD W/SM BRTL, CHRT, FOSS, SM/MLD'C, PP-INTR XLN W/ TR FRAC POR, DLL W/TR BRT FLU, GD STRMG CUT, OIL STN, NO ODOR
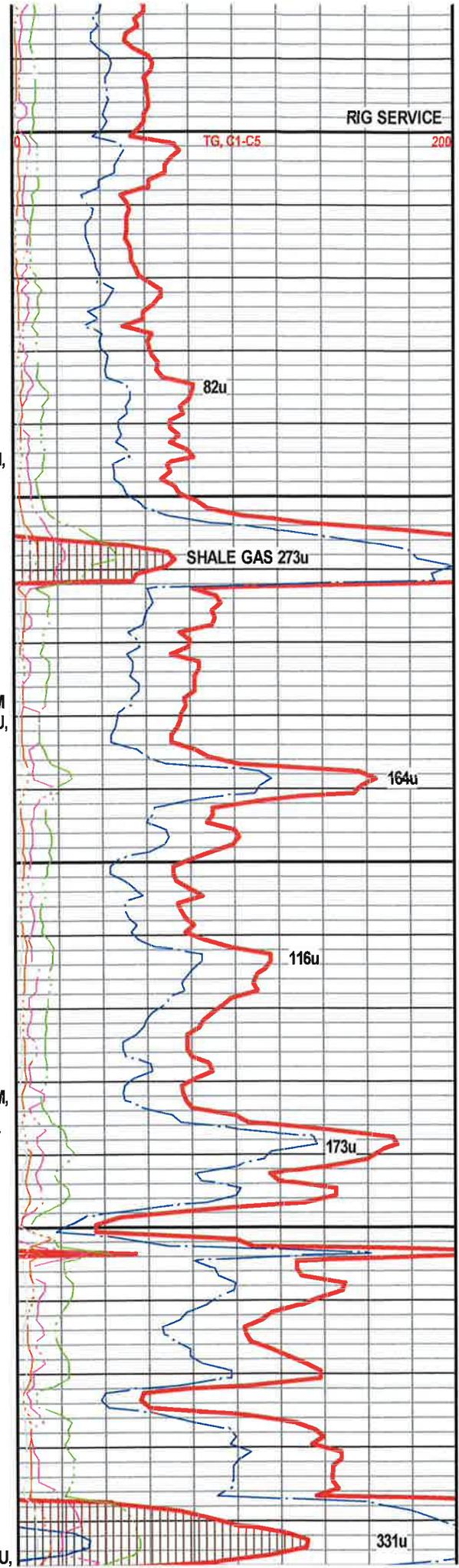
SHALE GAS 273u

LS: OFF WHT-CRM-BRN-BFF, XLN-FN-MED, HRD, GD PP I.P. W/SM INTR XLN POR, DLL & BRT YEL FLU, ABNDT OIL STN, GD STRMG CUT, NO ODOR

164u

C

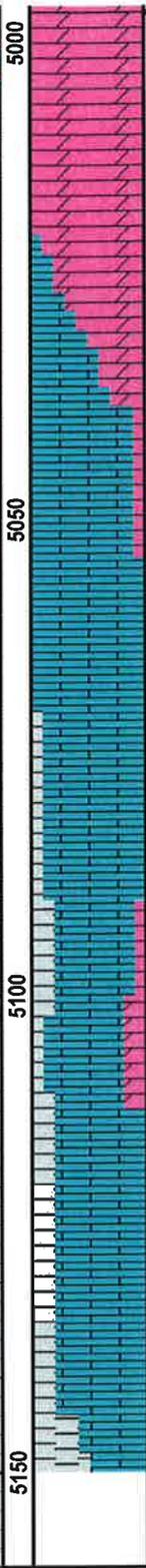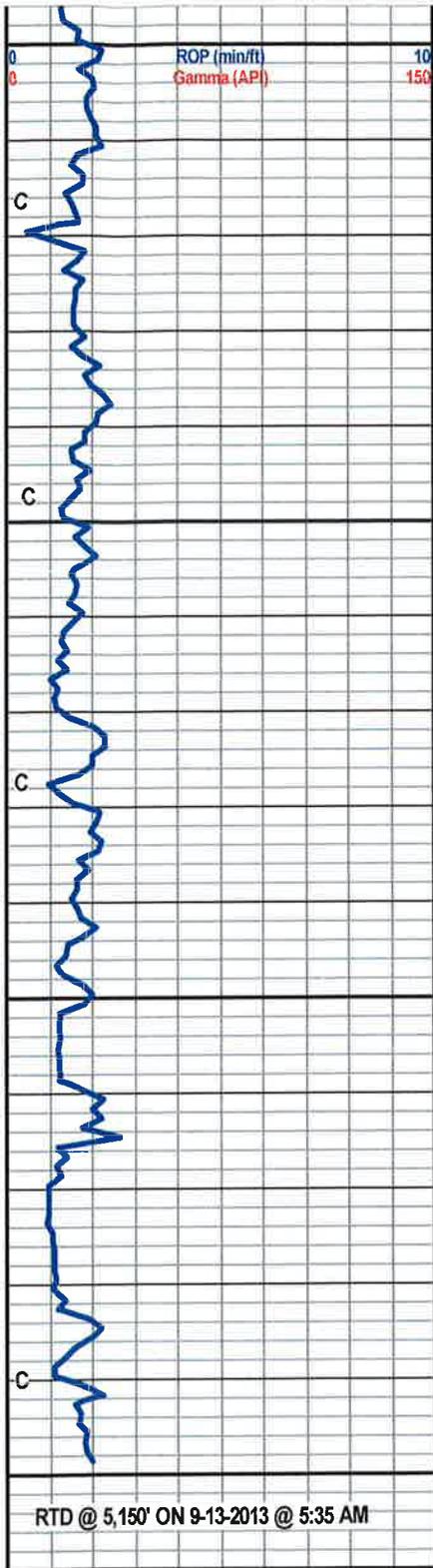T/MISSISSIPPIAN
4,906' (-3,087')

4900

LS: AAB W/ABNDT CHRT & DOLO: GRN, FN-SUCR, FRM-FRI, GLAU'C, PP POR, TR DLL FLU, NO VIS STN, CUT, OR ODOR

116u

C

DOLO: LT GRN-GRN, FN-SUCR, FRM, GLAU'C, CHRT, PP POR, TR DLL FLU, SLW RNG CUT FROM SELECT PCS, NO STN OR ODOR

173u

4950

C

DOLO: GRN W/SM BRN & GRY, BRTL-HRD, GLAU'C, CHRT, TR FOSS, PP POR, TR DLL FLU, SLW RING CUT, FNT ODOR

4,982' @ 12:00AM ON
9-13-2013

C

DOLO: WHT-BRN, SUCR-FN, BRTL, ABNDT CHRT, GD PP POR, BRT FLU,

331u

Track 1 (left)

ROP (min/ft) 0 ... 10
Gamma (API) 0 ... 150

C
C
C
C

RTD @ 5,150' ON 9-13-2013 @ 5:35 AM

Depth scale
5000
5050
5100
5150

Lithology descriptions

EXCLNT STRMG CUT, OIL STN, STRONG OIL ODOR

DOLO: WHT W/SM BRN, FN-SUCR, BRTL W/SM FRI, ABNDT CHRT, PYR, PP W/SM INTR XLN POR, BRT FLU, OIL STN, GD STRMG CUT, OIL ODOR

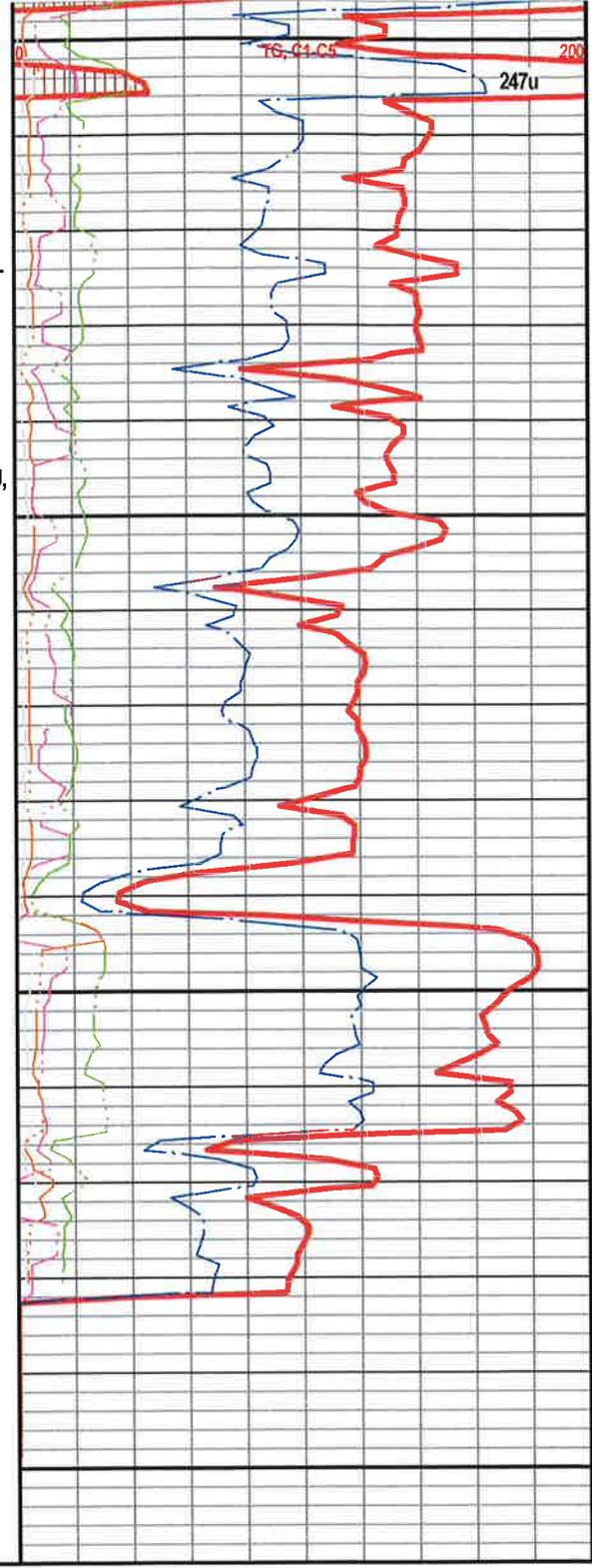DOLO: AAB W/SLW RING CUT & FNT ODOR

LS: WHT W/SM BRN, XLN-FN W/SM SEMI CHKY, BRTL-HRD W/SM SFT/FRI, PYR, PP POR I.P., DLL FLU, NO VIS STN, CUT, OR ODOR

LS: WHT-OFF WHT-GRN-LT GRY, XLN-CHKY-FN, SFT-BRTL-HRD, GLAU'C I.P., DOLO'C I.P., WHT FLU, NO VIS STN, CUT, OR ODOR

LS: AAB

LS: LT GRY-GRY GRN, FN, FRM W/SM SFT, DOLO'C, PP POR, NO FLU, STN, CUT, OR ODOR

CIRC 45 MINS,   SHORT TRIP TO 4,672', CIRC 1.5HR, SURVEY, TOH FOR ELOGS

Track 3 (right)

TG, C1-C5 0 ... 200

247u