

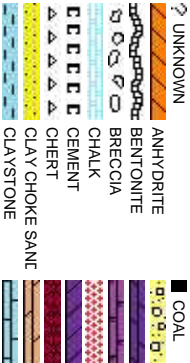


Scale: 5" / 100'
Measured Depth Log

Well Name	Rohn State LD03-66-1HN		
Location	SENE SEC 4 T9N R58W		
State	COLORADO	County	WELD
Country	USA		
API Number	05-123-37458		
Region	DJ BASIN	Field	WILDCAT
Spud Date	8/25/2014	Drilling Completed	8/29/2014
Surface Coordinates	1825' FNL; 330' FEL		
Ground Elevation	4,705'	K.B. Elevation	4729'
Logged Interval	4992'	To	10179'
Formation	NIOBRARA		
Type of Drilling Fluid	LSND		

Company Noble Energy Inc
Address 1625 Broadway Suite
Denver, CO 80202

Name RENEE CLACKER
Company NOBLE ENERGY INC
Address 1625 Broadway Suite
Denver, CO 80202



Operator

2200
























Geologist

2200

Rock Types

CONGLOMERATE	TT	TT	TT	MARLSTONE
DOLOMITE	XX	XX	XX	METAMORPHIC
DOLOMITIC LIMESTONE	XX	XX	XX	NO SAMPLE
GRANITE				SALT
GYPSUM				SANDSTONE
IGNEOUS				SALT-PEPPER SAND
SIDERITE or LIMONITE				SHALE
LIMESTONE				SHALE COLORED
				SHALE GRAY
				SHALY SANDSTONE
				SHALY SILTSTONE
				SILTSTONE
				TILL
				TUFF
				WELDED TUFF

Accessories

Fossils	
 GASTROPOD	 ARGILLITE GRAIN
 INOCERAMUS	 HEAVY MINERAL
Stringer	
 B BENTONITE	 KAOLIN
 ALGAE	 MARCASITE
 AMPHIPORA	 MARLSTONE
 BELEMNITE	 MICACEOUS
 BIOCLASTIC	 MINERAL CRYSTALS
 BRACHIOPOD	 NODULES
 BRYOZOA	 PHOSPHATE PELLETS
 CEPHALOPOD	 PYRITE
 CORAL	SALT CAST
 CRINOID	SANDY
 ECHINOID	SIDERITE
FISH	SILICEOUS
FORAMINIFERA	SILTY
FOSSIL	TUFFACEOUS
	GYPSIFEROUS
	SHALE STRINGER
	SILTSTONE STRINGER

Other Symbols

Oil Show	P PINPOINT	DST INTERVAL	WIRELINE TESTED - LEFT	E EARTHY
	V VUGGY	FAULT	WIRELINE TESTED - RT	FX FINELY XLN
D DEAD		FORMATION TOP	DRILL STEM TEST	GS GRAINSTONE
EVEN		GAS SHOW	MINDEPTH MN DEPTH	L LITHOGRAPHIC
QUESTIONABLE	BIT	OIL SHOW		MX MICRO XLN
SPOTTED STAINING	CONNECTION (UP)	MN DEPTH UP	Rounding	MS MUDSTONE
Porosity	CONNECTION (DOWN)	MN DEPTH (DOWN)	A ANGULAR	PS PACKSTONE
	CONNECTION GAS	NORMAL FAULT	R ROUNDED	WS WACKSTONE
E EARTHY	CONNECTION GAS (LEFT)	OVERTURNED STRATA	B SUBANG	
F FENESTRAL	TRIP GAS	REVERSE FAULT	P SUBRAND	
F FRACTURE	TRIP GAS (LEFT)	CASING		
INTERCRYSTALLINE	DOWN TIME GAS	SIDEWALL CORE (LEFT)	Textures	M MODERATE
INTERDOLITIC	DOWN TIME GAS (LEFT)	SIDEWALL CORE (RIGHT)	P POOR	
MOLDIC	CORE - LOST	SLIDE	B BOUNDSTONE	F WELL
ORGANIC	CORE - RECOVERED	SURVEY	C CHALKY	
			CX CRYPTOXLN	

Slide/Rotate

ROP

ROP

BIT DATA:
8.750" Security Bit MMD55M
Serial #: 12516455
Jets: 5X15

Total Gas & Chromatograph

GAS
C1
C2
C3
C4

COLUMBINE LOGGING INC.
RIGGED UP ON 8/25/2014
MANNED 2-PERSON LOGGING
WITH BLOODHOUND GAS
CHROMATOGRAPH UNIT #0680
COLUMBINE BEGAN LOGGING
ON 8/26/2014

Depth Labels

4,960 4,970 4,980 4,990 5,000 5,010 5,020 5,030 5,040 5,050 5,060 5,070 5,080 5,090 5,100 5,110 5,120 5,130

% Lith

Gamma
GAMMA

Mudlog Continued from "Rehn
State LD03-66-1HN.Mplot"

TIH AND BEGAN DRILLING CURVE
4992MD @ 9:08 PM 08/26/2014

MD: 5.003 '
TVD: 4.959.03 '
Inclination: 0.72 °
Azimuth: 145.53 °

MD: 5.051 '
TVD: 5.007.02 '
Inclination: 2.34 °
Azimuth: 101.79 °

MD: 5.098 '
TVD: 5.053.84 '
Inclination: 7.22 °
Azimuth: 96.19 °

Well Bore
TVD

The ratings are based on 7 descriptors:
None, Slight trace, Trace, Fair, Moderate,
Good, and Excellent. The descriptor used
is based on the loggers observations and
best judgment of brilliance, color and
longevity of the cut.

SLTY SH: lt gy-med gy, sb blk-y-sb ply, sl
sft-fm occ hd, silty tex
SHY SLTST: med-lt gy, sb blk-y, v sft-fr, v f
gr, silty-rthy tex

SLTY SH: lt gy-med gy, sb blk-y-sb ply, sl sft-fm
occ hd, silty tex
SHY SLTST: med-lt gy, sb blk-y, v sft-fr, v f gr,
silty-rthy tex

SLTY SH: lt gy-med gy, sb blk-y-sb
v sft, silty tex, arg cnt

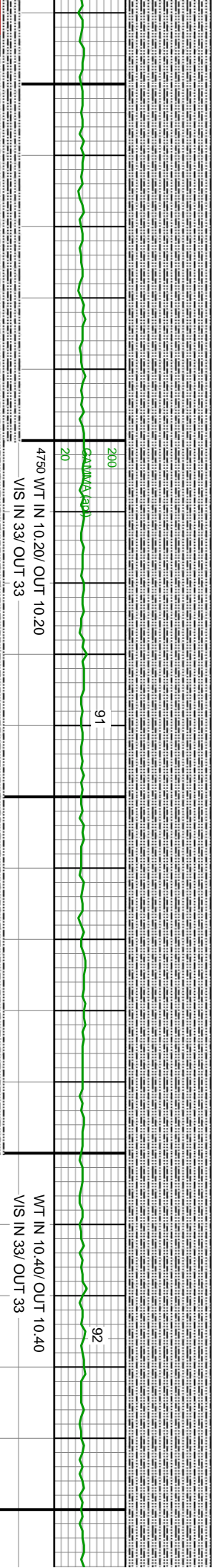
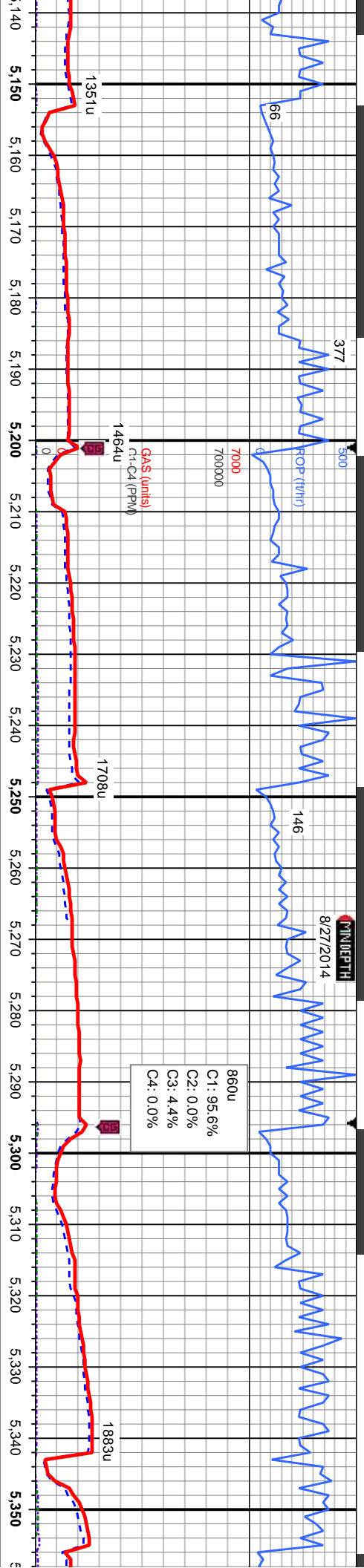
Oil Show

EGMTST

Images



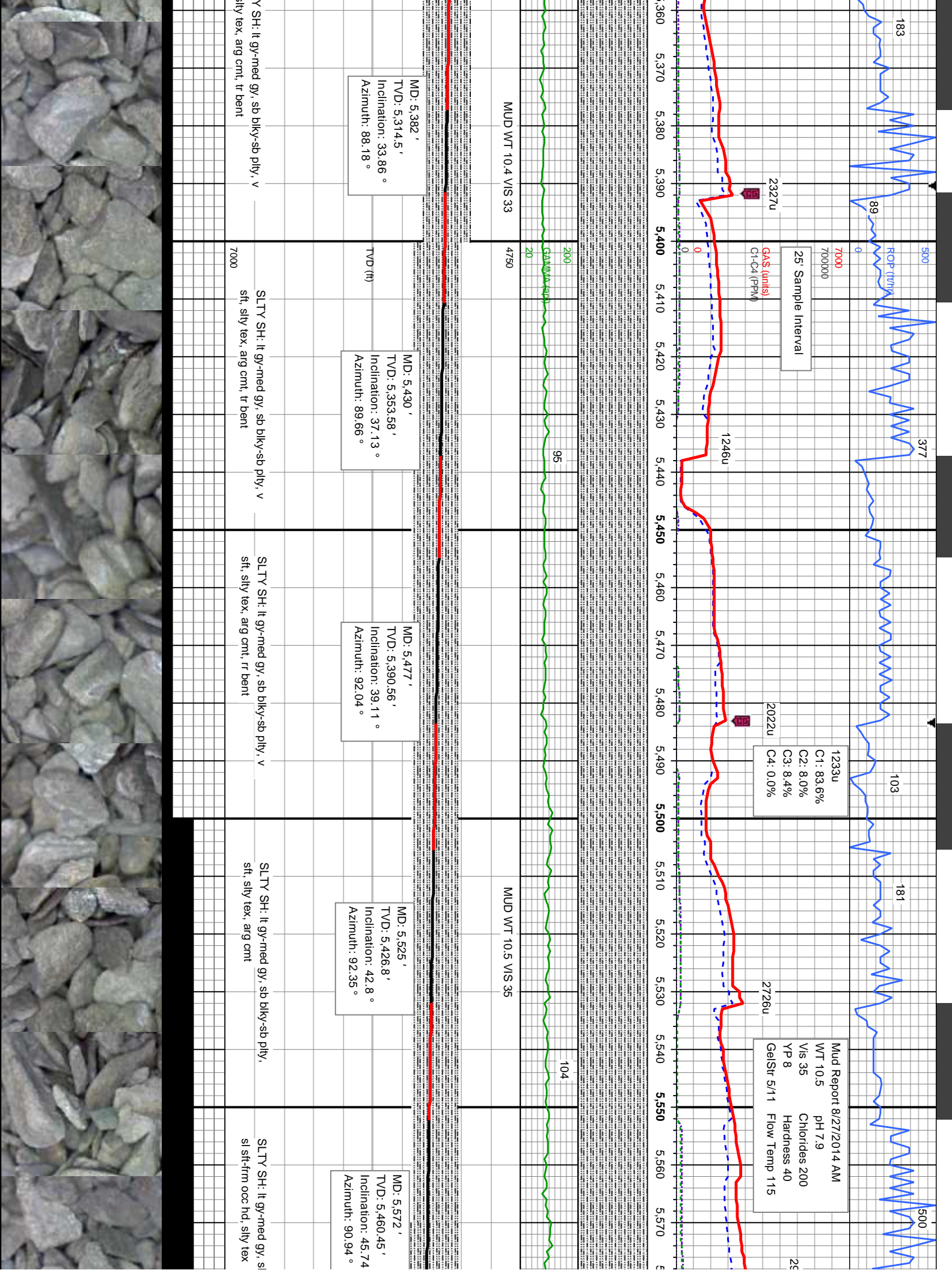
FINDEPTH
8/27/2014

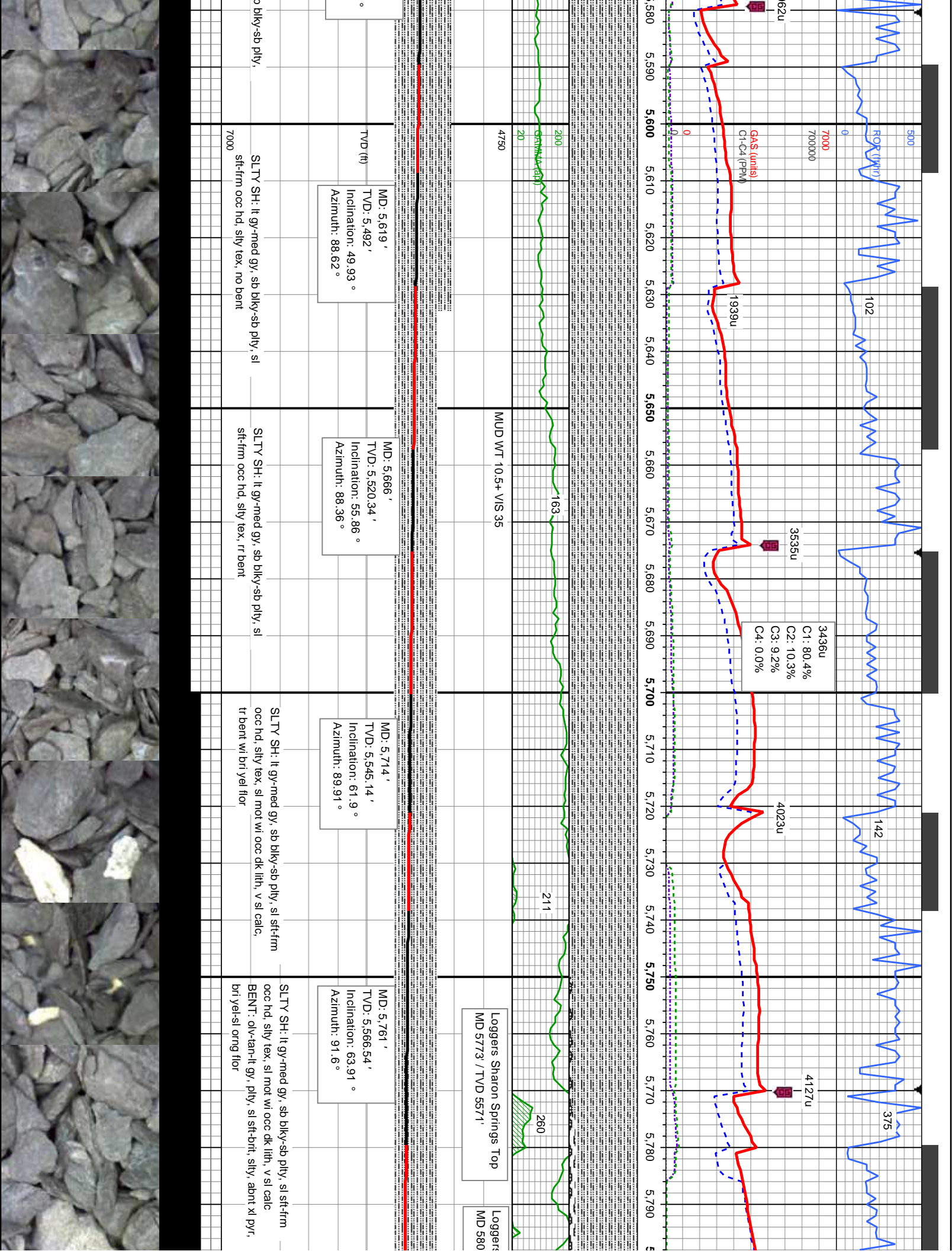


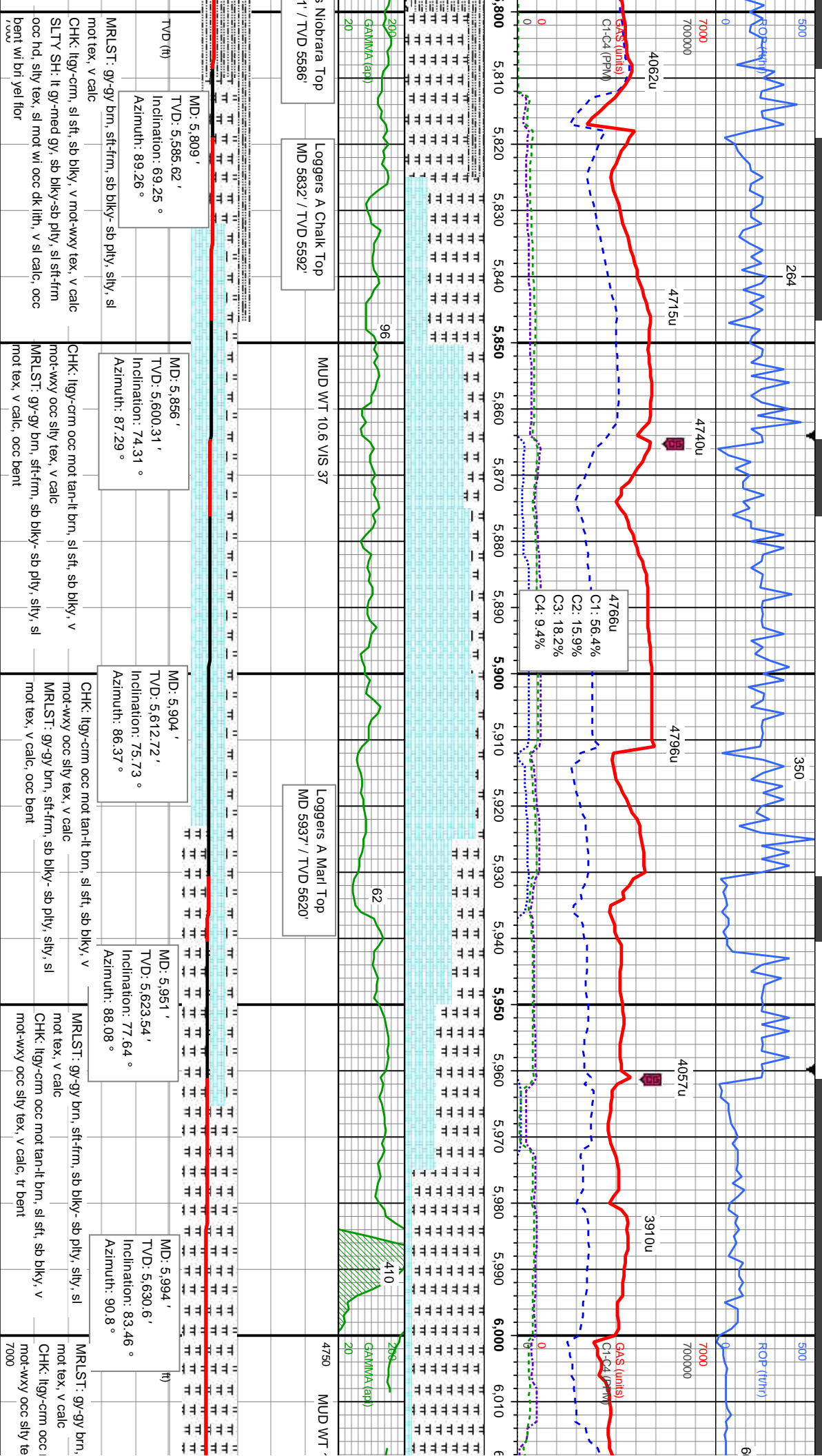
MD: 5,146 '	MD: 5,193 '	MD: 5,240 '	MD: 5,287 '	MD: 5,335 '
D: 5,101.04 '	TVD: 5,146.22 '	TVD: 5,190.08 '	TVD: 5,232.53 '	TVD: 5,274.64 '
Inclination: 13.46 °	Inclination: 18.39 °	Inclination: 23.65 °	Inclination: 27.26 °	Inclination: 30.07 °
imuth: 100.86 °	Azimuth: 102.2 °	Azimuth: 95.85 °	Azimuth: 88.34 °	Azimuth: 88.31 °

ply,	SLTY SH: lt gy-med gy, sb blk-y-sb ply, v sft,	SLTY SH: lt gy-med gy, sb blk-y-sb ply, v sft,	SLTY SH: lt gy-med gy, sb blk-y-sb ply, v sft,	SLTY SH: lt gy-med gy, sb blk-y-sb ply, v sft,	SLTY SH: lt gy-med gy, sb blk-y-sb ply, v sft,
sly tex, arg cnt					
7000	sly tex, arg cnt	sly tex, arg cnt	sly tex, arg cnt	sly tex, arg cnt, r/r bent	sly tex, arg cnt









INDEPTH
8/28/2014

BIT DATA:
6.125" Diamond BFS513B
Serial #: BD-025
Jets: 5x14

50' Sample Interval

4115u
C1: 76.5%
C2: 12.8%
C3: 10.7%
C4: 0.0%

TD Curve 6049' MD
@ 8:11AM 8/27/2014

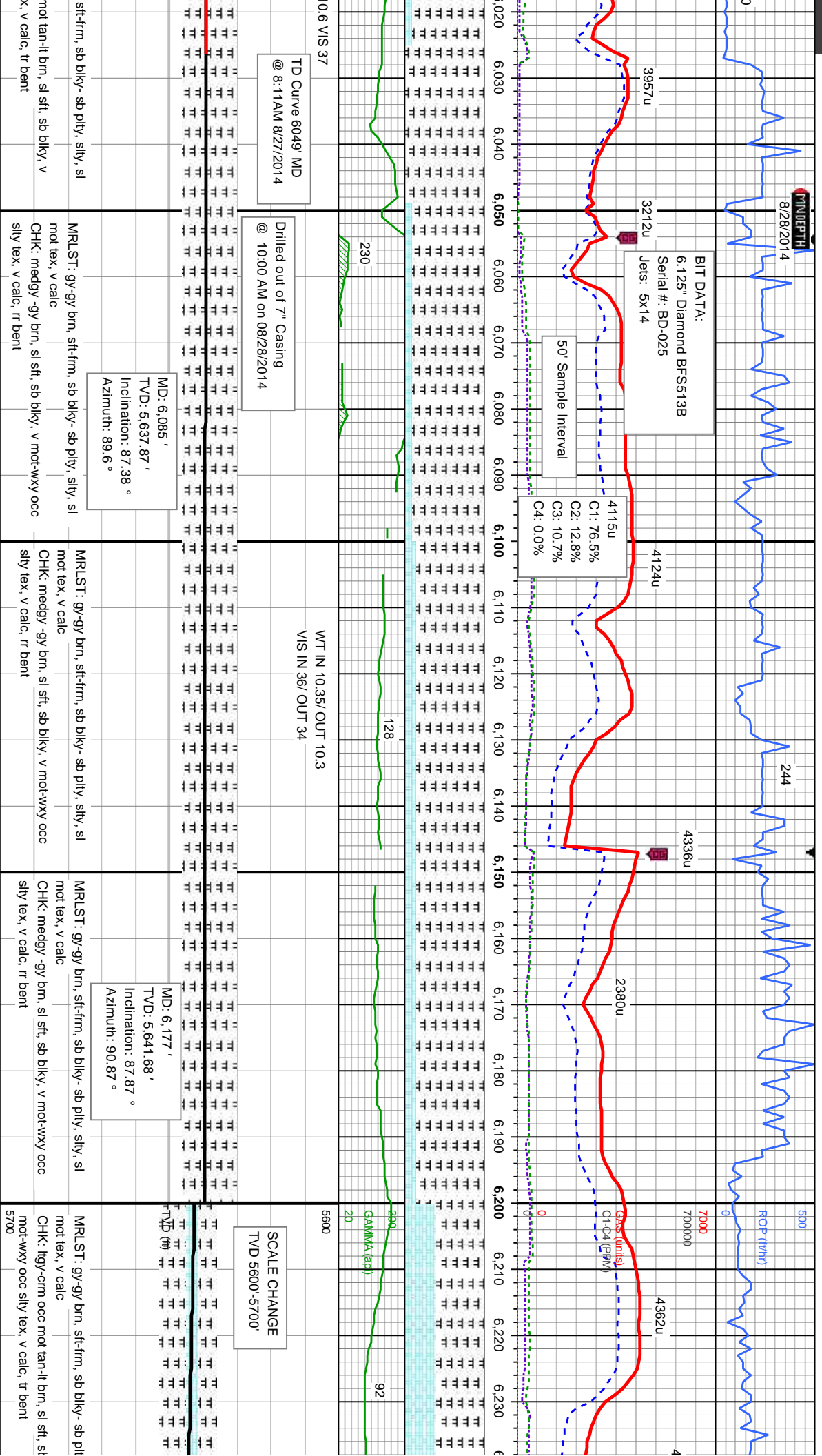
Drilled out of 7" Casing
@ 10:00 AM on 08/28/2014

MD: 6.085'
TVD: 5.637.87'
Inclination: 87.38°
Azimuth: 89.6°

WT IN 10.35/ OUT 10.3
VIS IN 36/ OUT 34

MD: 6.177'
TVD: 5.641.68'
Inclination: 87.87°
Azimuth: 90.87°

SCALE CHANGE
TVD 5600-5700'



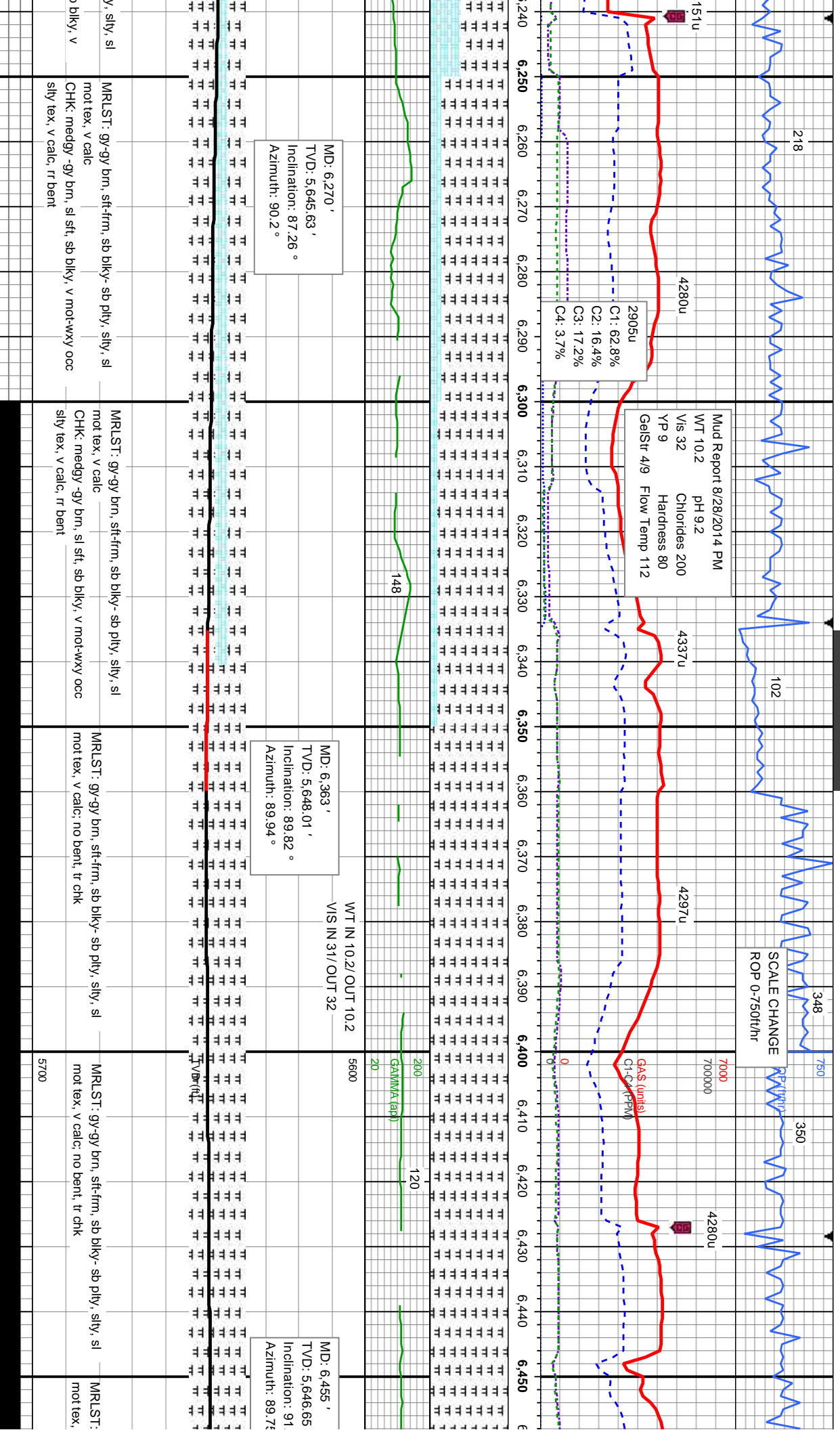
MR.LST: gy-gy brn, sft-frn, sb blk- sb ply, silty, sl
mot tex, v calc
CHK: medgy -gy brn, sl sft, sb blk, v mot-wxy occ
sily tex, v calc, rr bent

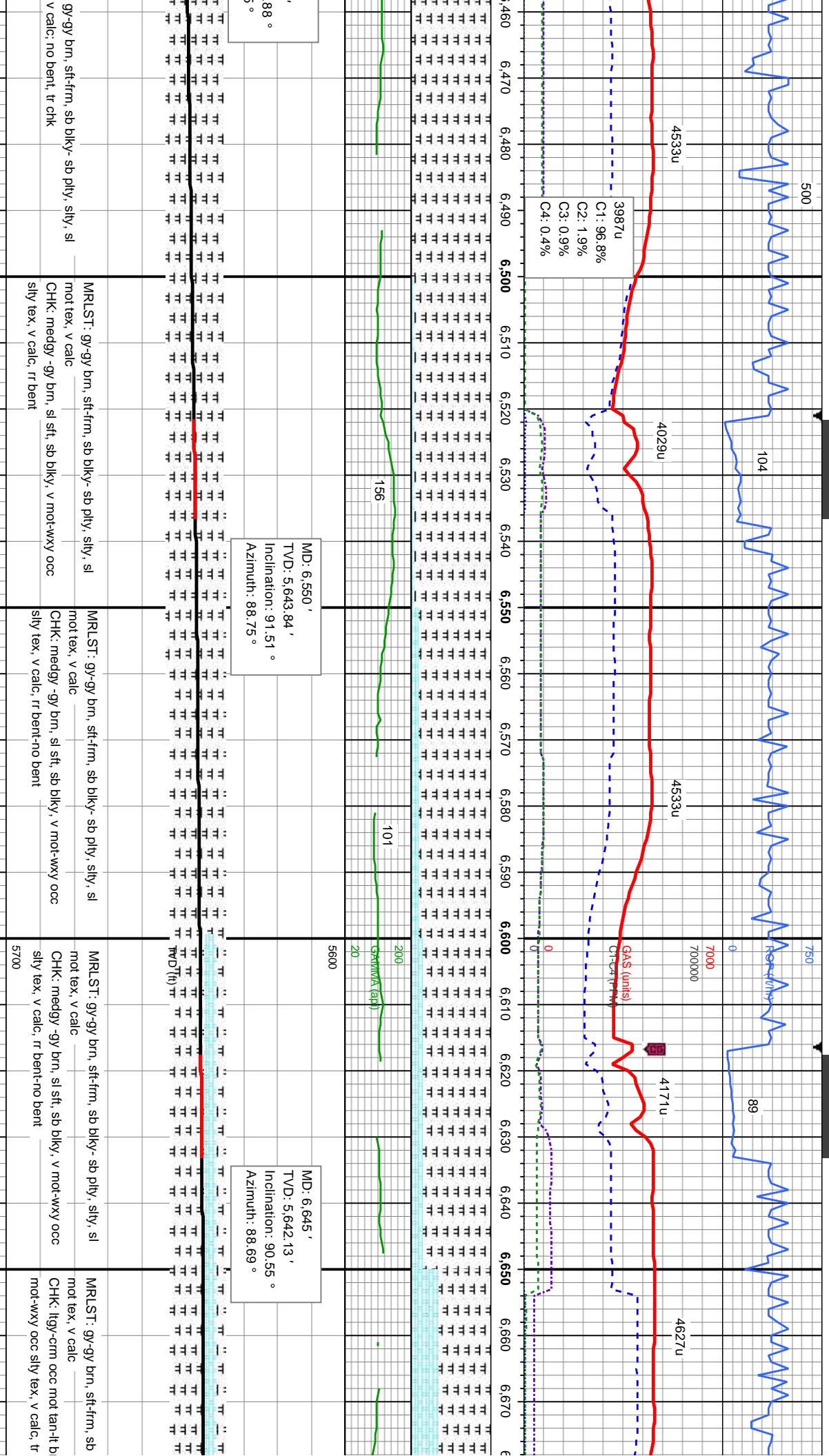
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mot tex, v calc
CHK: medgy -gy brn, sl sft, sb blk, v mot-wxy occ
sily tex, v calc, rr bent

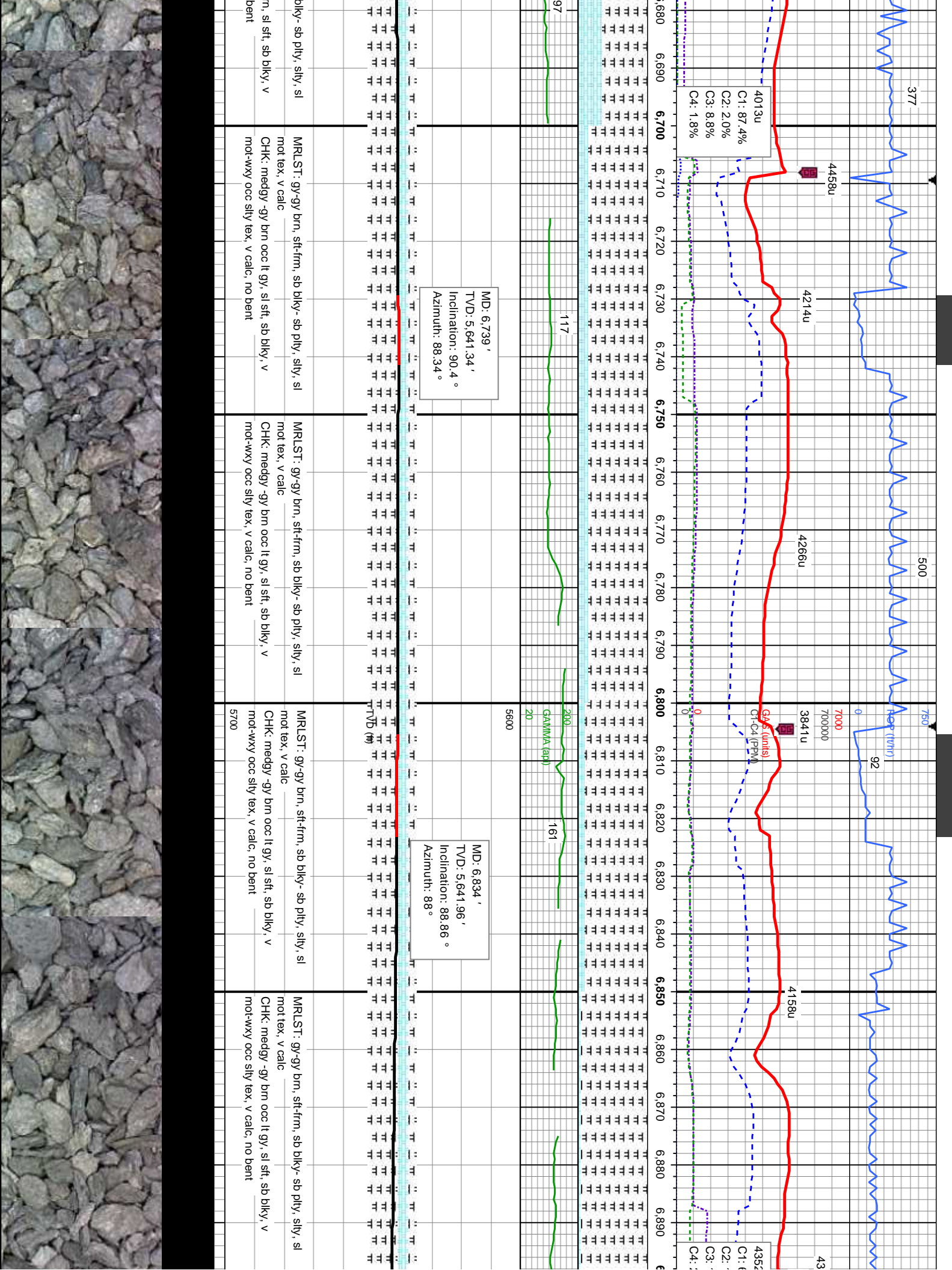
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mot tex, v calc
CHK: medgy -gy brn, sl sft, sb blk, v mot-wxy occ
sily tex, v calc, rr bent

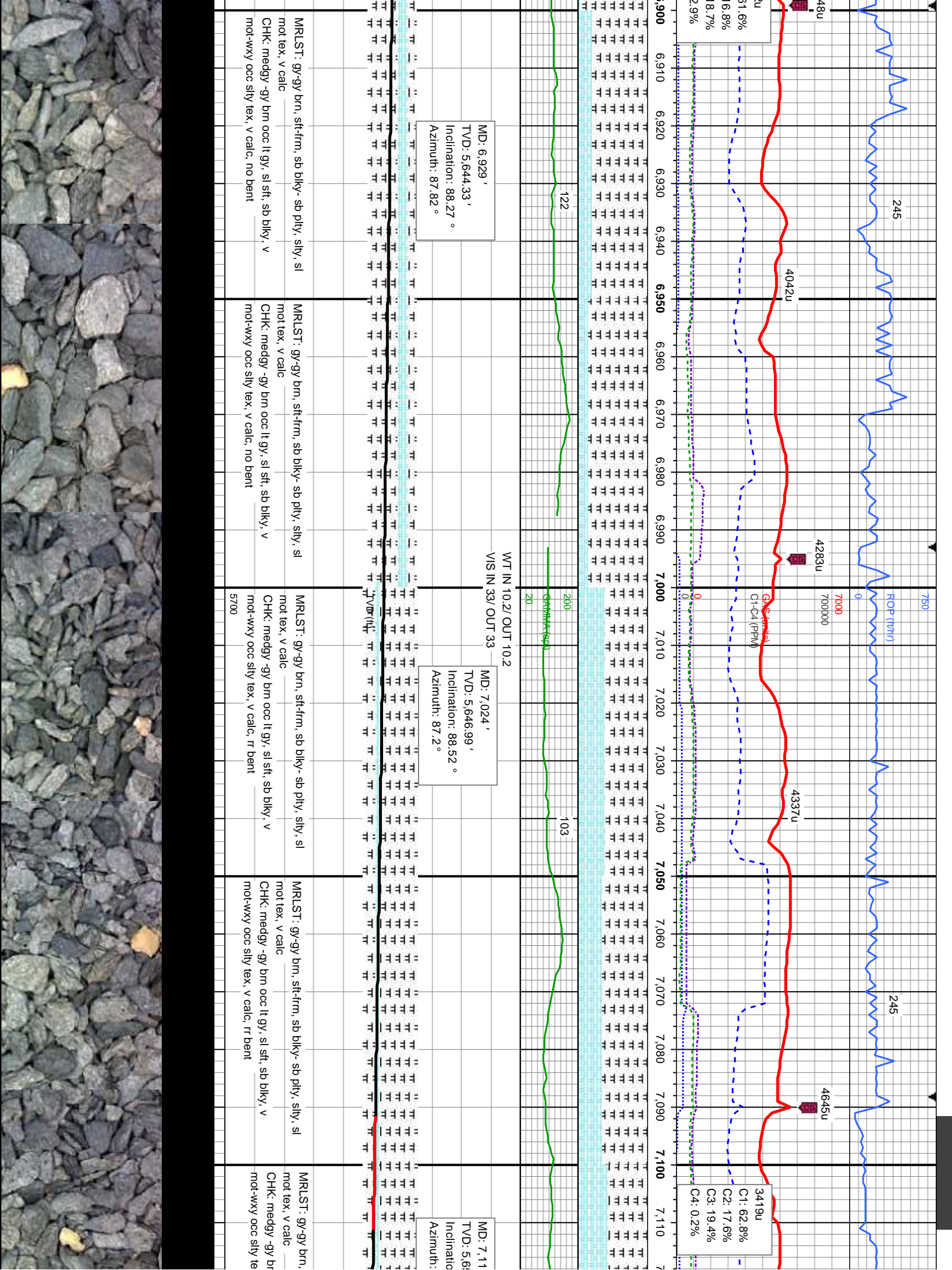
MR.LST: gy-gy brn, sft-frn, sb blk- sb ply, silty, sl
mot tex, v calc
CHK: lly-gy-crm occ mot tan-ll brn, sl sft, sb blk, v mot-wxy occ
sily tex, v calc, rr bent

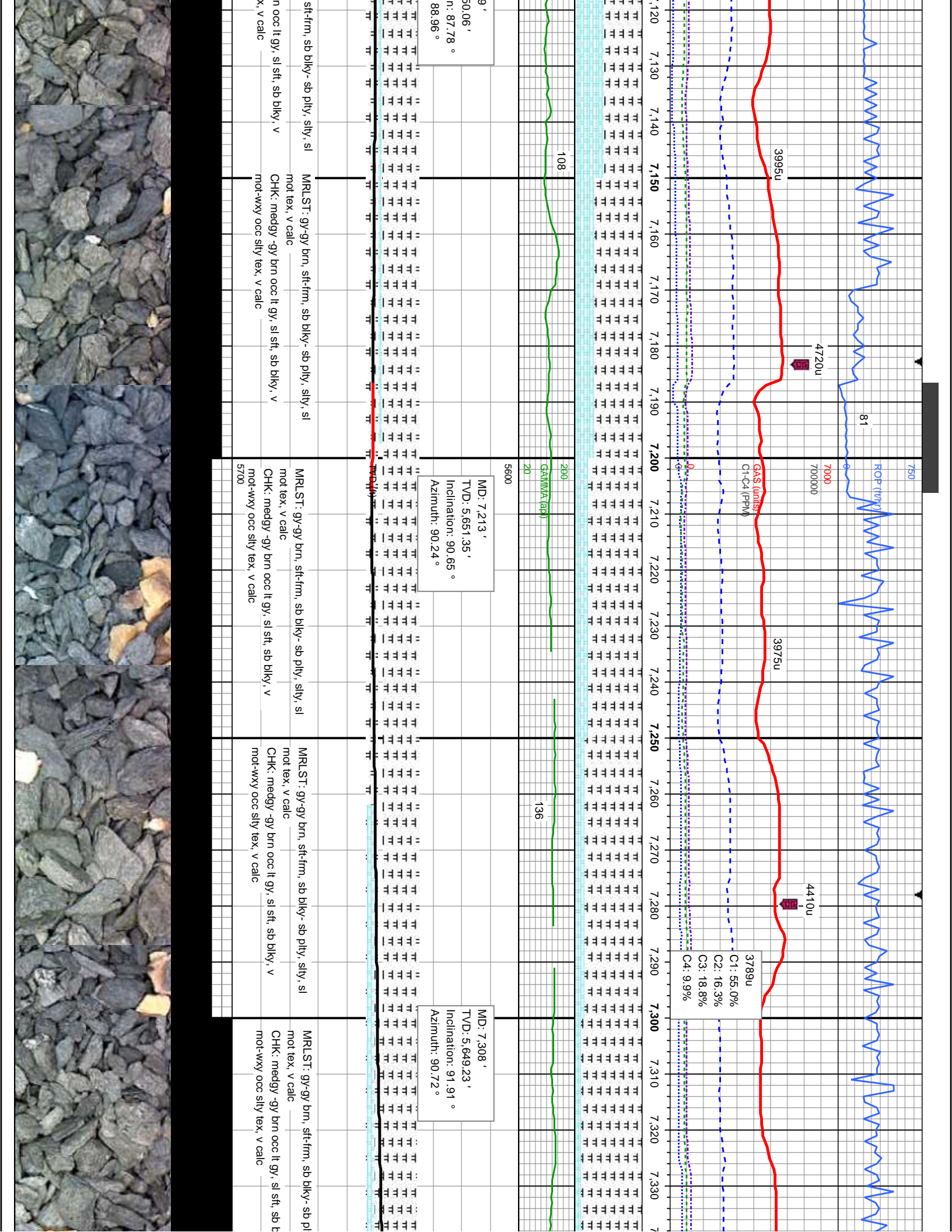


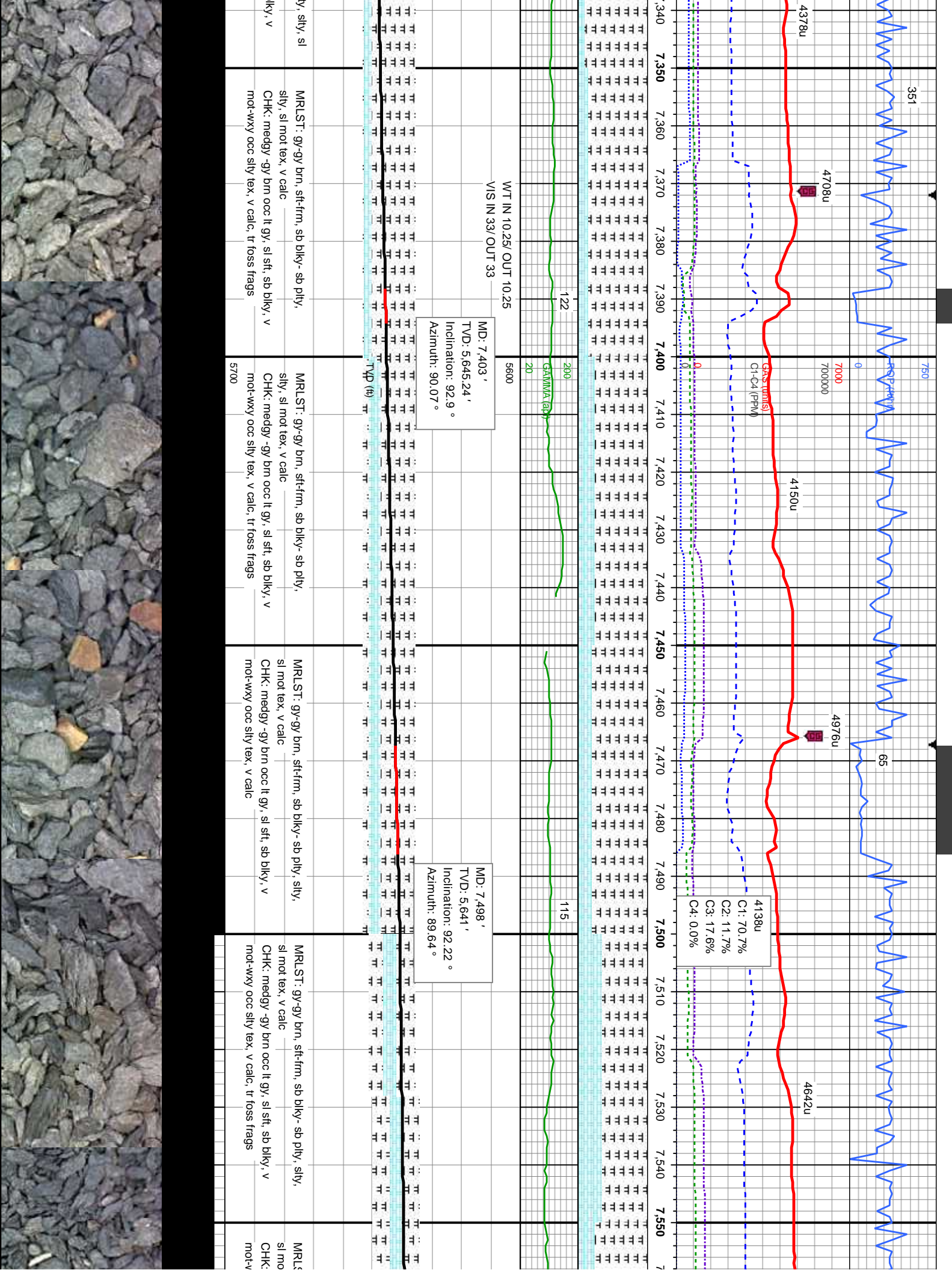


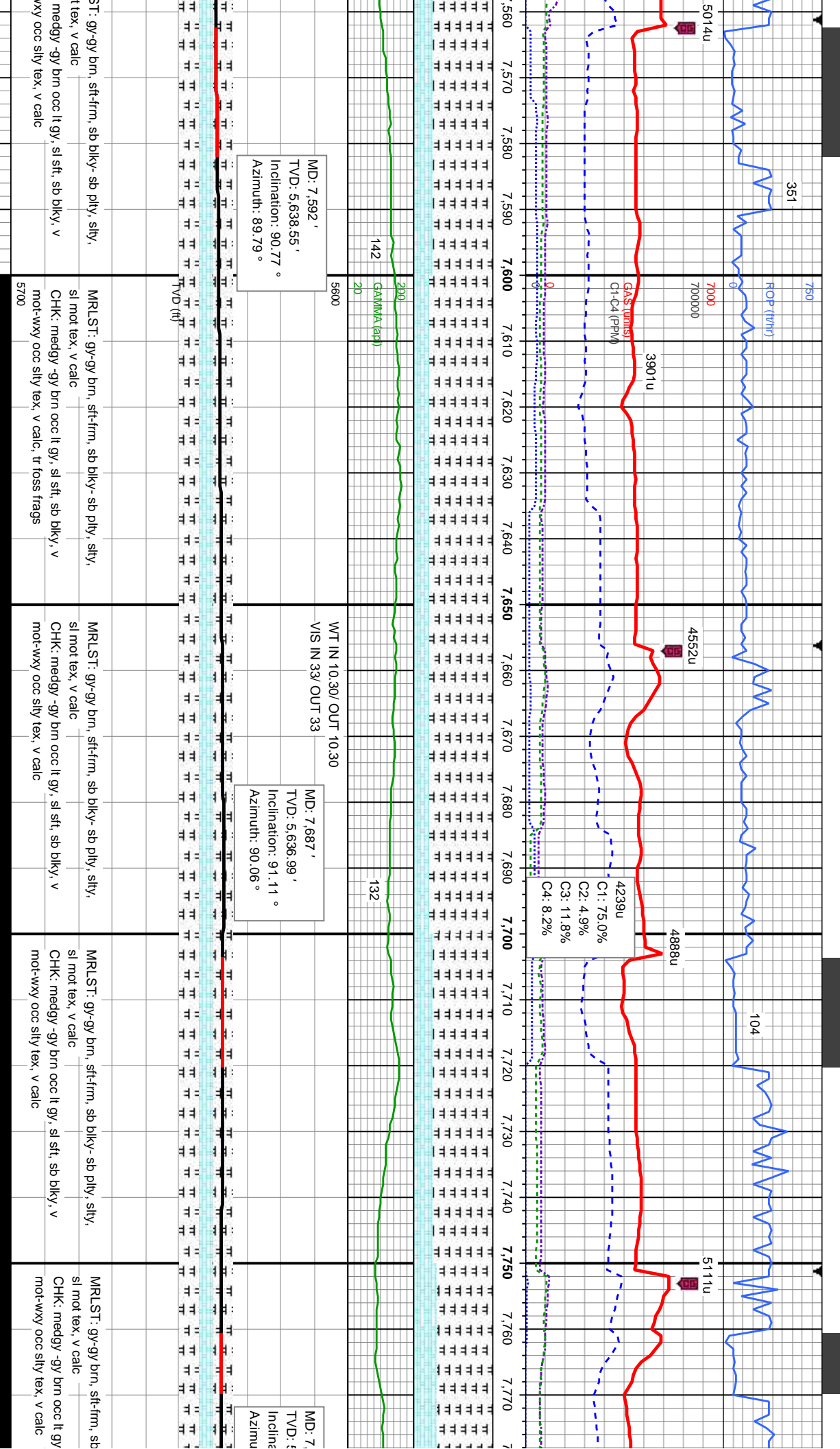


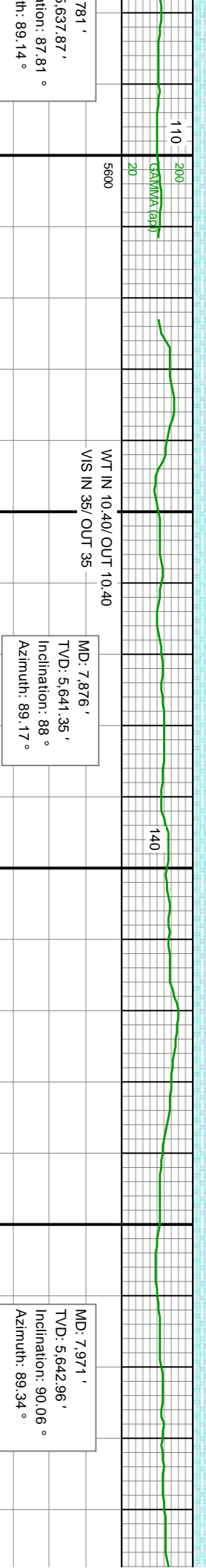
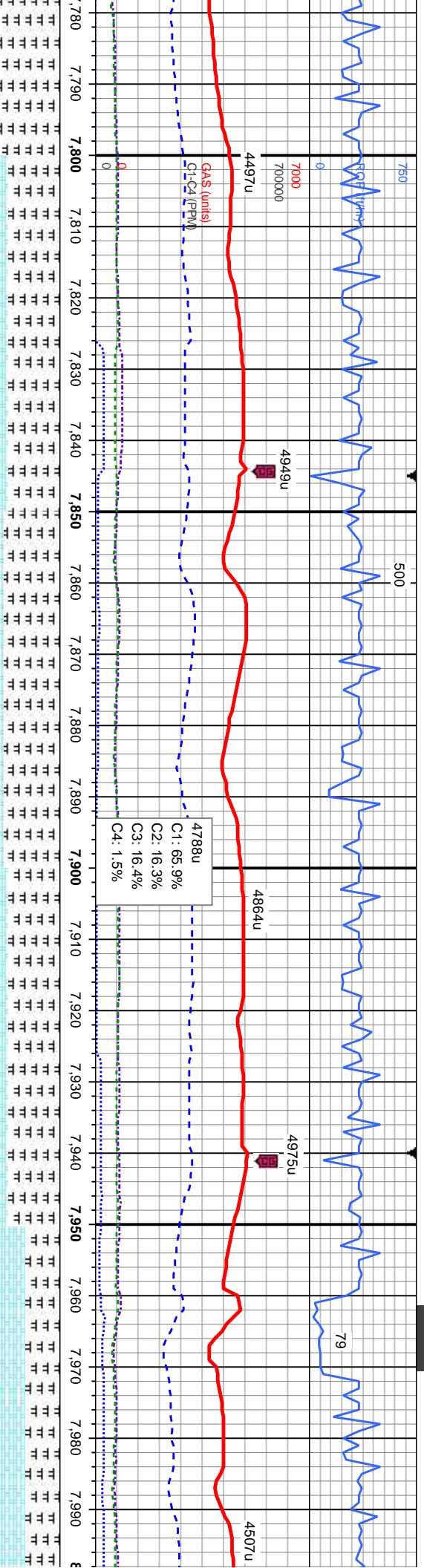






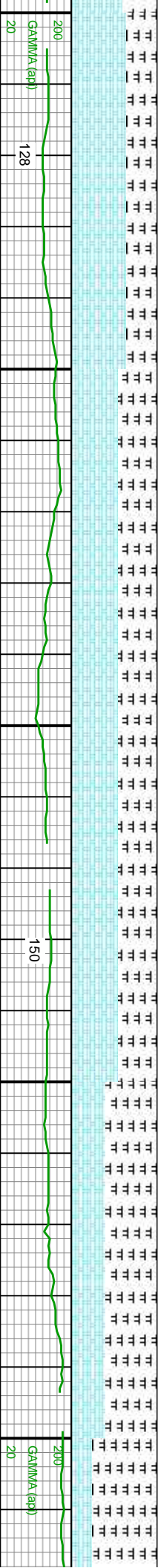
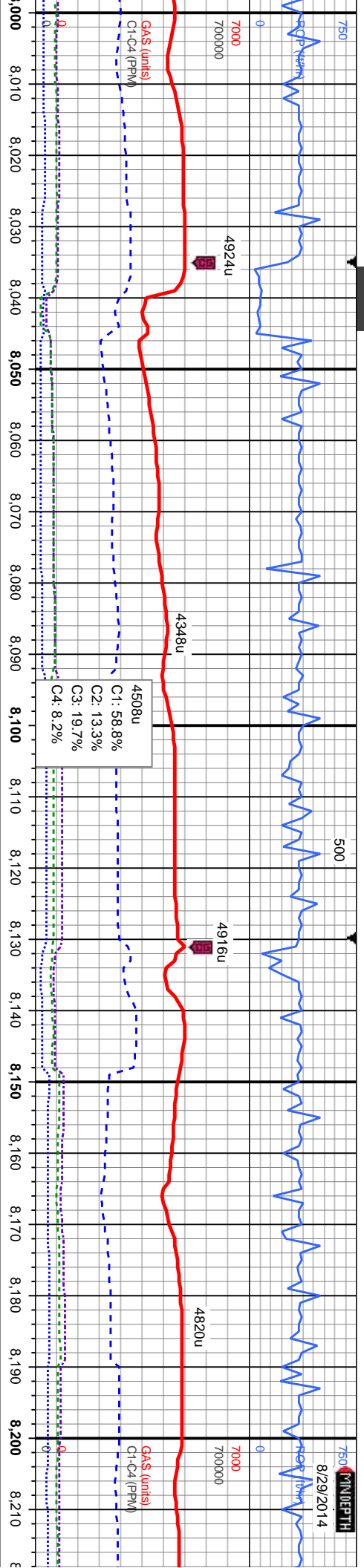






781' 5,637.87' 87.81° 89.14°	5600	MD: 7,876' TVD: 5,641.35' Inclination: 88° Azimuth: 89.17°	110	200	GAMMA (pp)	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	2
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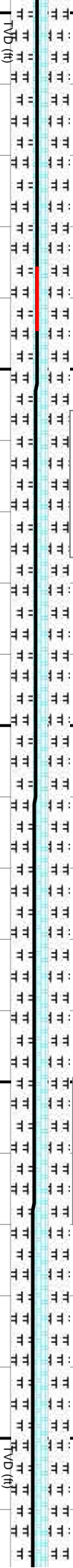




WT IN 10.50/ OUT 10.50
VIS IN 36/ OUT 36

MD: 8,065 '
TVD: 5,643.42 '
Inclination: 89.38 °
Azimuth: 88.79 °

MD: 8,160 '
TVD: 5,644.11 '
Inclination: 89.78 °
Azimuth: 88.04 °



CHK: medgy -gy brn occ lt gy, sl sft, sb blk, v mot-wxy occ silty tex, v calc	CHK: medgy -gy brn occ lt gy, sl sft, sb blk, v mot-wxy occ silty tex, v calc	CHK: medgy -gy brn occ lt gy, sl sft, sb blk, v mot-wxy occ silty tex, v calc	CHK: medgy -gy brn, sft-frn, sb blk- sb ply, silty, sl mot tex, v calc
MRLST: gy-gy brn, sft-frn, sb blk- sb ply, silty, sl mot tex, v calc, rr foss frags, rr bent	MRLST: gy-gy brn, sft-frn, sb blk- sb ply, silty, sl mot tex, v calc	MRLST: gy-gy brn, sft-frn, sb blk- sb ply, silty, sl mot tex, v calc	MRLST: gy-gy brn, sft-frn, sb blk- sb ply, silty, mot-wxy occ silty tex, v calc
5700			5700



