



Weatherford[®]

Surface Logging Systems

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

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

Well Name: Moran Trust 2-1(Core Hole)
Location: NW/SE Sec. 2, T5S, R64W, Arapahoe County, CO.
License Number: API- 05-005-07207-00 **Region:** DJ Basin
Spud Date: 7/29/2013 **Drilling Completed:** 8/7/2013
Surface Coordinates: 1680' FSL & 1853 FEL of NW/SE Sec. 2, T5S. R64W, Arapahoe County, Colorado.
Bottom Hole Coordinates: 1680' FSL & 1853 FEL of NW/SE Sec. 2, T5S. R64W, Arapahoe County, Colorado.
Ground Elevation (ft): 5975' **K.B. Elevation (ft):** 5999'
Logged Interval (ft): 6000' **To:** 8030' **Total Depth (ft):** 8030'
Formation: Niobrara/Greenhorn
Type of Drilling Fluid: INVERT/WATER BASE

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

OPERATOR

Company: Conoco/Phillips
Address: 550 Westlake Park Blvd
Houston, TX 77079
Attn: Abby Tomkiewicz

GEOLOGIST

Name: Todd Thiesse, Gabe Genitempo
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- Conoco/Phillips
Drilling Sup: Bob Strickler- Conoco/Phillips
Company Rep: Richard Perez, Wes Evans(Day Leads), Mike Johnson.
Company Rep: Frank Holubec, Clint Goins, Wayne Morgan(Night Leads)
Well Site Safety: Rainey Schexnider, James Orr
Contact Geologist: Abby Tomkiewicz- Conoco/Phillips
Drilling & Comp. Mgr: Derly Gonzalez-Conoco/Phillips

CORE

Contractor: BJ Hughes
Core #: 1/#2/#3
Formation: Sharon Spgs & Niobrara/Niobrara,/ Ft. Hays, Carlisle, Greenhorn.
Core Interval: From: 7490'/7670'/ 7850' Cut: 180'/180'/ 180'
To: 7670'/7850/ 80'Recovered: 180'/180/'
Bit type: HTC, BHC-406
Size: 8 3/4"
Coring Time: 8.8 HRS./ 5.5HRS./ 5.75HRS.

Coring

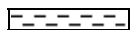



Coring Tools- BJ Hughes
Core Handling- Weatherford Labs

Comments

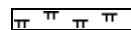

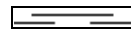
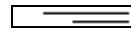
Drilling Co.--H & P, Rig #280
Toolpusher- Mike Stevens, Josh Coleman
Dir./MWD Co.- Sperry
Mud Co.- Baroid/Haliburton, Dave Howell, Chase Putnam

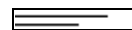



ROCK TYPES

 Anhy
 Bent
 Brec
 Cht

 Clyst
 Coal
 Congl
 Dol

 Gyp
 Igne
 Lmst
 Meta

 Mrlst
 Salt
 Shale
 Shcol

 Shgy
 Sltst
 Ss
 Till

ACCESSORIES

MINERAL

- Anhy
- Arggrn
- Arg
- Bent
- Bit
- Breclfrag
- 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

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

OTHER SYMBOLS

POROSITY TYPE

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

Vuggy

SORTING

- Well
- Moderate
- Poor

ROUNDING

- Rounded
- Subrnd
- Subang
- Angular

- Spotted
- Ques
- Dead

EVENTS

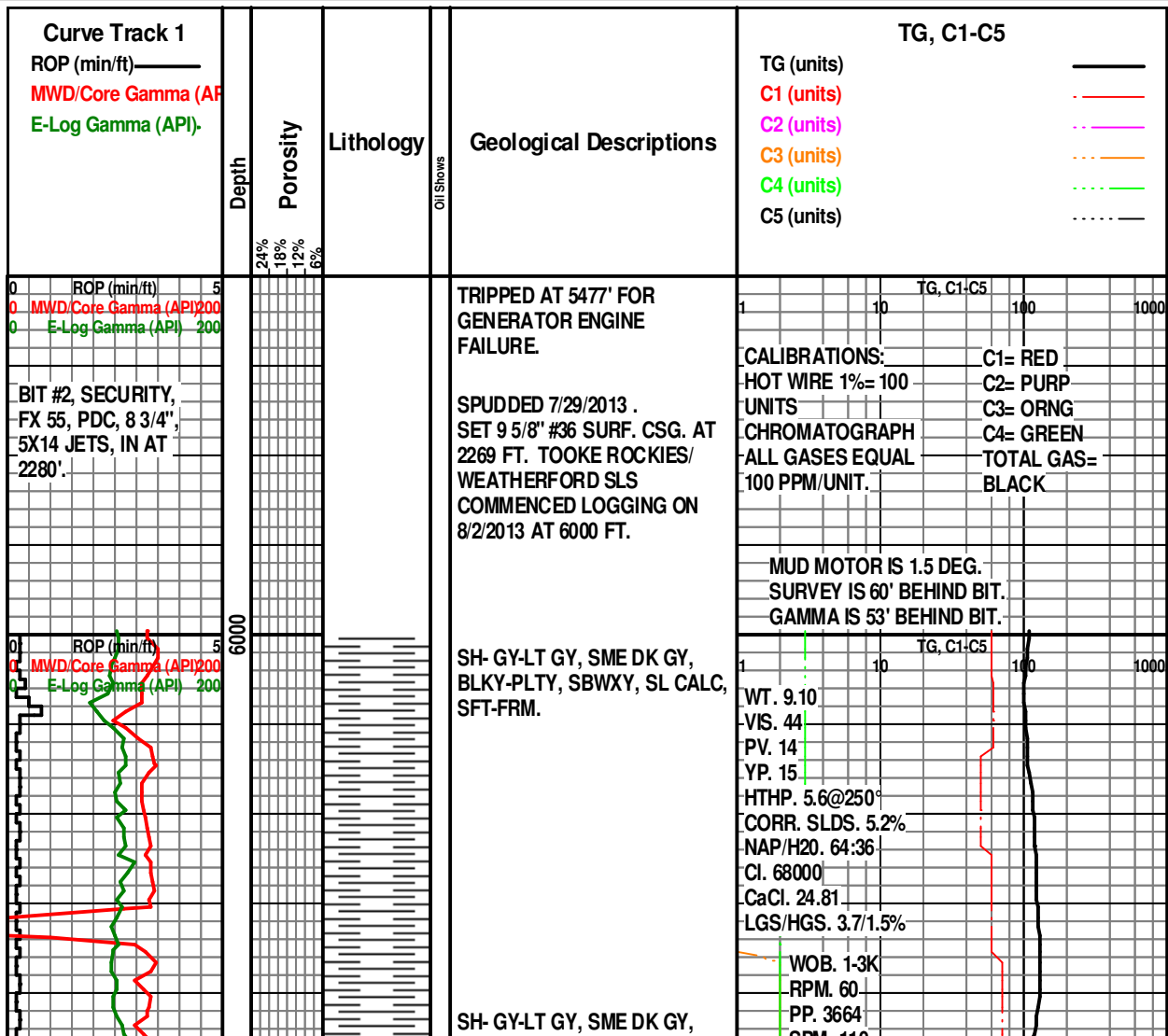
- Rft
- Sidewall

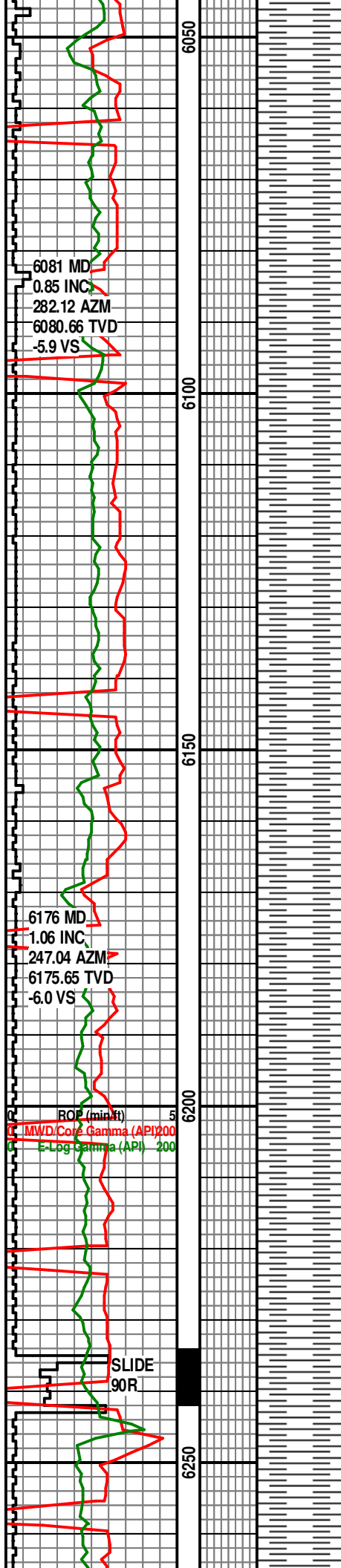
INTERVALS

- Core
- Dst

OIL SHOWS

- Even





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

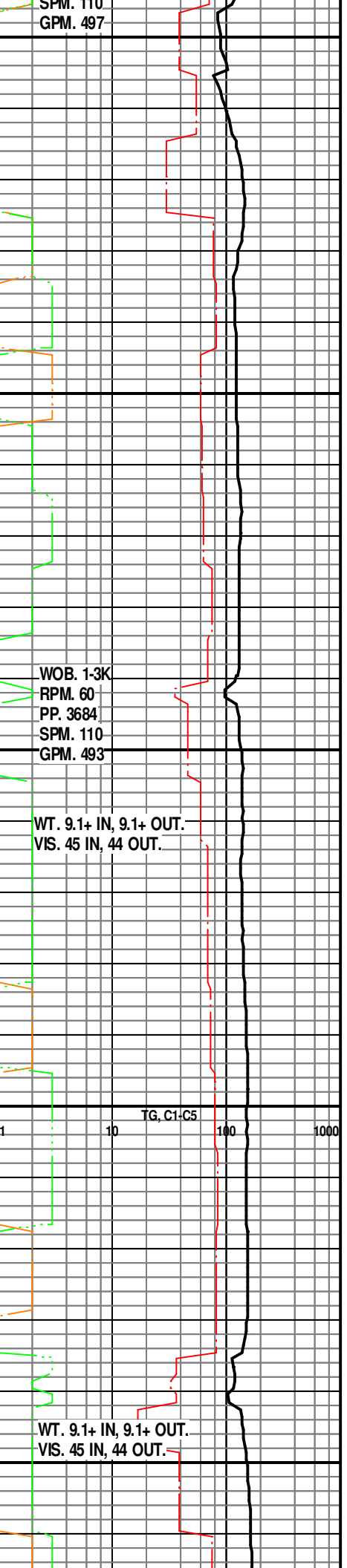
SH- GY-LT GY, SME DK GY,
BLKY-PLTY, SBWXY, SL CALC,
SFT-FRM.

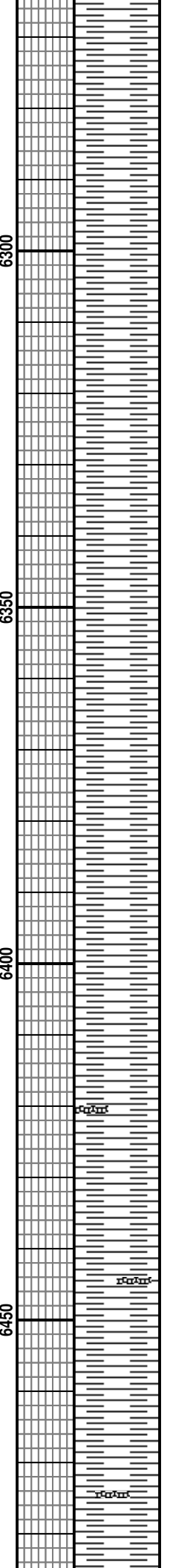
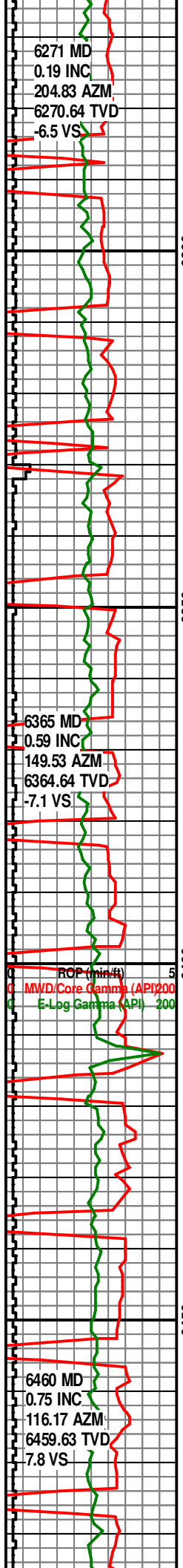
8/3/2013

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

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

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



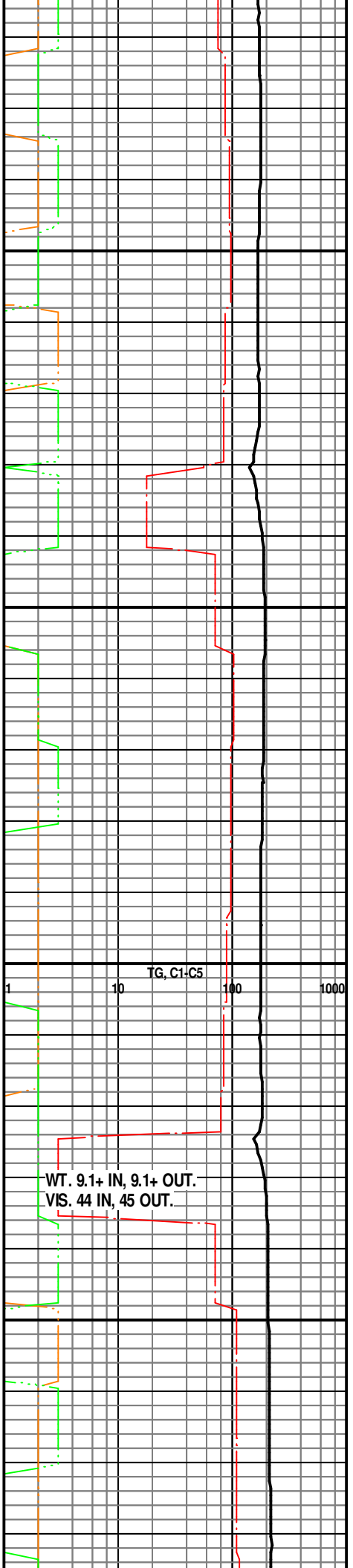


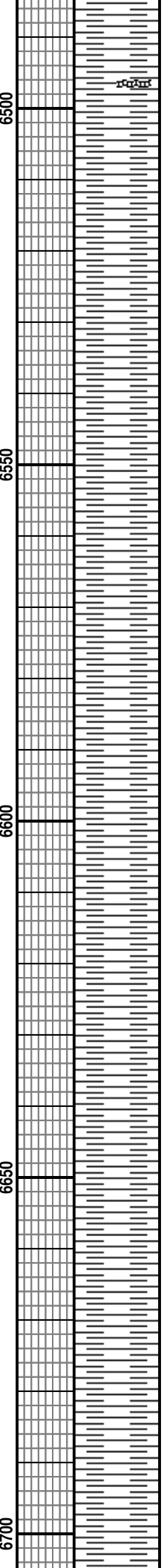
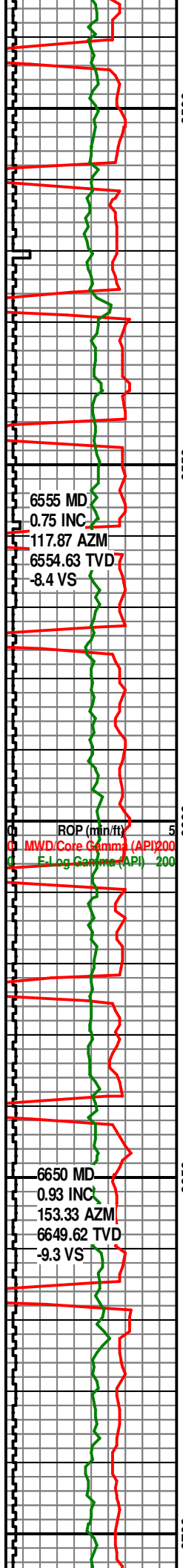
SH- DK GY- GY- LT GY,
BLKY-PLTY, SBWXY, SL CALC,
SFT-FRM, TR BRN CLYST.

SH- DK GY- GY- LT GY,
BLKY-PLTY, SBWXY, SL CALC,
SFT-FRM, TR BRN CLYST.

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

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





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

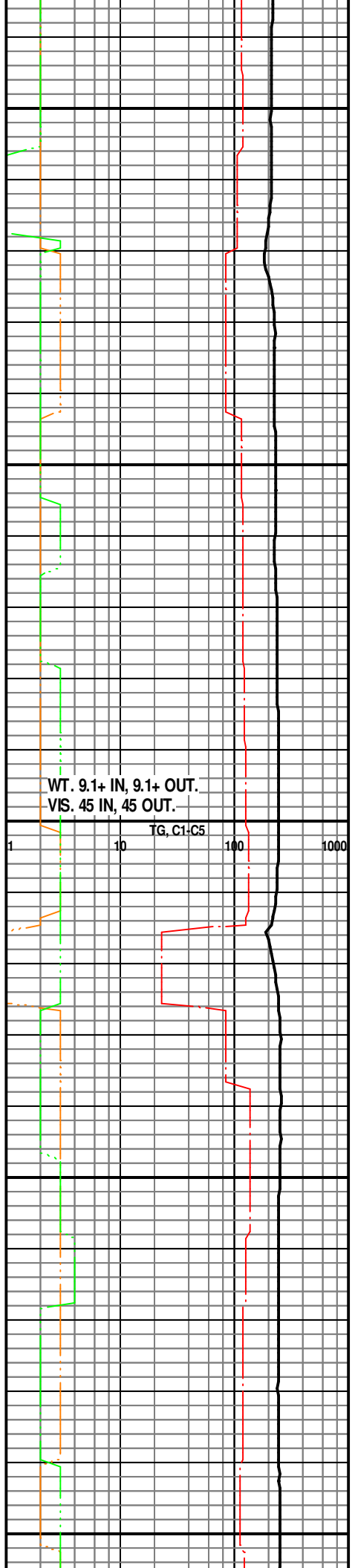
SH- DK GY- GY- LT GY,
BLKY-PLTY, SBWXY, SL CALC,
SFT-FRM.

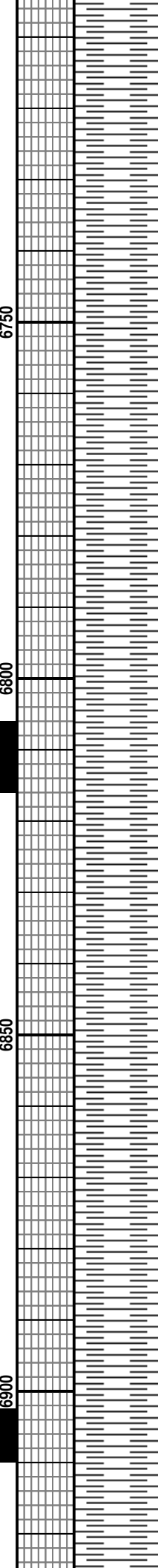
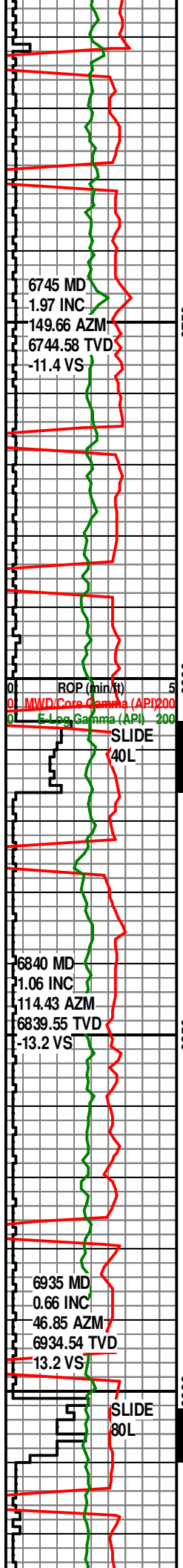
SH- DK GY- GY- LT GY,
BLKY-PLTY, SBWXY, SL CALC,
SFT-FRM.

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

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

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





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

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

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

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

SH- DK GY- GY- LT GY,
BLKY-PLTY, SBWXY, SL CALC,
SFT-FRM, TR BRN CLYST.

SH- DK GY- GY- LT GY,
BLKY-PLTY, SBWXY, SL CALC,
SFT-FRM, TR BRN CLYST.

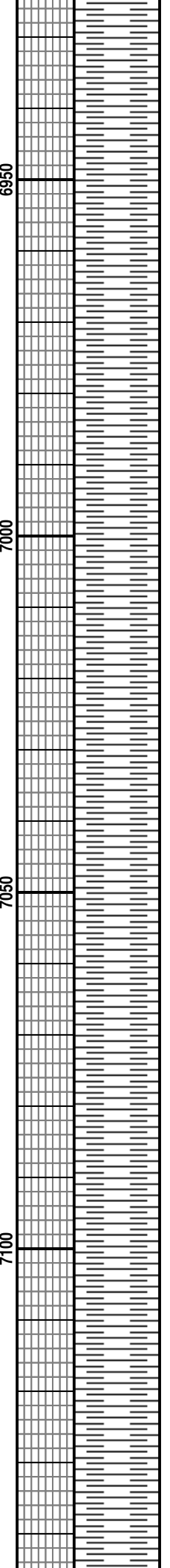
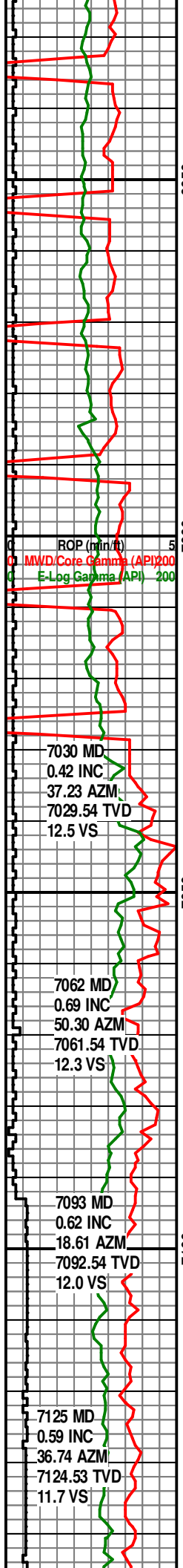
WT. 9.1+ IN, 9.1+ OUT.
VIS. 44 IN, 43 OUT.

WT. 9.1 IN, 9.1+ OUT.
VIS. 44 IN, 45 OUT.

WT. 9.20
VIS. 45
PV. 17
YP. 20
HTHP. 4.4@250°
CORR. SLDS. 5.7%
NAP/H2O. 62:38
Cl. 70000
CaCl. 26.75
LGS/HGS. 4.2/1.5%

TG, C1-C5

1 10 100 1000



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

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

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

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

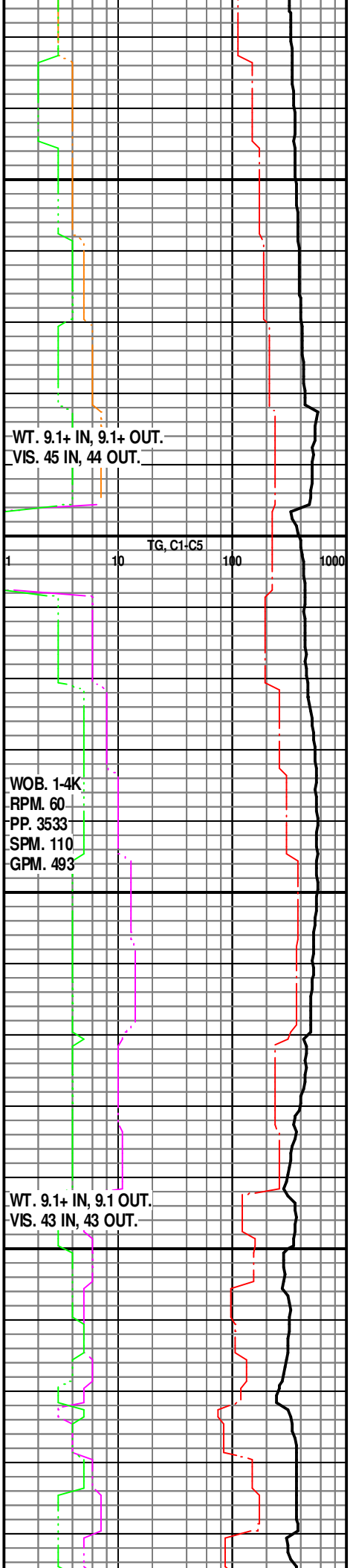
SH- DK GY-LT GY, SME DK
 BRN, BLKY-PLTY, SBWXY, SL
 CALC, SFT-FRM.

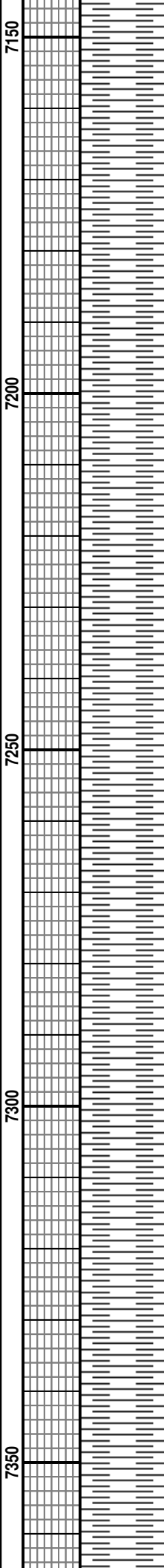
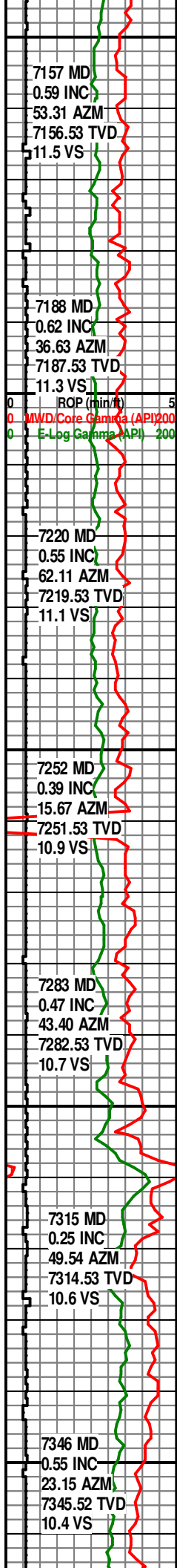
SH- DK GY-LT GY, SME DK
 BRN, BLKY-PLTY, SBWXY, SL
 CALC, SFT-FRM.

**STARTED TIME DRILL
 @ 100'/HR.**

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-FRM.

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

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

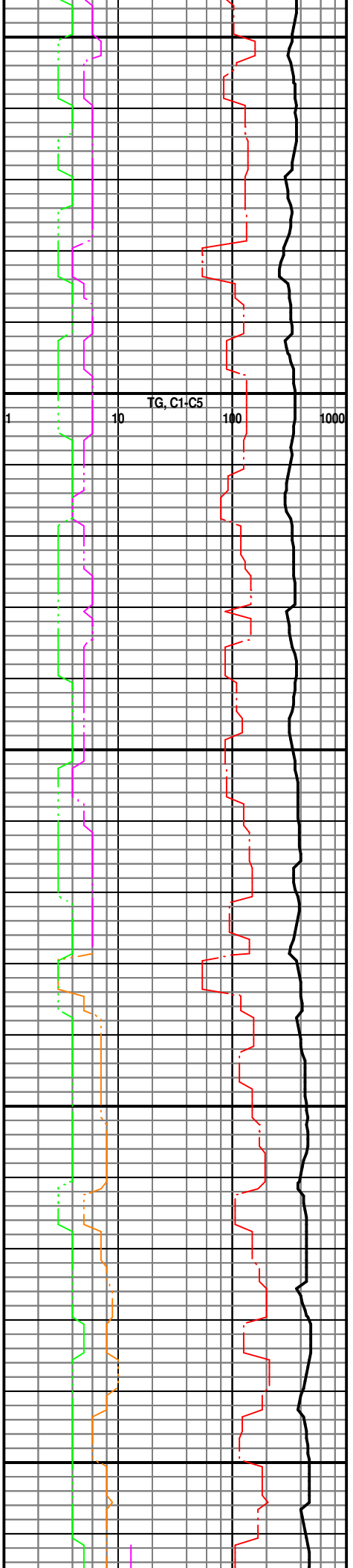
SH- LT GY-DK GY, OCC DK
BRN, BLKY-PLTY, SBWXY, SL
CALC, SFT-FRM.

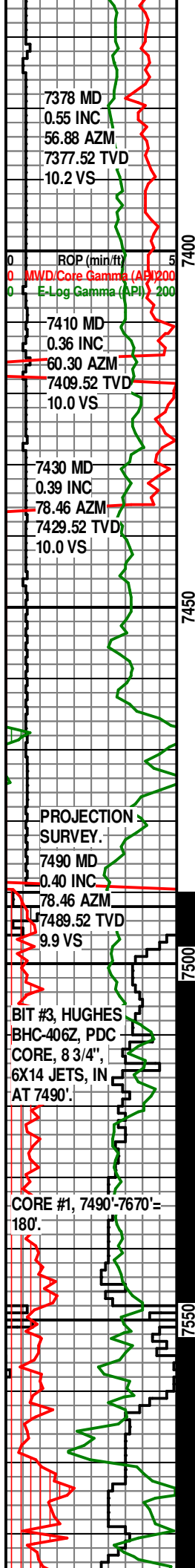
SH- LT GY-DK GY, OCC DK
BRN, BLKY-PLTY, SBWXY, SL
CALC, SFT-FRM.

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

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

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





SH- GY-DK GY, OCC LT GY,
BLKY-PLTY, SBWXY, CALC,
SFT-FRM. W/ TR BENT- LT
GY-TAN.

SH- GY-DK GY, OCC LT GY,
BLKY-PLTY, SBWXY, CALC,
SFT-FRM. W/ BENT- LT
GY-TAN, GN.

SH- GY-DK GY, OCC LT GY,
BLKY-PLTY, SBWXY, CALC,
SFT-FRM. W/ SME BENT- LT
GY-TAN.

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

**TRIP FOR CORE
TOOLS AT 7490'.**

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

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

SH- DK GY-GY, BLKY-PLTY, SBWXY,
CALC, SME CARB LAM, SFT-FRM.

SH- GY-DK GY, BLKY-PLTY, SBWXY,
CALC, OCC CARB LAM, SFT-FRM

SH- GY-DK GY, BLKY-PLTY, SBWXY,
SME CARB LAM, INCR CALC, SFT-FRM

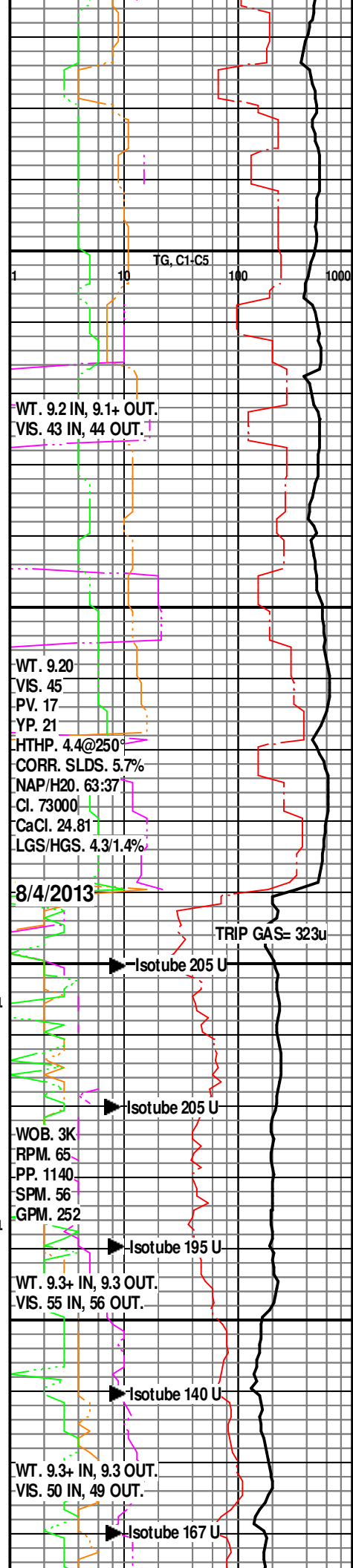
**SAMPLE TOP
NIOBRARA 7546**

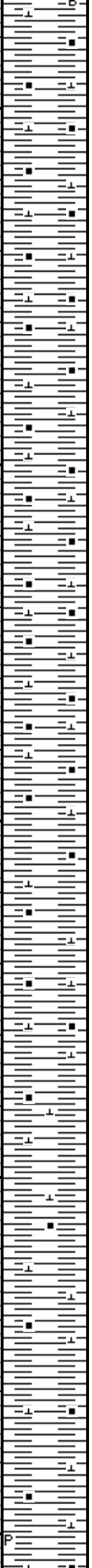
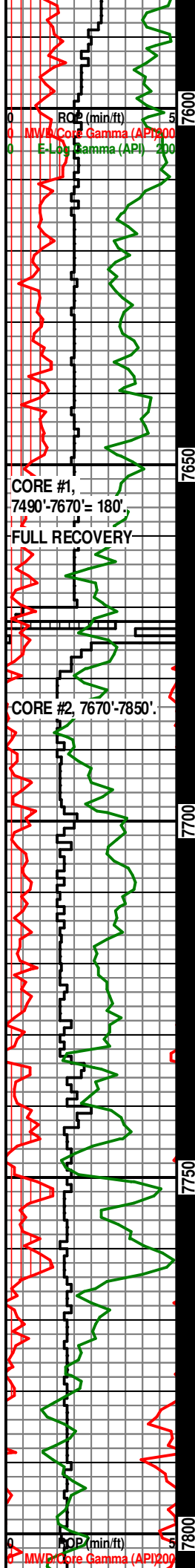
SH- GY- DK GY, BLKY- PLTY, SBWXY,
CARB, V CALC, SFT- FRM

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

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

SH- GY- DK GY, BLKY- PLTY, SBWXY,





CARB, V CALC, SFT- FRM, TR BENT.

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

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

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

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

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

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

SH- GY- DK GY, BLKY- PLTY, SBWXY, CARB, V CALC, TR CALC & PYR, SFT- FRM

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

TRIP OUT WITH CORE # 1 AT 7670'.

8/5 - 6/2013

SH- GY- DK GY, BLKY- PLTY, SBWXY, CARB, V CALC, CALC FL FRAC, SFT- FRM

SH- GY- DK GY, BLKY- PLTY, SBWXY, CARB, V CALC, CALC FL FRAC, SFT- FRM

SH- GY- DK GY, BLKY- PLTY, SBWXY, CARB, V CALC, CALC FL FRAC, SFT- FRM

SH- GY- DK GY, BLKY- PLTY, SBWXY, CARB, V CALC, CALC FL FRAC, SFT- FRM

SH- LT GY- GY, SPEC, SME DK GY, BLKY- PLTY, SBWXY, CARB SPECS, V CALC- LMY, SME CALC & CALC FL FRAC, SFT- FRM

SH- LT GY- GY, SPEC, SME DK GY, BLKY- PLTY, SBWXY, CARB SPECS, V CALC- LMY, SME CALC & CALC FL FRAC, SFT- FRM

SH- LT GY- GY, SPEC, SME DK GY, BLKY- PLTY, SBWXY, CARB SPECS, V CALC- LMY, SME CALC & CALC FL FRAC, SFT- FRM

SH- GY- DK GY, OCC LT GY, BLKY- PLTY, SBWXY, CARB SPECS, V CALC- LMY, DECR CALC & FRAC, SFT- FRM

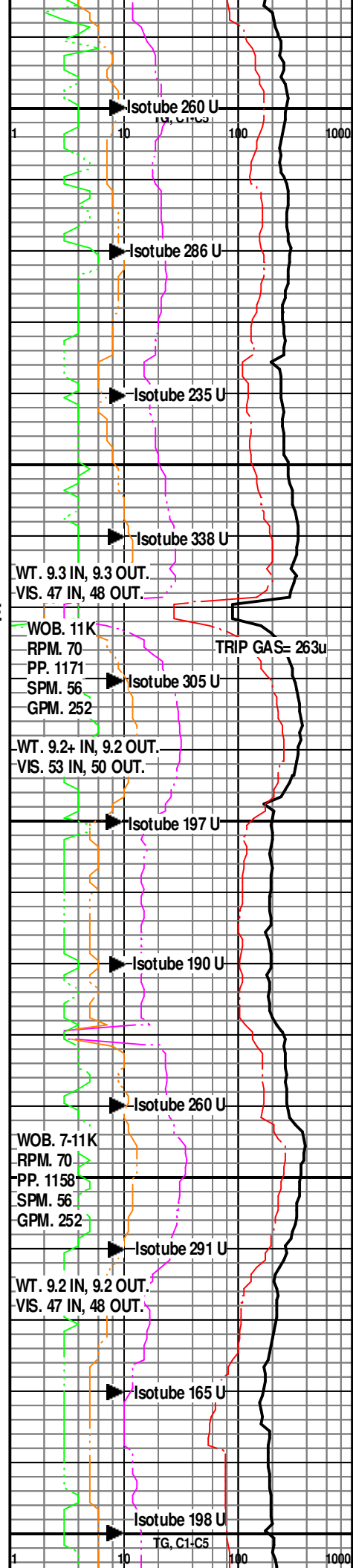
SH- GY- DK GY, OCC LT GY, BLKY- PLTY, SBWXY, CARB SPECS, V CALC- LMY, TR CALC & FRAC, SFT- FRM

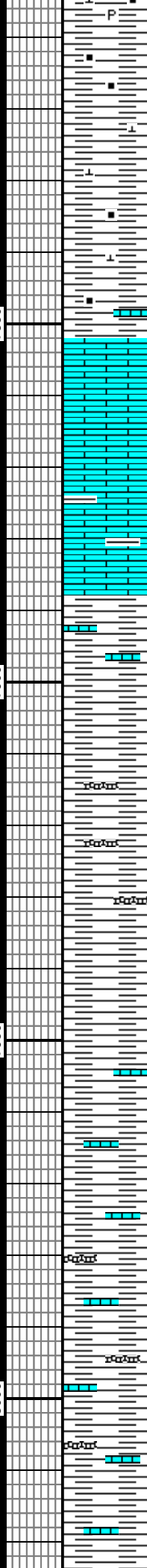
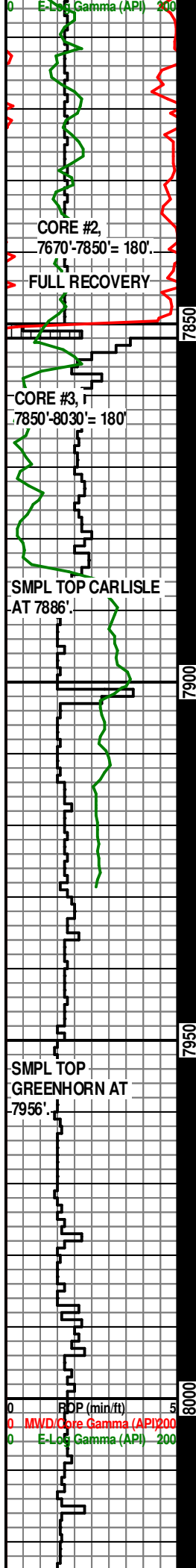
SH- GY- DK GY, OCC LT GY, BLKY- PLTY, SBWXY, CARB SPECS, V CALC- LMY, SFT- FRM

SH- LT GY- M GY, SME DK GY, BLKY- PLTY, SBWXY, OCC CARB SPECS, V CALC- LMY, SFT- FRM

SH- GY- LT GY, DK GY, BLKY- PLTY, SBWXY, CARB SPECS, V CALC- LMY, SFT- FRM

SH- GY- LT GY- MOTL, DK GY, BLKY- PLTY, SBWXY, CARB SPECS, V





CALC-LMY, SFT-FRM. W/ TR PYR.

SH- GY-LT GY-MOTL, DK GY, BLKY-PLTY, SBWXY, CARB SPECS, V CALC-LMY, SFT-FRM.

SH- GY-LT GY, OCC DK GY, BLKY-PLTY, SBWXY, CARB SPECS, V CALC-LMY, SFT-FRM.

SH- GY-LT GY, OCC DK GY, BLKY-PLTY, SBWXY, CARB SPECS, V CALC-LMY, SFT-FRM.

SH- GY, LT GY, OCC DK GY, BLKY-PLTY, SBWXY, V CALC-LMY, SME CARB SPECS, SFT-FRM W/TR LS-TAN.

TRIP OUT WITH CORE #2 AT 7850'. SMPL TOP FT. HAYS AT 7852'.

LS- TAN-WH, BUFF, MICXL, ARG, TT, INTXL POR, DENS, FRM-HD.

LS- TAN-WH, BUFF, MICXL, ARG-SLTY, TT, INTXL POR, DENS, FRM-HD. W/ SH-DK GY-BLK, BLKY-PLTY, SBWXY, V CALC-LMY, V CARB, SFT.

LS- TAN-WH, BUFF, MICXL, ARG-SLTY, TT, INTXL POR, DENS, FRM-HD. W/ SH-DK GY-BLK, BLKY-PLTY, SBWXY, V CALC-LMY, V CARB, SFT.

SH- DK GY-BLK, M GY, BLKY-PLTY, SBWXY, CARB, V CALC-LMY, SFT-FRM W/ SME LS- TAN-BUFF, MICXL, SLTY, TT, INTXL POR, FRM.

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

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

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

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

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

SH- DK GY-BLK, GY, BLKY-PLTY, SBWXY, V CALC, CARB, SFT-FRM. W/ TR LS- M GY-TAN, MICXL, SLTY, TT, INTXL POR, FRM.

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

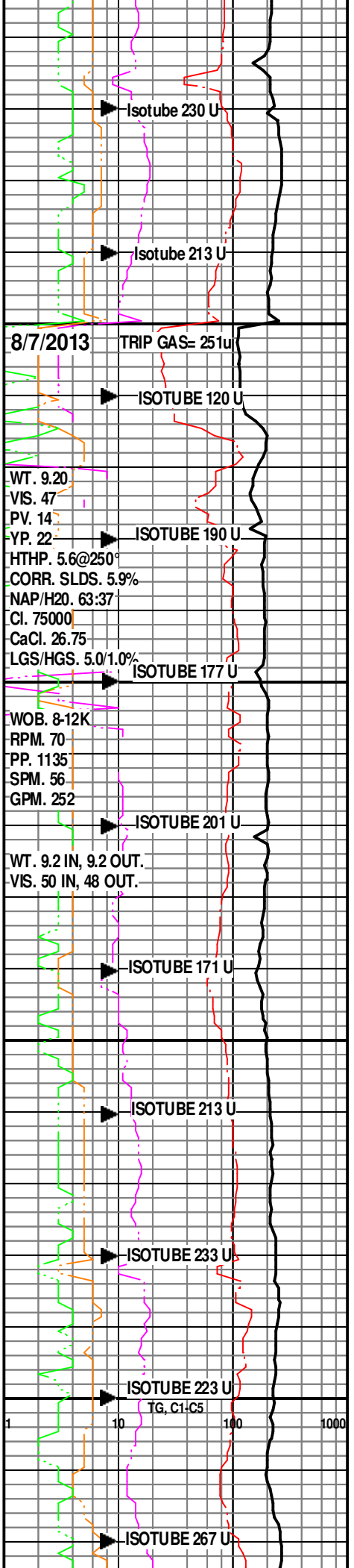
LS- M GY-BRN, TAN-OCC WH, MICXL, ARG, SME CARB LAM, TT, INTXL POR, SL DUL YEL FLOR NO CUT.

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

SH- DK GY-GY, BLK, BLKY-PLTY, SBWXY, V CALC, CARB, SFT-FRM. W/ BENT- WH-TAN. & LS- GY-TAN, BRN, MICXL, ARG, OCC CARB LAM, TT, INTXL POR, NSFOC.

SH- DK GY, BLK, GY, BLKY-PLTY, SBWXY, V CALC, CARB, SFT-FRM. W/ BENT- GY-GN, TAN. & LS-AA.

SH- DK GY, BLK, GY, BLKY-PLTY, SBWXY, V CALC, CARB, SFT-FRM. W/ BENT- GY-GN, TAN. & LS.



CORE #3,
7850'-8030' = 180'

FULL RECOVERY

8050

TD AT 4:50PM ON
8/7/2013 AT 8030'.
DRILLERS DEPTH.

WI. 9.2 IN, 9.2 OUT.
VIS. 48 IN, 48 OUT.