



Weatherford®

Tooke Rockies, Inc.
(A Weatherford Company)

884 Implement Dr.
Dickinson, ND 58601
701-227-4408

717 West Platte
PO BOX 435
Casper, WY 82601
307-265-2124

Surface Logging Systems

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

Well Name: Murphy Family 4-64-36-1H (Pilot Hole)
Location: NE/SE, Sec 36, T4S-R64W. Arapahoe County, CO.
License Number: API#05-005-07214-00(Pilot Hole) Region: DJ Basin
Spud Date: 11/28/2013 Drilling Completed: 12/4/2013
Surface Coordinates: 1620' FSL & 250' FEL of NE/SE, Sec. 36, T4S-R64W,
Arapahoe County, CO.
Bottom Hole Proposed Lateral= 2016' FSL & 480' FWL of NW/SW Sec. 36, T4S-R64W Arapahoe
Coordinates: County, CO.
Ground Elevation (ft): 5913' K.B. Elevation (ft): 5937'
Logged Interval (ft): 6000' To: 8029' Total Depth (ft): 8029'
Formation: Niobrara/Greenhorn
Type of Drilling Fluid: INVERT/OBM/WATER BASE

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

OPERATOR

Company: Conoco/Phillips
Address: Attn: Abby Tomkiewicz
Three Westlake Park, Rm 14013
550 Westlake Park Blvd

GEOLOGIST

Name: Todd Thiesse,
Company: Tooke Rockies/ Weatherford SLS
Address: PO Box 435
Casper, WY. 82602
307.265.2124

Supervision

Project Geologist: John Ostergren- Conoco/Phillips
Drilling Engineer: Gary Hamilton, Ben Tolman, John Bengé- Conoco/Phillips
Drilling Sup: Bob Strickler- Conoco/Phillips
Company Rep: Richard Perez, Wes Evans, Mike Johnson(Day Leads)
Company Rep: Frank Holubec, Clint Goins, Clint Valentine, (Night Leads)
Well Site Safety: Rainey Schexnider, Jeff
Contact Geologist: Abby Tomkiewicz- Conoco/Phillips
Drilling & Comp. Mgr: Derly Gonzalez-Conoco/Phillips

Comments

Drilling Co.--H & P, Rig #280
 Toolpusher- , Mike Stevens, Josh Coleman
 Dir./MWD Co.- Sperry
 Mud Co.- Baroid/Haliburton, Dave Howell, Chase Putnam

ROCK TYPES

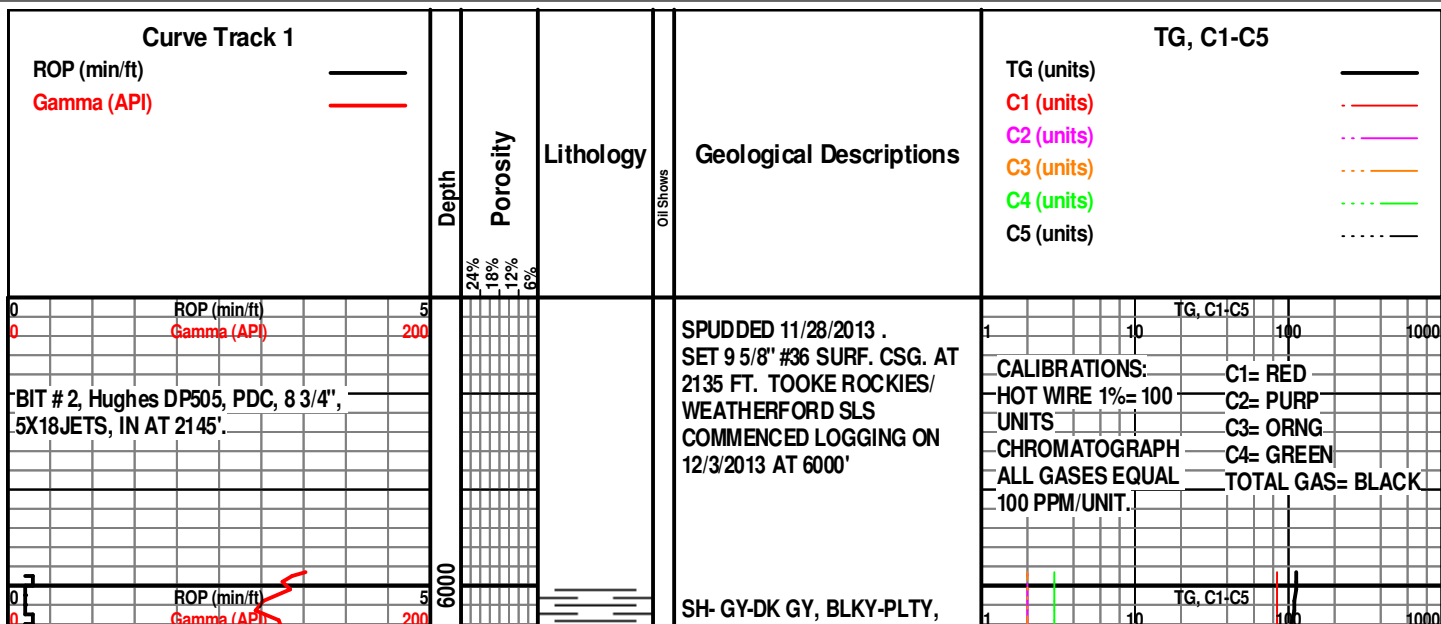
Anhy	Clyst	Gyp	Mrlst	Shgy
Bent	Coal	Igne	Salt	Sltst
Brec	Congl	Lmst	Shale	Ss
Cht	Dol	Meta	Shcol	Till

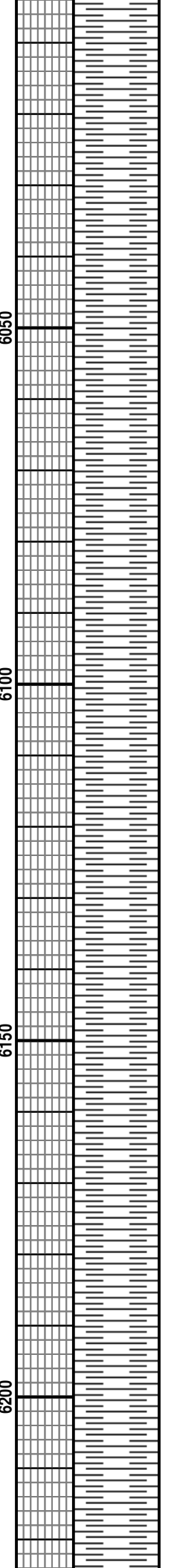
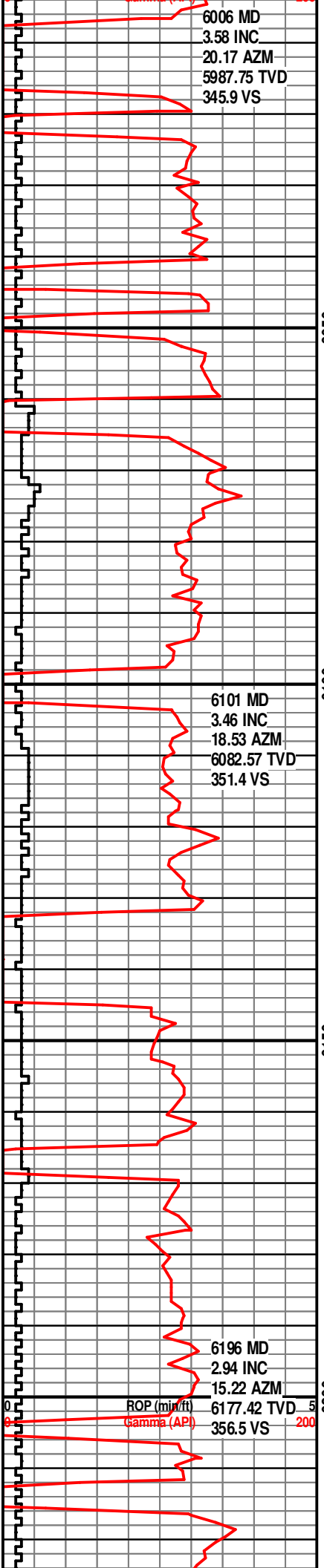
ACCESSORIES

MINERAL	Gyp	FOSSIL	Ostra	Sltstrg
Anhy	Hvymin	Algae	Pelec	Ssstrg
Arggrn	Kaol	Amph	Pellet	TEXTURE
Arg	Marl	Belm	Pisolite	Boundst
Bent	Minxl	Bioclst	Plant	Chalky
Bit	Nodule	Brach	Strom	Cryxln
Brecfrag	Phos	Bryozoa	STRINGER	Earthy
Calc	Pyr	Cephal	Anhy	Finexln
Carb	Salt	Coral	Arg	Grainst
Chtdk	Sandy	Crin	Bent	Lithogr
Chtlt	Silt	Echin	Coal	Microxln
Dol	Sil	Fish	Dol	Mudst
Feldspar	Sulphur	Foram	Gyp	Packst
Ferrpel	Tuff	Fossil	Ls	Wackest
Ferr		Gastro	Mrst	
Glau		Oolite		

OTHER SYMBOLS

INTERVALS	POROSITY TYPE	Pinpoint	ROUNDING	OIL SHOWS
Core	Earthy	Vuggy	Rounded	Even
Dst	Fenest	SORTING	Subrnd	Spotted
EVENTS	Fracture	Well	Subang	Ques
Rft	Inter	Moderate	Angular	Dead
Sidewall	Moldic	Poor		
	Organic			





SBWXY, OCC SLTY, SL CALC, V SFT-FRM.

SH- GY-DK GY, BLKY-PLTY, SBWXY, OCC SLTY, SL CALC, V SFT-FRM.

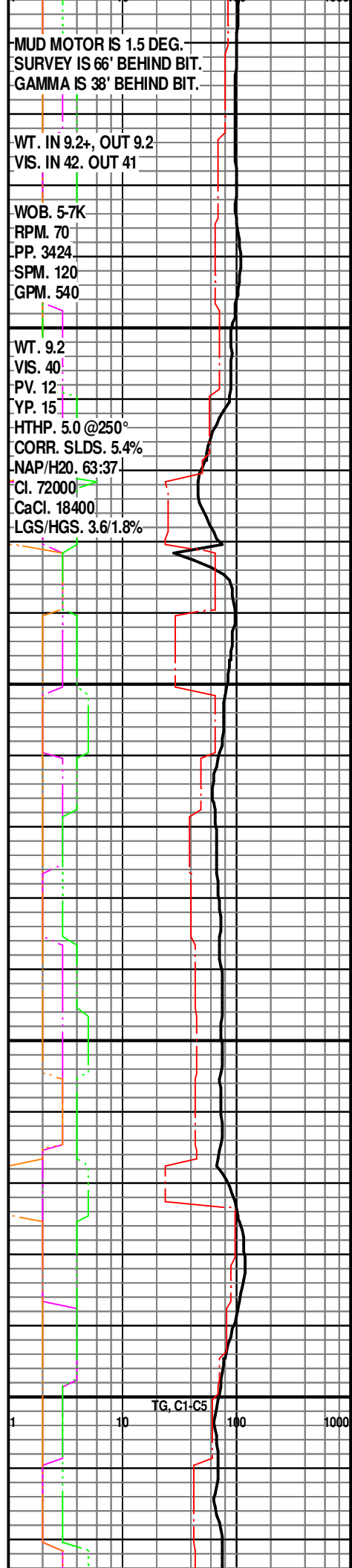
SH- GY-DK GY, BLKY-PLTY, SBWXY, OCC SLTY, SL CALC, V SFT-FRM.

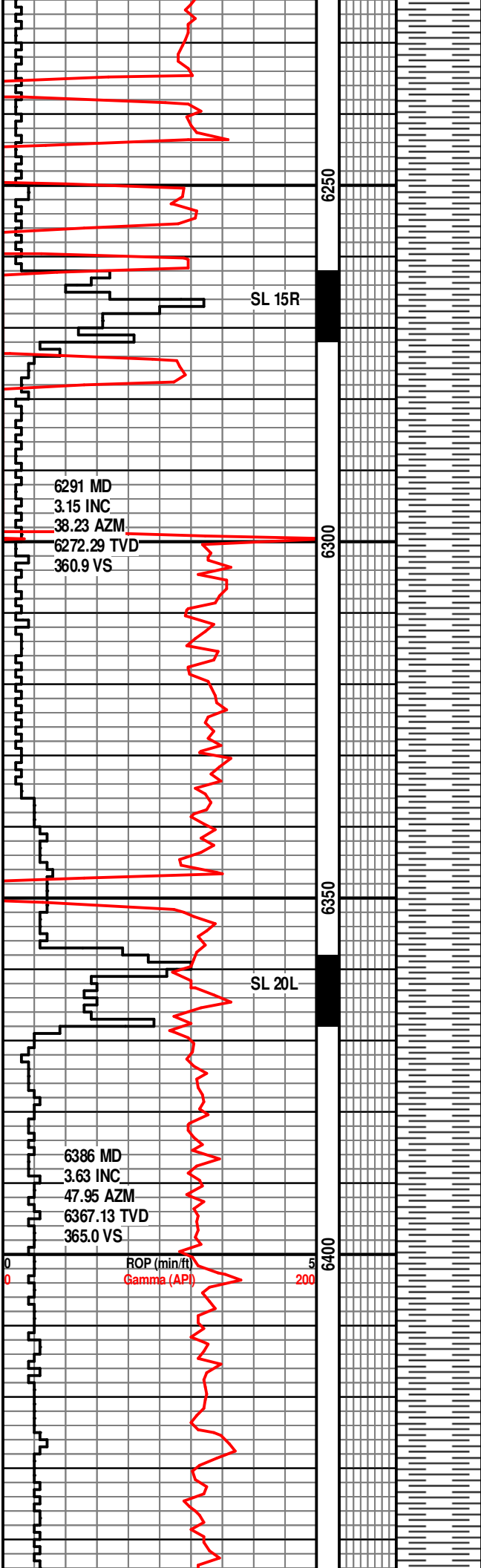
SH- DK GY-GY, SME LT GY, BLKY-PLTY, SBWXY, SL CALC SFT-FRM.

SH- DK GY-GY, SME LT GY, BLKY-PLTY, SBWXY, SL CALC SFT-FRM.

SH- DK GY-GY, SME LT GY, BLKY-PLTY, SBWXY, SL CALC SFT-FRM.

SH- DK GY-GY, SME LT GY,





BLKY-PLTY, SBWXY, SL CALC
SFT-FRM.

SH- GY-DK GY, SME LT GY,
OCC DK BRN, BLKY-PLTY,
SBWXY, SL CALC-CALC,
SFT-FRM.

6291 MD
3.15 INC
38.23 AZM
6272.29 TVD
360.9 VS

SH- GY-DK GY, SME LT GY,
OCC DK BRN, BLKY-PLTY,
SBWXY, SL CALC-CALC,
SFT-FRM.

SH- GY-DK GY, SME LT GY,
OCC DK BRN, BLKY-PLTY,
SBWXY, SL CALC-CALC,
SFT-FRM.

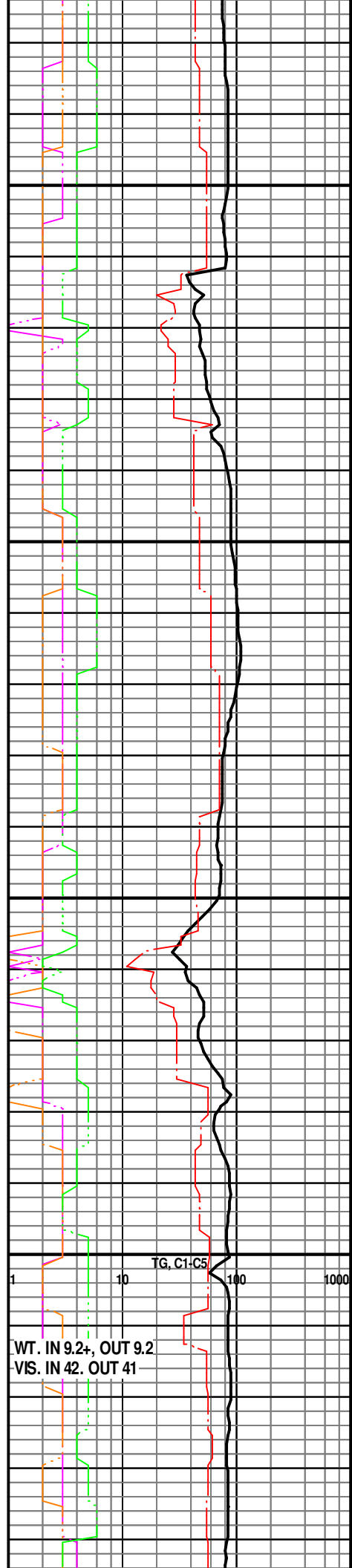
SL 20L

SH- GY-DK GY, OCC LT GY,
BLKY-PLTY, SBWXY, SL CALC,
SFT-FRM.

6386 MD
3.63 INC
47.95 AZM
6367.13 TVD
365.0 VS

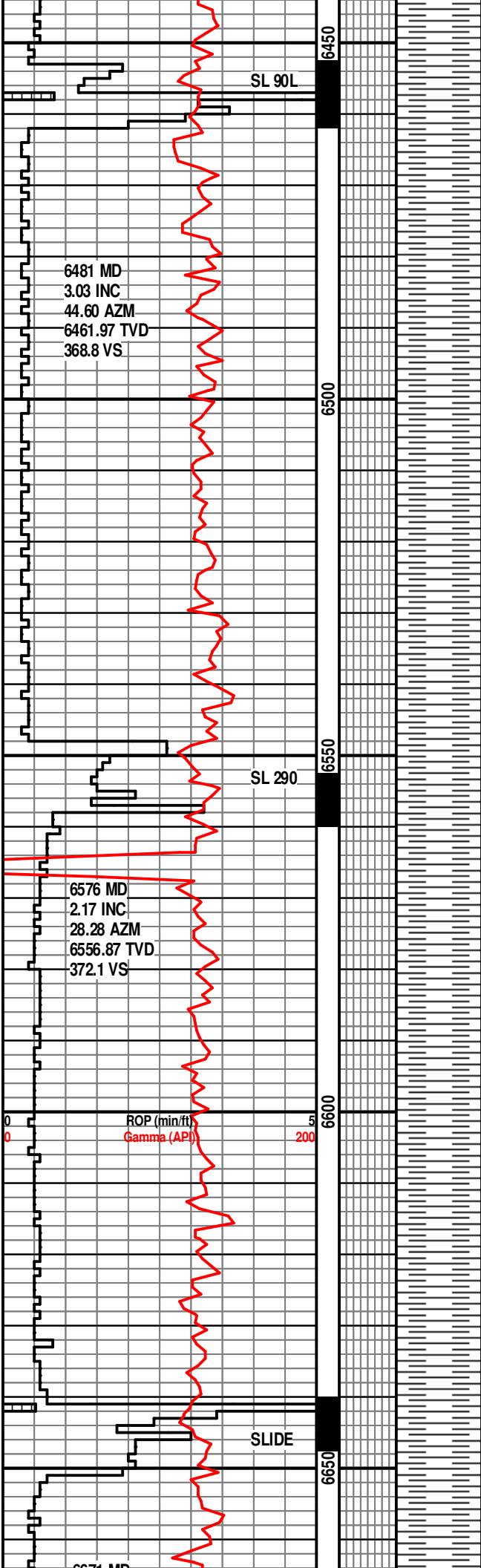
SH- GY-DK GY, OCC LT GY,
BLKY-PLTY, SBWXY, SL CALC,
SFT-FRM.

ROP (min/ft)
Gamma (API)



WT. IN 9.2+, OUT 9.2
VIS. IN 42. OUT 41

SH- GY-DK GY, OCC LT GY,
BLKY-PLTY, SBWXY, SL CALC,
SFT-FRM.



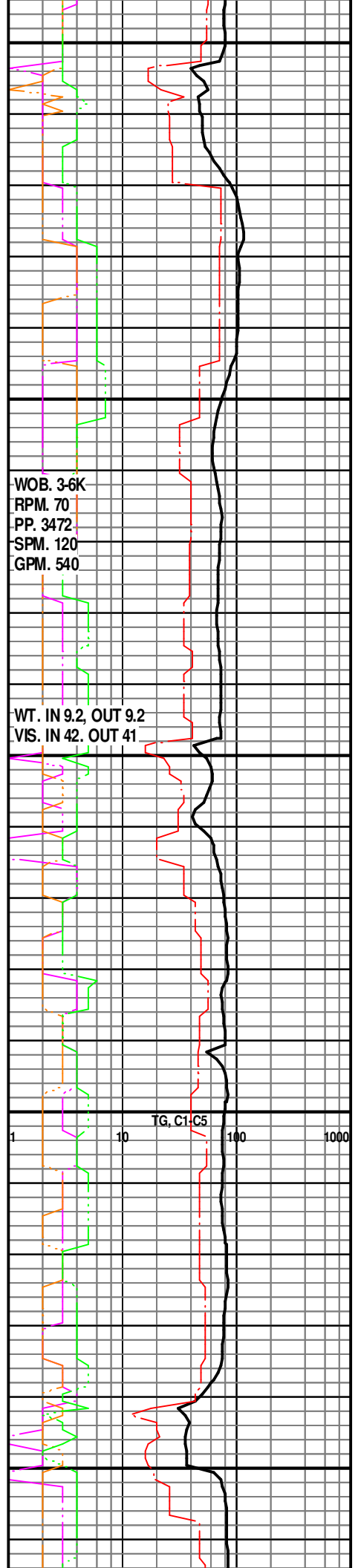
SH- GY-DK GY, SME DK BRN,
BLKY-PLTY, SBWXY, SL CALC,
SFT-FRM.

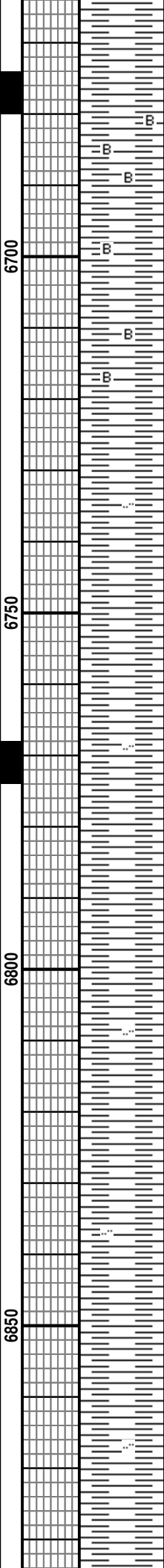
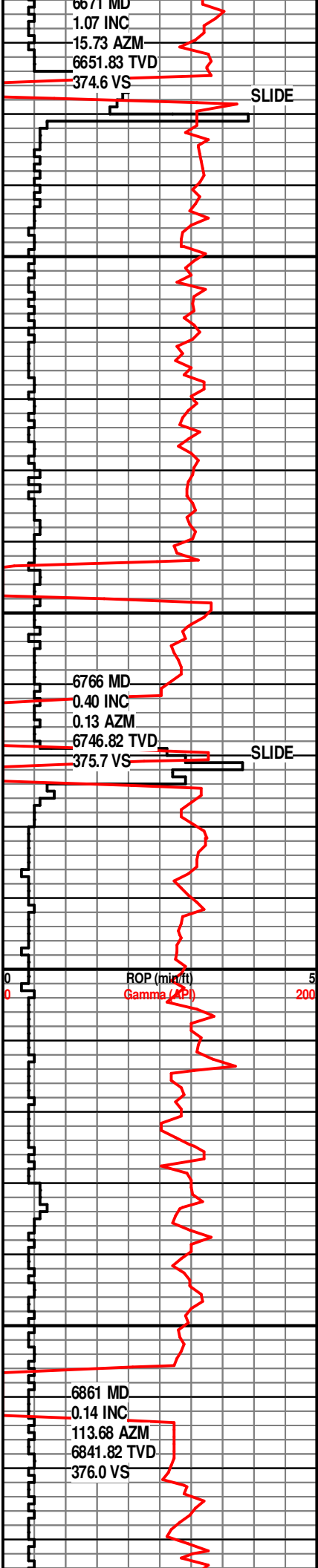
SH- GY-DK GY, SME DK BRN,
BLKY-PLTY, SBWXY, SL CALC,
SFT-FRM.

SH- GY-DK GY, SME DK BRN,
BLKY-PLTY, SBWXY, SL CALC,
SFT-FRM.

SH- GY-DK GY, SME DK BRN,
BLKY-PLTY, SBWXY, SL CALC,
SFT.

SH- GY-DK GY, SME DK BRN,
BLKY-PLTY, SBWXY, SL CALC,
SFT.





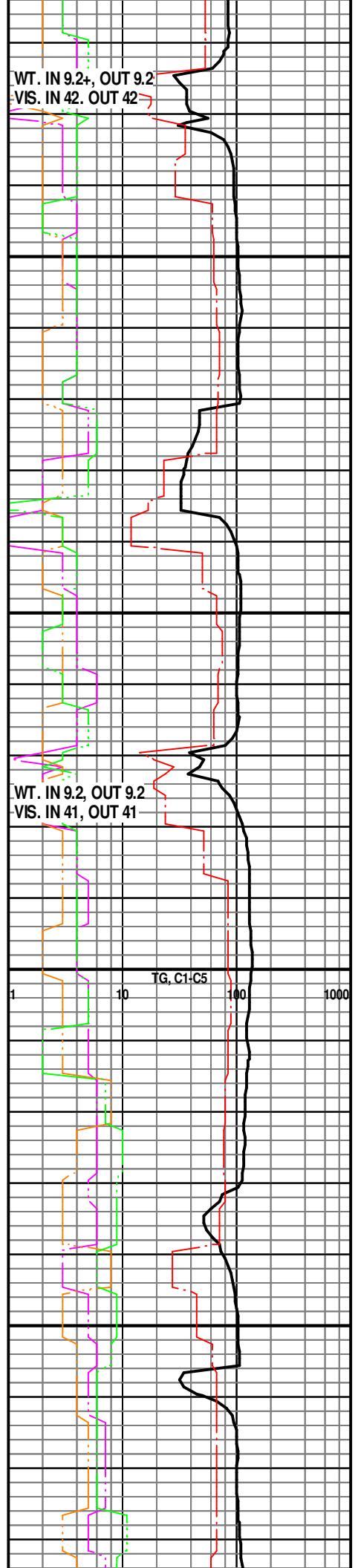
SH- GY-DK GY, SME DK BRN,
BLKY-PLTY, SBWXY, SL
CALC-SLI CALC, SFT, TR
BENT.

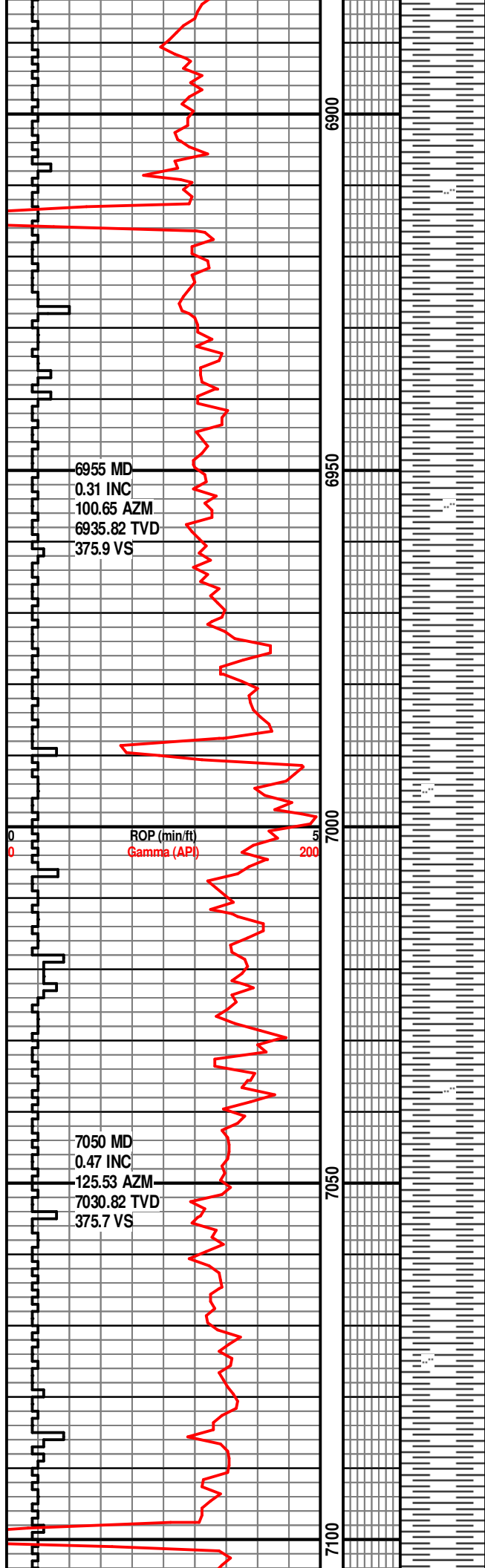
SH- GY, OCC LT GY, SME DK
BRN, BLKY-PLTY, SBWXY, SL
CALC-CALC, OCC SLTY, V
SFT-FRM.

SH- GY, OCC LT GY, SME DK
BRN, BLKY-PLTY, SBWXY, SL
CALC-CALC, OCC SLTY, V
SFT-FRM.

SH- GY, LT GY, OCC DK BRN,
BLKY-PLTY, SBWXY, SL
CALC-CALC, OCC SLTY, V
SFT-FRM.

SH- GY, LT GY, OCC DK BRN,
BLKY-PLTY, SBWXY, SL
CALC-CALC, OCC SLTY, V
SFT-FRM.





SH- GY, LT GY, OCC DK BRN,
BLKY-PLTY, SBWXY, SL
CALC-CALC, OCC SLTY, V
SFT-FRM.

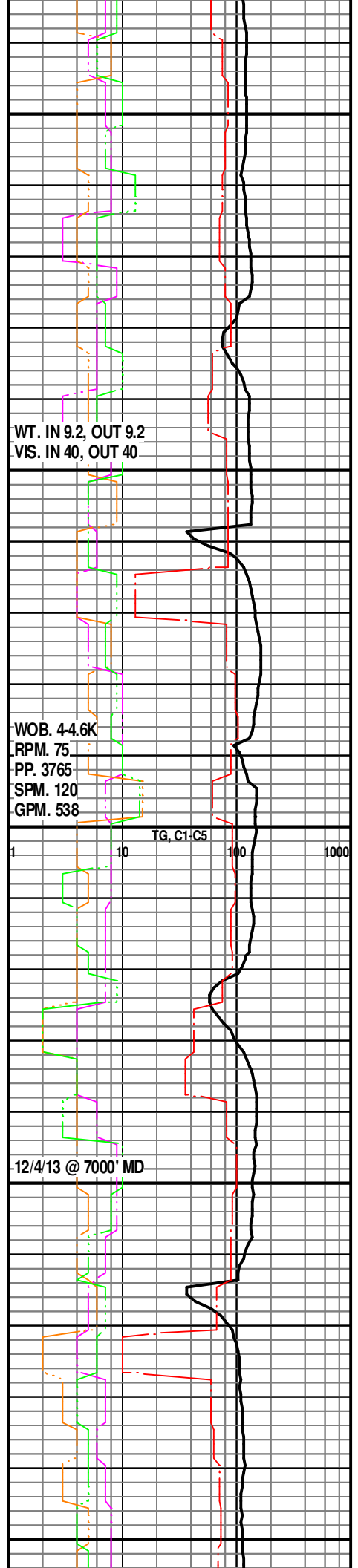
SH- GY, LT GY, OCC DK BRN,
BLKY-PLTY, SBWXY, SL
CALC-CALC, OCC SLTY, V
SFT-FRM.

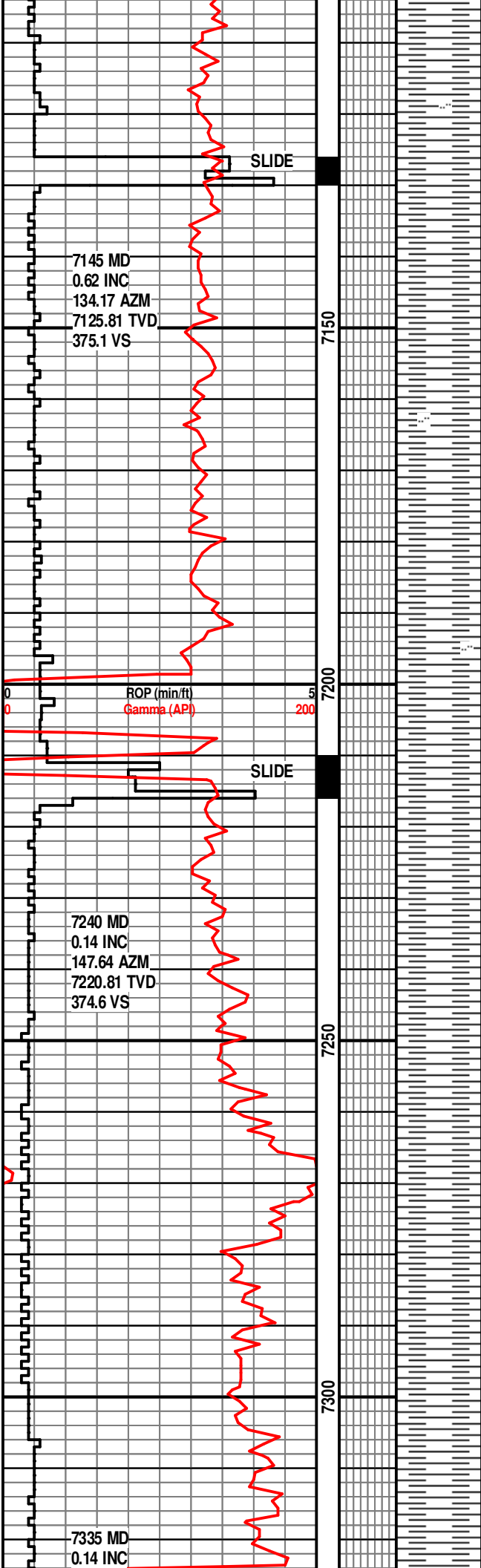
SH- GY, LT GY, OCC DK BRN,
BLKY-PLTY, SBWXY, SL
CALC-CALC, OCC SLTY, V
SFT-FRM.

SH- GY-LT GY, SME DK BRN,
BLKY-PLTY, SBWXY, SL
CALC-CALC, OCC SLTY, V
SFT-FRM.

SH- GY-LT GY, SME DK BRN,
BLKY-PLTY, SBWXY, SL
CALC-CALC, OCC SLTY, V
SFT-FRM.

SH- GY-LT GY, SME DK BRN,
BLKY-PLTY, SBWXY, SL
CALC-CALC, OCC SLTY, V
SFT-FRM.





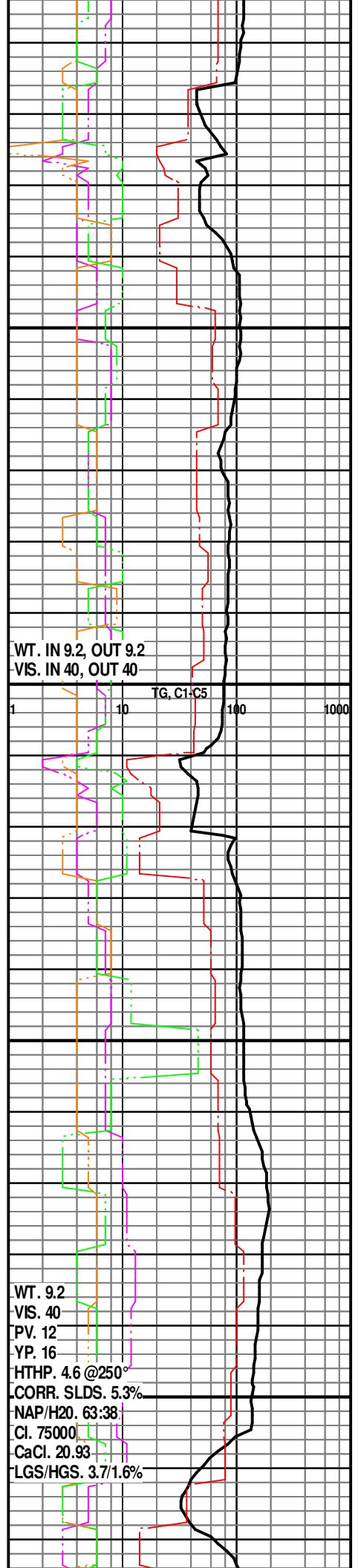
SH- GY-LT GY, SME DK BRN,
PRED PLTY, SBWXY, SL
CALC-CALC, OCC SLTY, V
SFT-FRM.

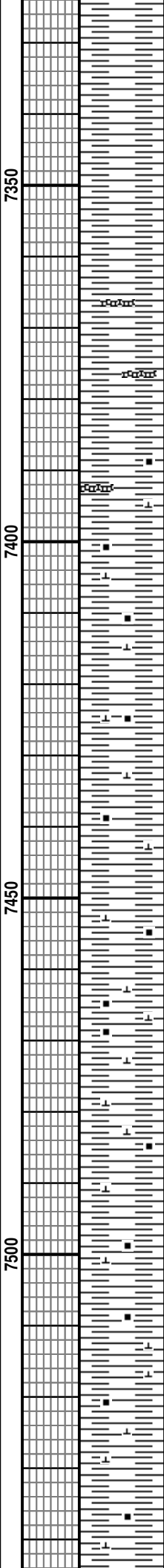
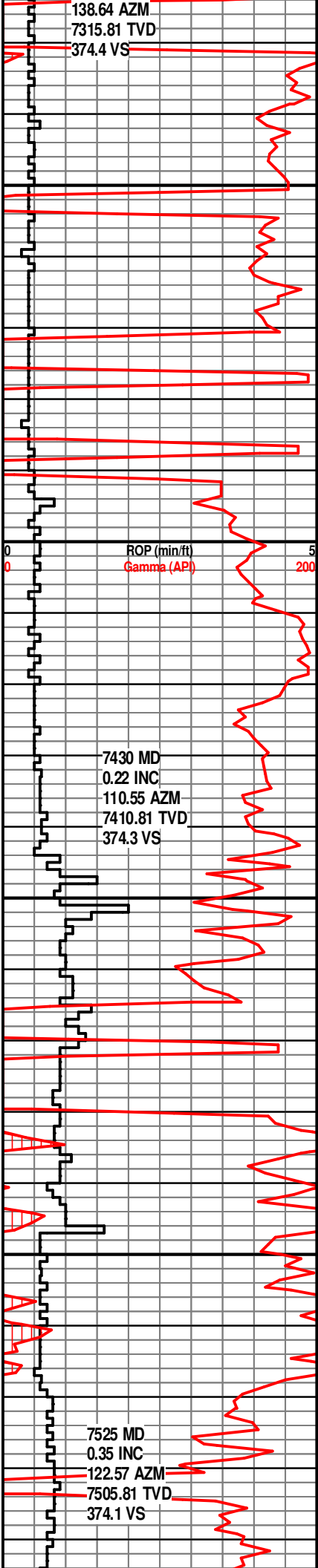
SH- GY-LT GY, SME DK BRN,
PRED PLTY, SBWXY, SL
CALC-CALC, OCC SLTY, V
SFT-FRM.

SH- GY-LT GY, SME DK BRN,
PRED PLTY, SBWXY, SL
CALC-CALC, OCC SLTY, V
SFT-FRM.

SH- GY-LT GY, SME DK BRN,
BLKY-PLTY, SBWXY, CALC, V
SFT-FRM.

SH- GY-LT GY, SME DK BRN,
BLKY-PLTY, SBWXY, CALC, V
SFT-FRM.





SH- GY-LT GY, SME DK BRN,
BLKY-PLTY, SBWXY, CALC, V
SFT-FRM.

**EST. TOP OF SHARON
SPRINGS @ 7340' MD**

SH- GY-DK GY, OCC DK BRN,
BLKY-PLTY, SBWXY, CALC, V
SFT-FRM. W/ SCAR BENT- LT
GY-LT BRN/CRM.

SH- GY-DK GY, OCC DK BRN,
BLKY-PLTY, SBWXY, CALC, V
SFT-FRM. W/ SCAR BENT- LT
GY-LT BRN/CRM.

SH- GY-DK GY, BLKY-PLTY,
SBWXY, INCR CALC, SFT-FRM.

SH- DK GY-BLK, GY,
BLKY-PLTY, SBWXY, CARB, V
CALC-LMY, SFT-FRM.

**EST. TOP OF
NIOBRARA AT 7438'.**

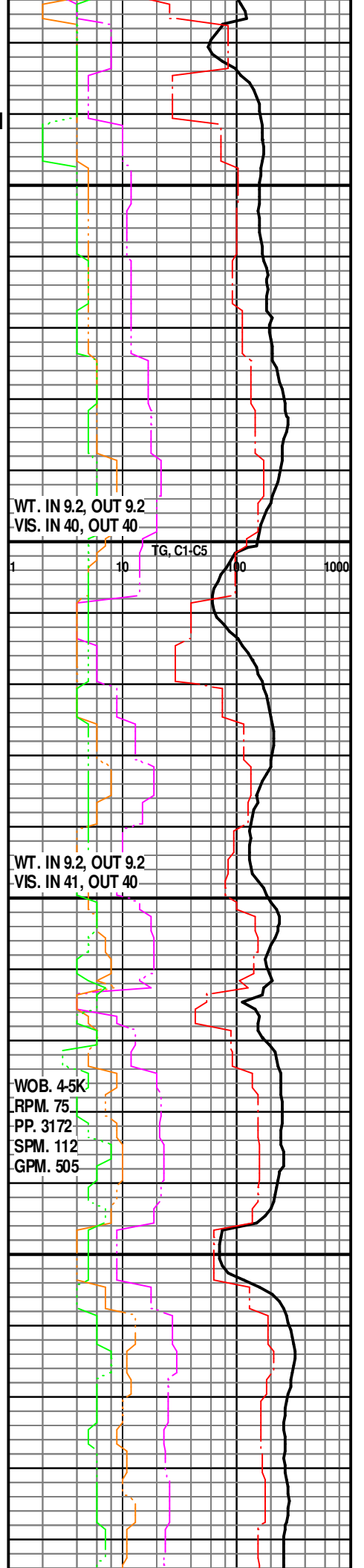
SH- DK GY-BLK, GY,
BLKY-PLTY, SBWXY, INCR
CARB, V CALC-LMY, SFT-FRM.

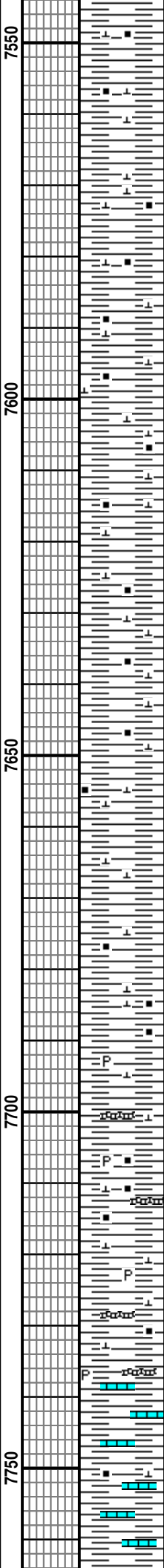
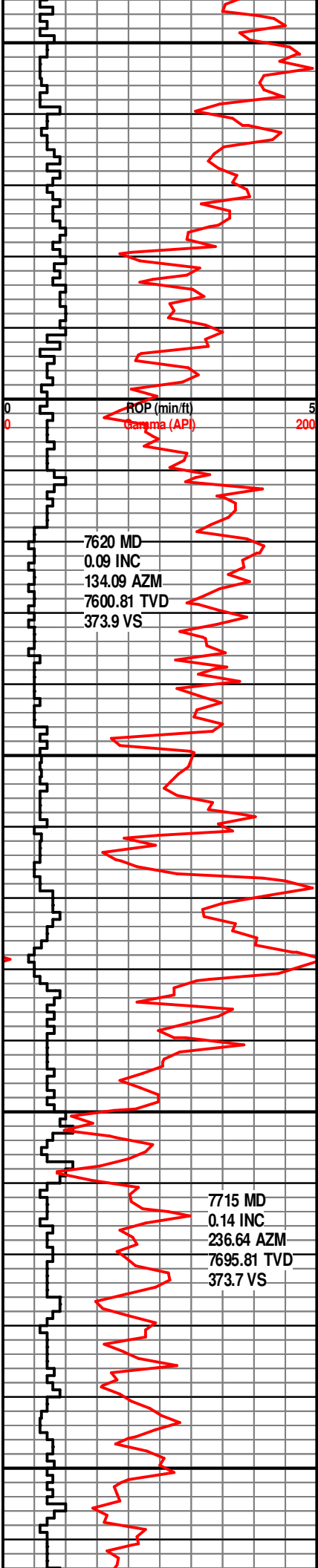
SH- DK GY, BLK, GY,
BLKY-PLTY, SBWXY, CARB W
SME CARB LAM, V CALC-LMY,
SFT-FRM.

SH- DK GY, BLK, GY,
BLKY-PLTY, SBWXY, CARB W
SME CARB LAM, V CALC-LMY,
SFT-FRM.

SH- DK GY-BLK, GY,
BLKY-PLTY, SBWXY, CARB, V
CALC-LMY, SFT-FRM.

SH- DK GY, BLK, GY,
BLKY-PLTY, SBWXY, CARB W
SME CARB LAM, V CALC-LMY,
SFT-FRM.





SH- BLK-DK GY, SME GY,
BLKY-PLTY, SBWXY, CARB &
SME CARB LAM, V CALC-LMY,
SFT-FRM.

SH- BLK-DK GY, SME GY,
BLKY-PLTY, SBWXY, CARB &
SME CARB LAM, OCC CALC FL
FRAC, V CALC-LMY, SFT-FRM.

SH- BLK-DK GY, SME GY,
BLKY-PLTY, SBWXY, CARB &
SME CARB LAM, OCC CALC FL
FRAC, V CALC-LMY, SFT-FRM.

SH- BLK-DK GY, GY, OCC LT
BRN, BLKY-PLTY, SBWXY,
CARB & OCC CARB LAM,
ABNDT CALC FL FRAC &
SOME CALCITE, V CALC-LMY,
SFT-FRM.

SH- BLK-DK GY, GY, OCC LT
BRN, BLKY-PLTY, SBWXY,
CARB, CALC FL FRAC & SOME
CALCITE, V CALC-LMY,
SFT-FRM.

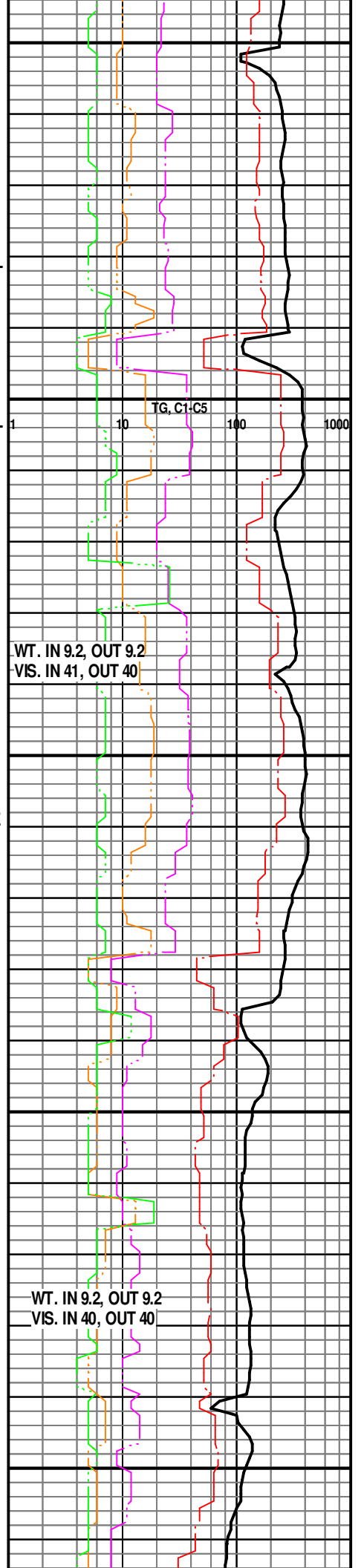
SH- BLK-DK GY, GY,
BLKY-PLTY, SBWXY, CARB,
TR CALC FL FRAC & SOME
CALCITE, V CALC-LMY,
SFT-FRM.

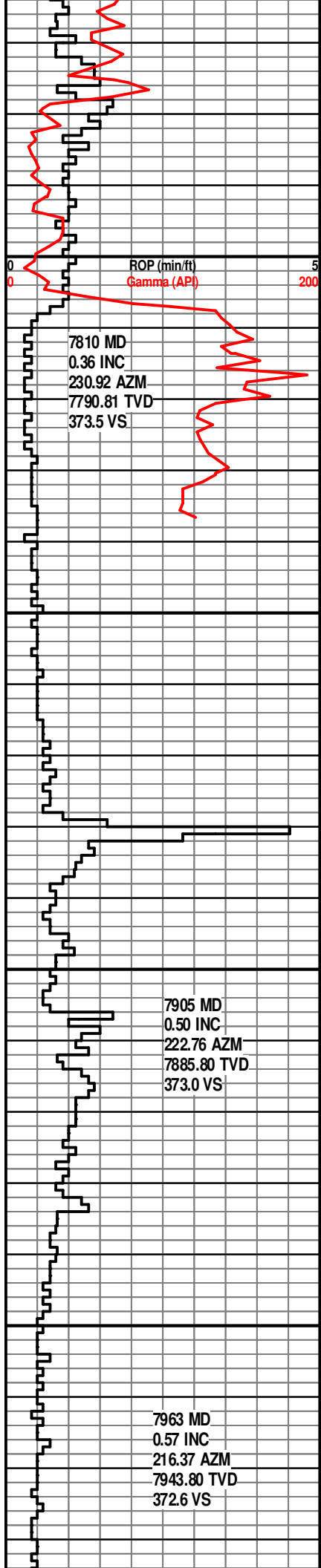
SH- BLK-DK GY, GY,
BLKY-PLTY, SBWXY, PYR,
CARB, V CALC-LMY, SFT-FRM.
W/ BENT- TAN-LT GY, SME
GY/GN-AQUA.

SH- BLK-DK GY, GY,
BLKY-PLTY, SBWXY, PYR,
CARB, V CALC-LMY, SFT-FRM.
W/ BENT- TAN-LT GY, SME
GY/GN-AQUA.

LS- TAN-BUFF, LT GY,
MICXL-CRPXL, ARG, TT, INTXL
POR, NSFOC. W/ SME SH- DK
GY-BLK, PLTY, SBWXY, V
CALC-LMY, SFT.

EST. TOP OF FT.
MAYO AT 7700 MD





ROP (min/ft)
Gamma (API)

7810 MD
0.36 INC
230.92 AZM
7790.81 TVD
373.5 VS

7905 MD
0.50 INC
222.76 AZM
7885.80 TVD
373.0 VS

7963 MD
0.57 INC
216.37 AZM
7943.80 TVD
372.6 VS

7800

7850

7900

7950



HAYS AT 7764' MD.

LS- TAN-BUFF, LT GY,
MICXL-CRPXL, ARG, TT, INTXL
POR, NSFOC.

MWD GAMMA TOP OF THE FT.
HAYS AT 7778'.

EST. TOP OF
CARLISLE AT 7808'
MD.

SH- DK GY-BLK, BLKY-PLTY,
SBWXY, CARB, CALC,
SFT-FRM. W/ TR BENT- GY/GN

SH- DK GY-BLK, BLKY-PLTY,
SBWXY, CARB, CALC,
SFT-FRM. W/ TR BENT- GY/GN

EST. TOP OF
GREENHORN AT 7874'
MD.

SH- DK GY-GY, BLK,
BLKY-PLTY, SBWXY, CARB &
SME CARB LAM, CALC,
SFT-FRM. W/ TR BENT- LT GY,
TAN.

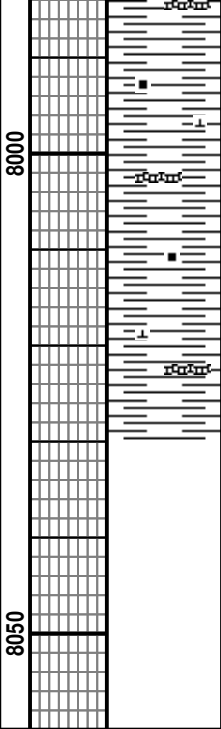
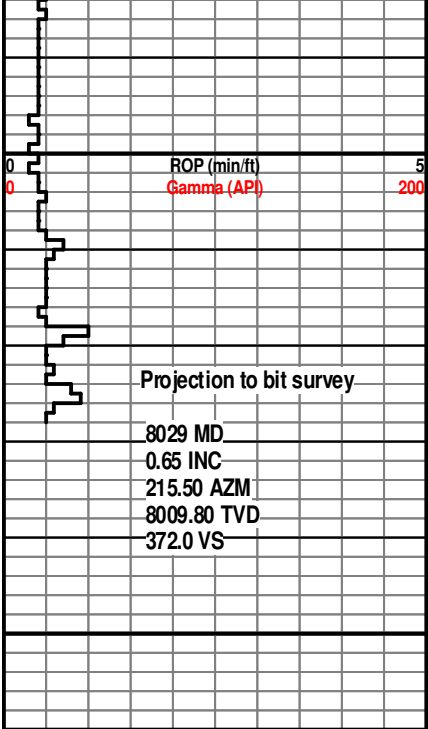
SH- DK GY-GY, BLK,
BLKY-PLTY, SBWXY, CARB &
SME CARB LAM, CALC,
SFT-FRM. W/ TR BENT- LT GY,
TAN.

SH- DK GY-GY, BLK,
BLKY-PLTY, SBWXY, CARB &
SME CARB LAM, CALC,
SFT-FRM. W/ BENT- LT GY, GY
& TR PYR.

TG, C1-C5

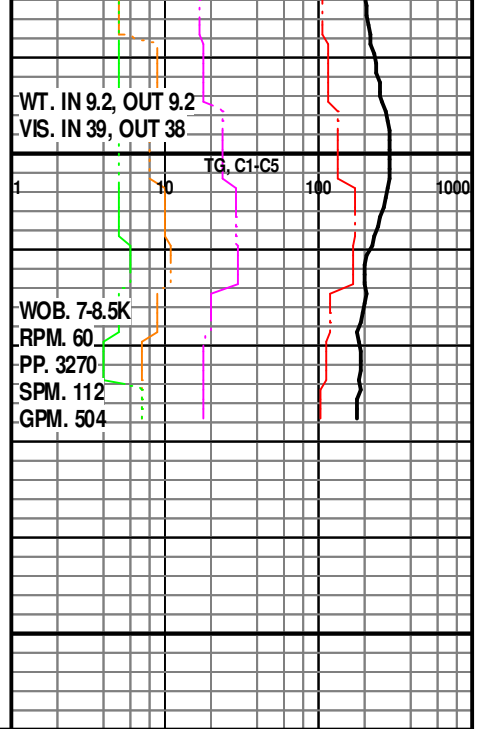
MWD GAMMA TOP OF THE
CARLISLE AT 7806'.

WT. IN 9.2, OUT 9.2
VIS. IN 39, OUT 39



SH- DK GY-GY, BLK,
BLKY-PLTY, SBWXY, CARB &
SME CARB LAM, CALC,
SFT-FRM. W/ BENT- LT GY,
GY.

TD PILOT HOLE AT
8029 FT. AT 1750
HRS ON 12/4/2013.
DRILLERS DEPTH.



Projection to bit survey

8029 MD
0.65 INC
215.50 AZM
8009.80 TVD
372.0 VS