



Scale: 5" / 100'  
Measured Depth Log

**Well Name** Upchurch State LD02-77-1BHN

**Location** SESW SEC2, T9N, R58W, 6PM

**State** COLORADO **County** WELD

**Country** USA **Rig Number** H&P 326

**API Number** 05-123-39817 **Field** WILDCAT

**Region** DJ BASIN **Drilling Completed** 1/2/2015

**Spud Date** 12/28/2014

**Surface Coordinates** 615' FSL, 1567' FWL  
40.77498/-103.83535

**Bottom Hole Coordinates** (PROJ)  
330' FFNLL, 1760' FFWLL

**Ground Elevation** 4742' **K.B. Elevation** 4772'

**Logged Interval** 4988' To 9688' **Total Depth** 9688'

**Formation** NIOBRARA B-CHALK

**Type of Drilling Fluid** LSND

**Operator**

**Company** Noble Energy Inc

**Address** 1625 Broadway Suite 2200  
Denver, CO 80202

**Geologist**

**Name** RENEE CLACKLER

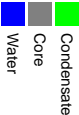
**Company** NOBLE ENERGY INC.

**Address** 1625 Broadway Suite 2200  
Denver, CO 80202








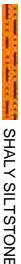














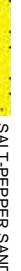





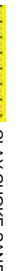
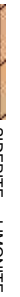
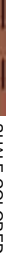



**Other**

COLUMBINE LOGGING MATT HOPKINS  
ANDREW MARTENS


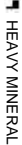
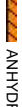




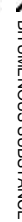
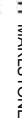

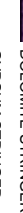

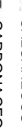
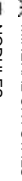







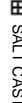
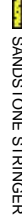
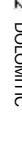

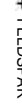
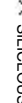

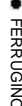
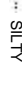


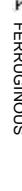







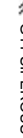

**Zone Color Coding**



Rock Types

 UNKNOWN	 COAL	 MARLSTONE	 SHALY SANDSTONE
 ANHYDRITE	 CONGLOMERATE	 METAMORPHIC	 SHALY SILTSTONE
 BENTONITE	 DOLOMITE	 NO SAMPLE	 SILTY SHALE
 BRECCIA	 DOLOMITIC LIMESTONE	 SALT	 SILTSTONE
 CHALK	 GRANITE	 SANDSTONE	 TILL
 CEMENT	 GYPSUM	 SALT-PEPPER SANC	 TUFF
 CHERT	 IGNEOUS	 SHALE	 WELDED TUFF
 CLAY CHOKE SANIC	 SIDERITE or LIMONITE	 SHALE COLORED	
 CLAYSTONE	 LIMESTONE	 SHALE GRAY	

Accessories







 GASTROPOD	 ARGILLITE GRAIN	 HEAVY MINERAL	 ANHYDRITE STRINGER
 INOCERAMUS	 B BENTONITE	 K KAOLIN	 BENTONITE STRINGER
 OOLITE	 BITUMENOUS SUBSTANCE	 M MARLSTONE	 COAL STRINGER
 OSTRACOD	 BRECCIA FRAGMENTS	 M MICACEOUS	 DOLOMITE STRINGER
 PELECYPOD	 C CALCAREOUS	 M MINERAL CRYSTALS	 GYPSUM STRINGER
 PELLET	 C CARBONACEOUS FLAKES	 N NODULES	 LIMESTONE STRINGER
 PISOLITE	 CHTDK	 P PHOSPHATE PELLETS	 MARLSTONE (CALC) STRG
 PLANT REMAINS	 CHTLT	 P PYRITE	 MARLSTONE (DOL) STRG
 PLANT SPORES	 C COAL - THIN BEDS	 S SALT CAST	 SANDSTONE STRINGER
 SCAPHOPOD	 D DOLOMITIC	 S SANDY	 SHALE STRINGER
 STROMATOPOROID	 F FELDSPAR	 S SILICEOUS	 SILTSTONE STRINGER
 ECHINOID	 F FERRUGINOUS PELLET	 S SILTY	
 FISH	 F FERRUGINOUS	 T TUFFACEOUS	
 FORAMINIFERA	 A ANHYDRITIC	 G GLAUCONITE	
 F FOSSIL	 A ARGILLACEOUS	 G GYPSIFEROUS	

Stringer








Oil Show

-  PINPOINT
-  VUGGY






































Engineering

-  DEAD
-  EVEN
-  QUESTIONABLE
-  BIT
-  SPOTTED STAINING
-  CONNECTION (UP)

Porosity

-  CONNECTION (DOWN)
-  CONNECTION GAS
-  CONNECTION GAS
-  FENESTRAL
-  TRIP GAS
-  F FRACTURE
-  TRIP GAS (LEFT)
-  INTERCRYSTALLINE
-  DOWN TIME GAS
-  INTEROOLITIC
-  DOWN TIME GAS (
-  MOLDIC
-  CORE - LOST
-  ORGANIC
-  CORE - RECOVERED

Other Symbols

	DST INTERVAL		WIRELINE TESTED - LEFT		E EARTHY
	FAULT		WIRELINE TESTED - RT		FX FINELYXLN
	FORMATION TOP		DRILL STEM TEST		GS GRAINSTONE
	GAS SHOW		MINDEPTH MN DEPTH		L LITHOGRAPHIC
	OIL TO SURFACE		MX MICROXLN		
	MINDEPTH MN DEPTH UP				MS MUDSTONE
Rounding					
	MIN DEPTH (DOWN)		ANGULAR		PS PACKSTONE
	NORMAL FAULT		ROUNDED		WS WACKESTONE
	(LEFT) OVERTURNED STRATA		SUBANG		
	REVERSE FAULT		SUBRND		
Sorting					
	CASING				M MODERATE
Textures					
	SIDEWALL CORE (LEFT)				P POOR
	SIDEWALL CORE (RIGHT)		BS BOUNDSTONE		W WELL
	SLIDE		CHALKY		
	SURVEY		CRYPTOXLN		

Slide/Rotate

ROP

ROP

Total Gas & Chromatograph

GAS

C1

C2

C3

C4

COLUMBINE LOGGING INC.  
RIGGED UP ON 12/29/2014  
MANNED 2-PERSON LOGGING  
WITH BLOODHOUND GAS  
CHROMATOGRAPH UNIT #331

CONTINUED FROM  
UPCHURCH  
LD02-77-1BHN(HORZ)

Depth Labels

% Lith

GAMMA

GR

50' Sample Intervals

Bit Data

Bit #: 1

Type: PDC

Size: 8.75

Depth In: 1,177'

Jets: 7x13

S/N: JJ7047

TVD (ft)

MD: 5,054'  
Inclination: 7.83 °  
Azimuth: 347.32 °  
TVD: 5,038.21'  
VS: 26.37'

TVD (ft)

Oil Show

Oil Show

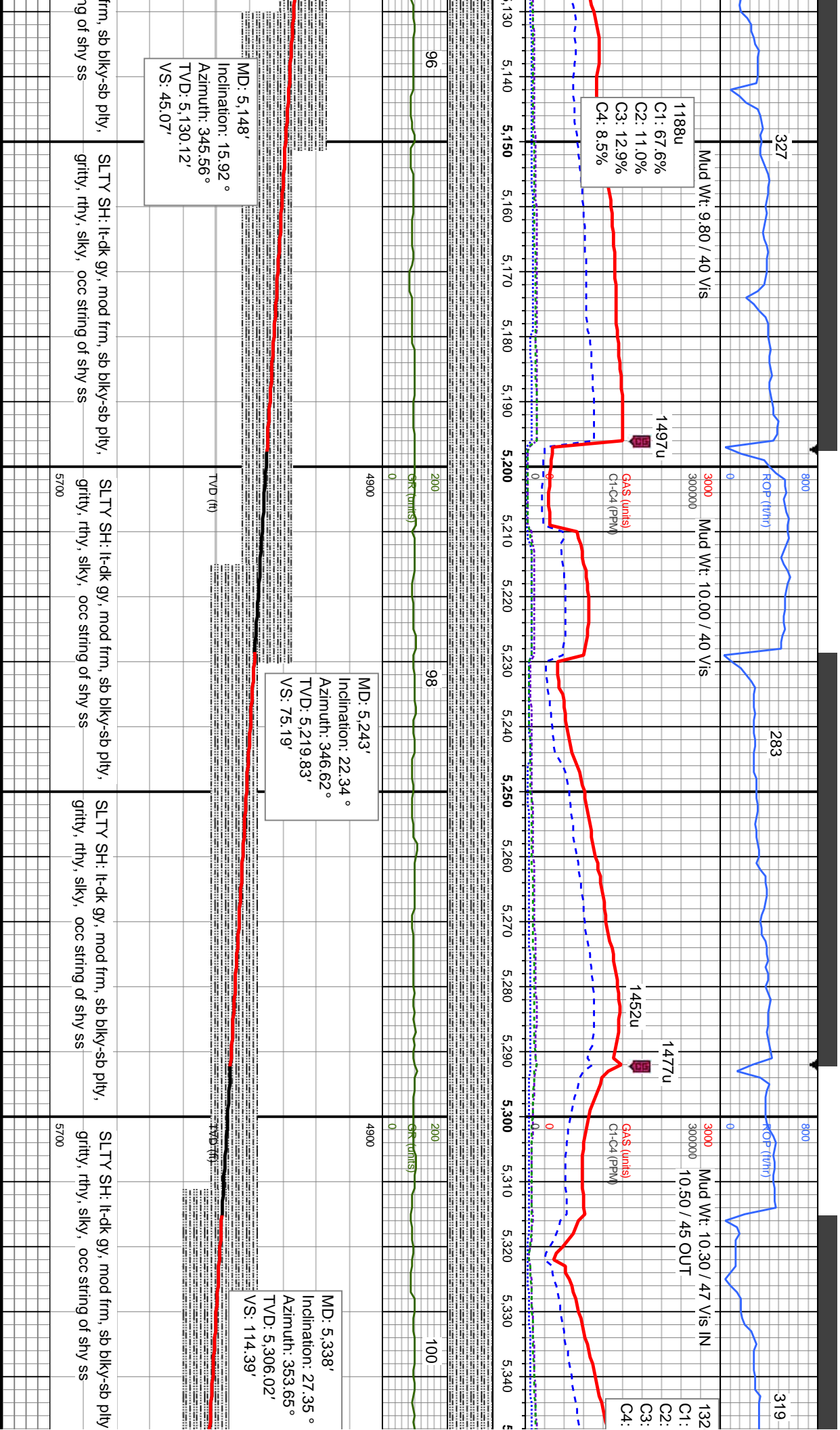
Images



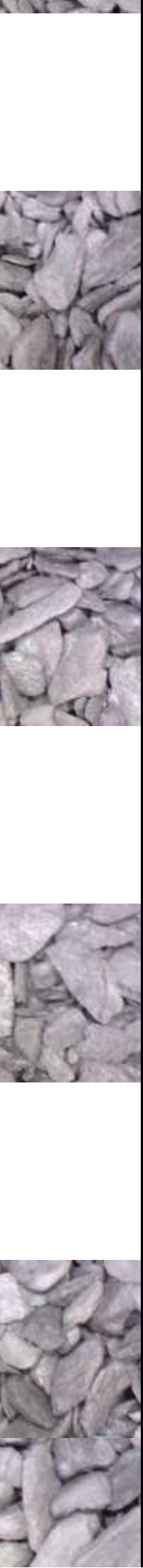
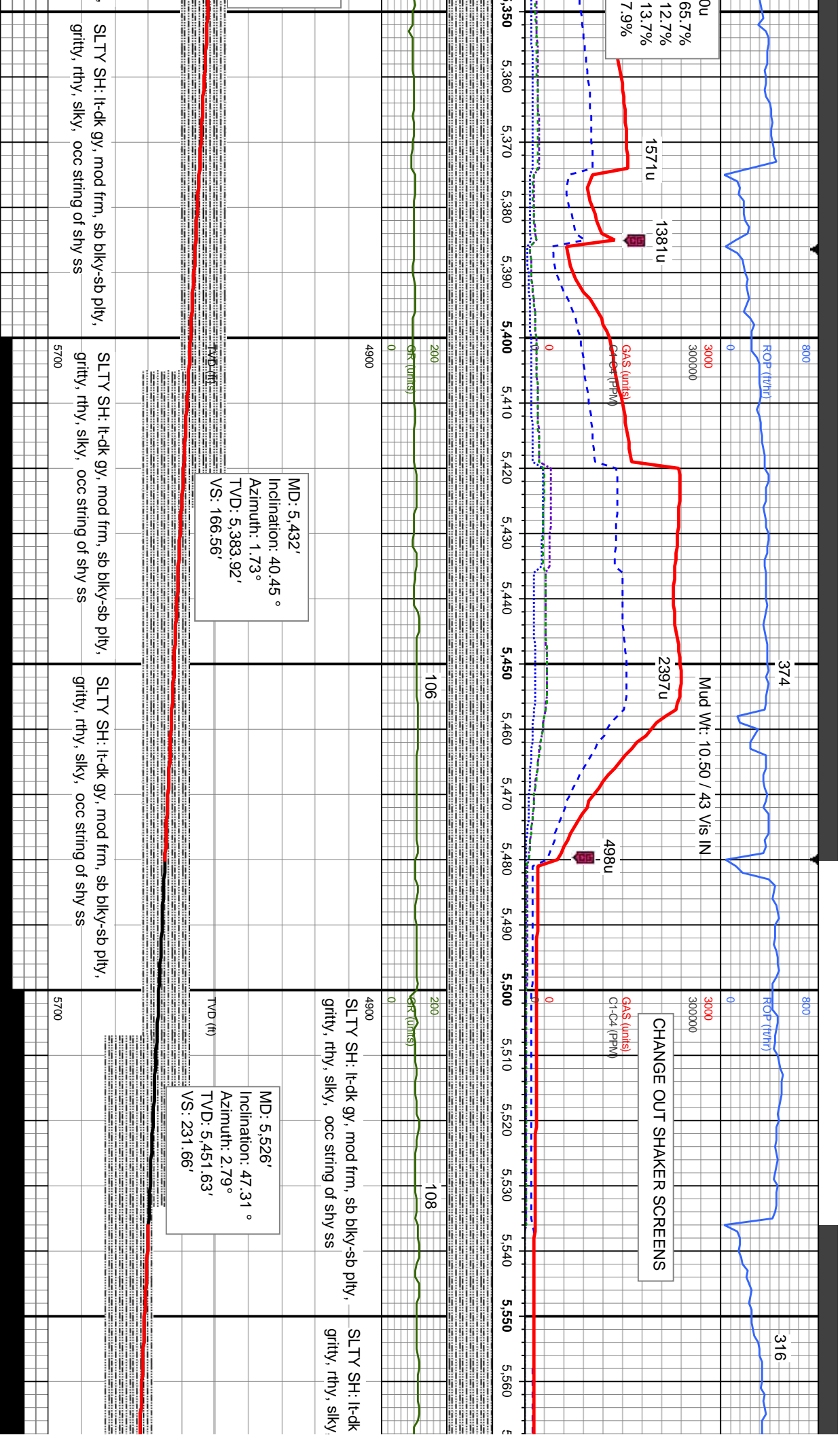
SLTY SH: lt-dk gy, mod frm, sb blkly-sb pily,  
gritty, rthy, silky, occ string of shy ss

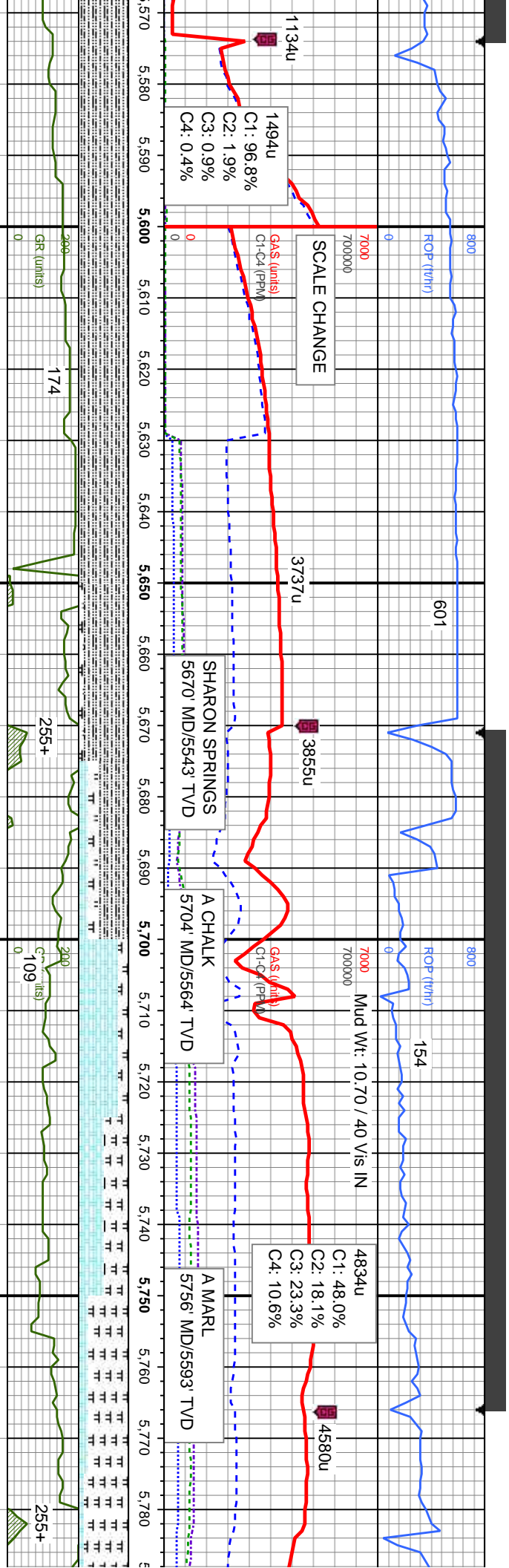
SLTY SH: lt-dk gy, mod frm, sb blkly-sb pily,  
gritty, rthy, silky, occ string of shy ss

SLTY SH: lt-dk gy, mod frm, sb blkly-sb pily,  
gritty, rthy, silky, occ string of shy ss









SLTY SH: lt-dk gy, mod frm, sb blk-ly-sb ply, gritty, rthy, silky, abnt bent CHK: ltgy, occ medgy, mod sft - mod frm, sb ply-sb blk-ly, sb wxy tex - mot, v calc MRLST: medgy - gy blk-dk brn, blk-ly-sb ply, mod frm, rthy tex, v calc

SLTY SH: lt-dk gy, mod frm, sb blk-ly-sb ply, gritty, rthy, silky, occ string of sly ss, com bent

occ mod frm, sb blk-ly-sb ply, gritty, rthy, silky, occ string of sly ss, tr bent

25' Sample Intervals

MD: 5,620'  
Inclination: 51.09°  
Azimuth: 6.65°  
TVD: 5,513.05'  
VS: 302.6'

TVD (ft)

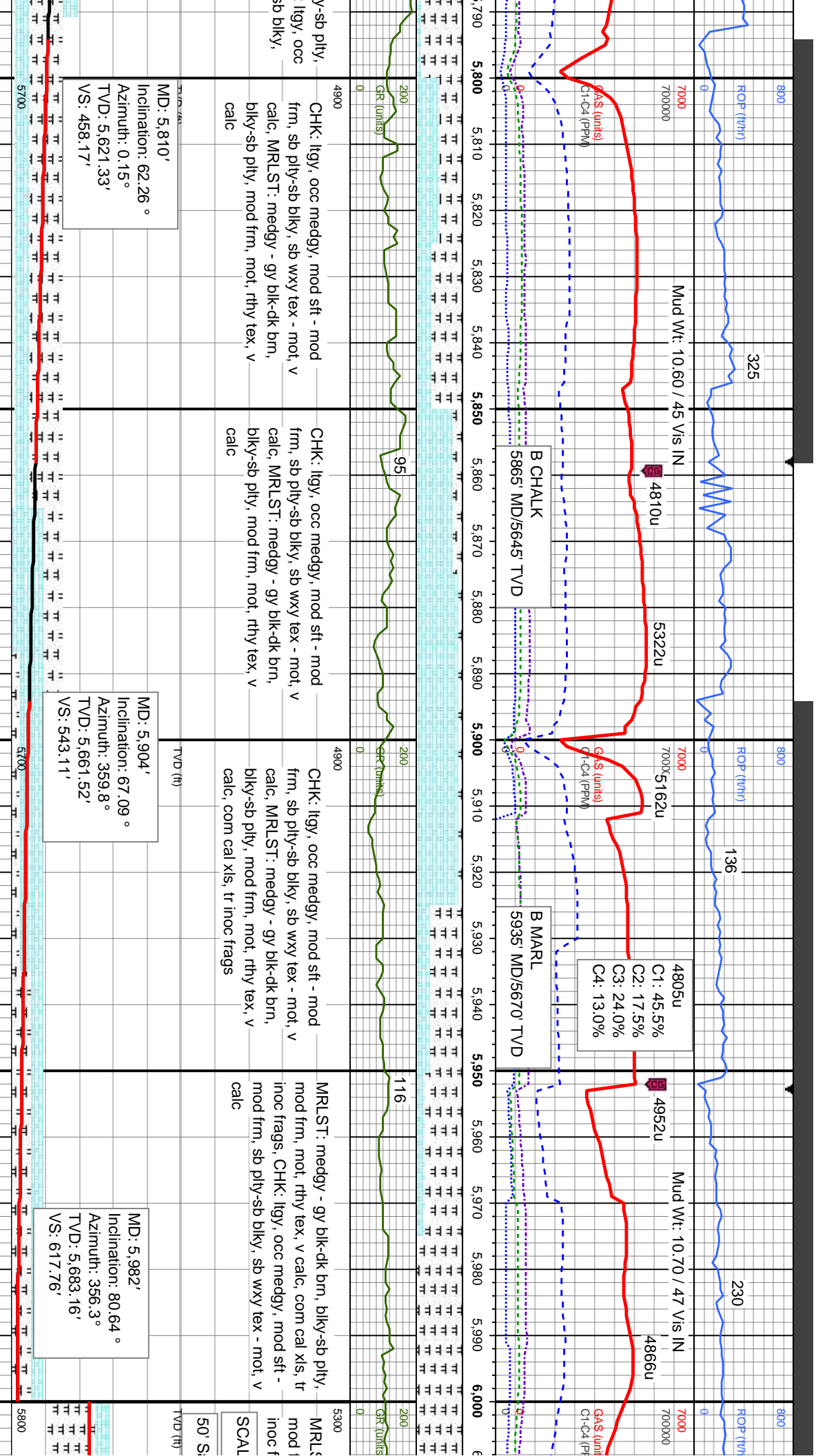
MD: 5,715'  
Inclination: 53.73°  
Azimuth: 1.73°  
TVD: 5,571.02'  
VS: 377.69'

TVD (ft)

MRLST: medgy - gy blk-dk brn, blk mod frm, mot, rthy tex, v calc CHK: medgy, mod sft - mod frm, sb ply-sb wxy tex - mot, v calc







MD: 5,810'  
Inclination: 62.26 °  
Azimuth: 0.15 °  
TVD: 5,621.33'  
VS: 458.17'

MD: 5,904'  
Inclination: 67.09 °  
Azimuth: 359.8 °  
TVD: 5,661.52'  
VS: 543.11'

MD: 5,982'  
Inclination: 80.64 °  
Azimuth: 356.3 °  
TVD: 5,683.16'  
VS: 617.76'

CHK: lgy, occ medgy, mod sft - mod frm, sb ply-sb blk, sb wxy tex - mot, v calc, MRLST: medgy - gy blk-dk brn, blkly-sb ply, mod frm, mot, rthy tex, v calc

CHK: lgy, occ medgy, mod sft - mod frm, sb ply-sb blk, sb wxy tex - mot, v calc, MRLST: medgy - gy blk-dk brn, blkly-sb ply, mod frm, mot, rthy tex, v calc

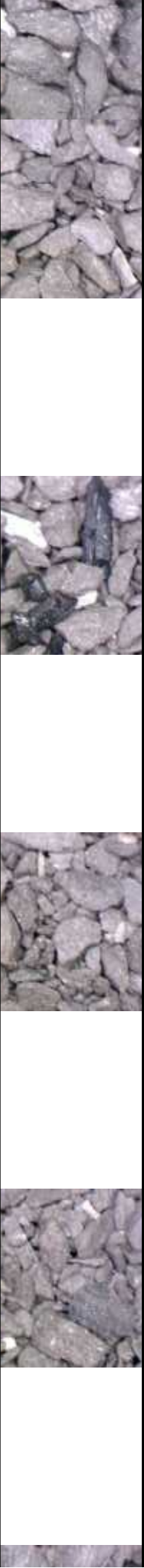
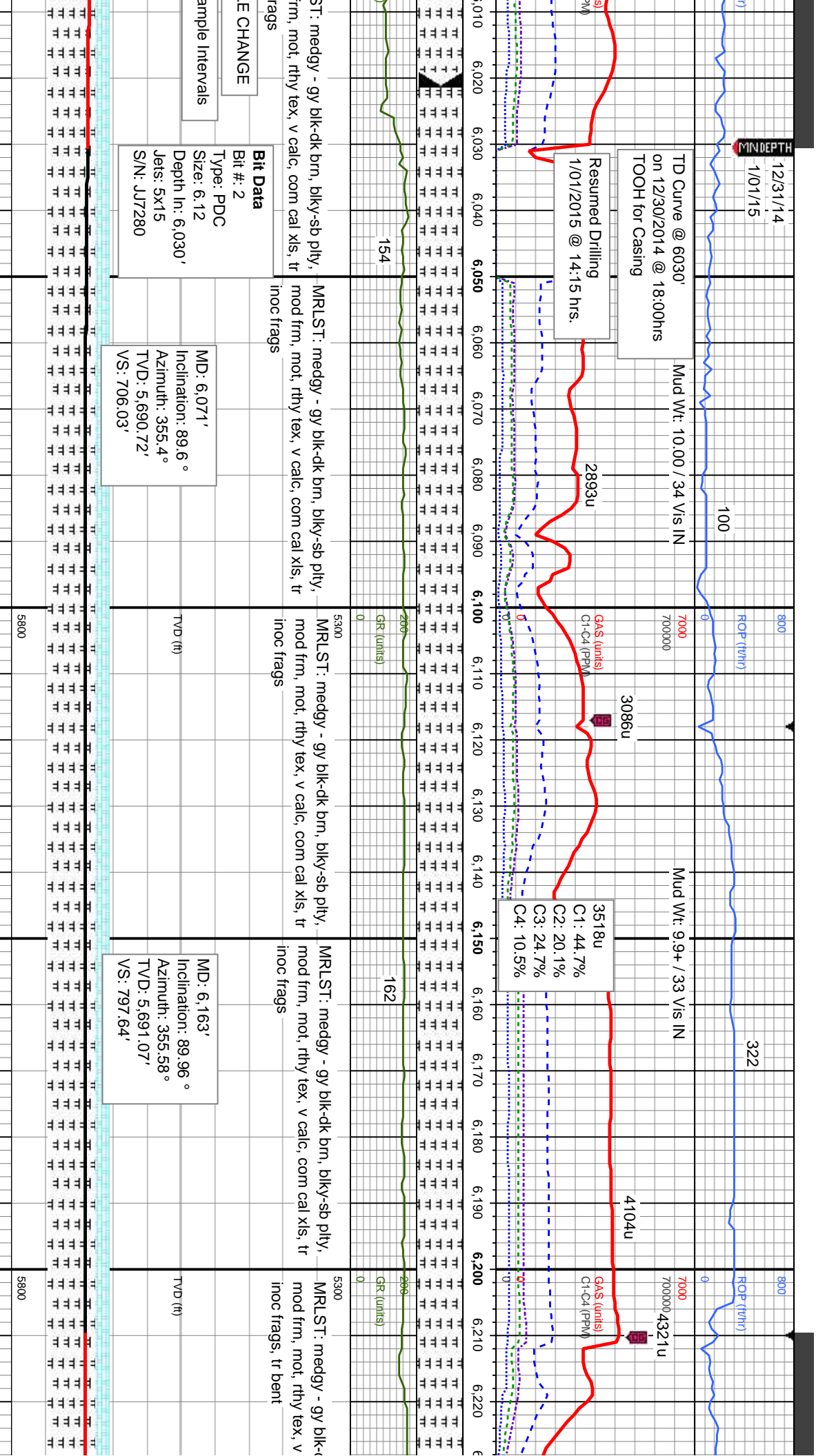
CHK: lgy, occ medgy, mod sft - mod frm, sb ply-sb blk, sb wxy tex - mot, v calc, MRLST: medgy - gy blk-dk brn, blkly-sb ply, mod frm, mot, rthy tex, v calc, com cal xls, tr inoc frags

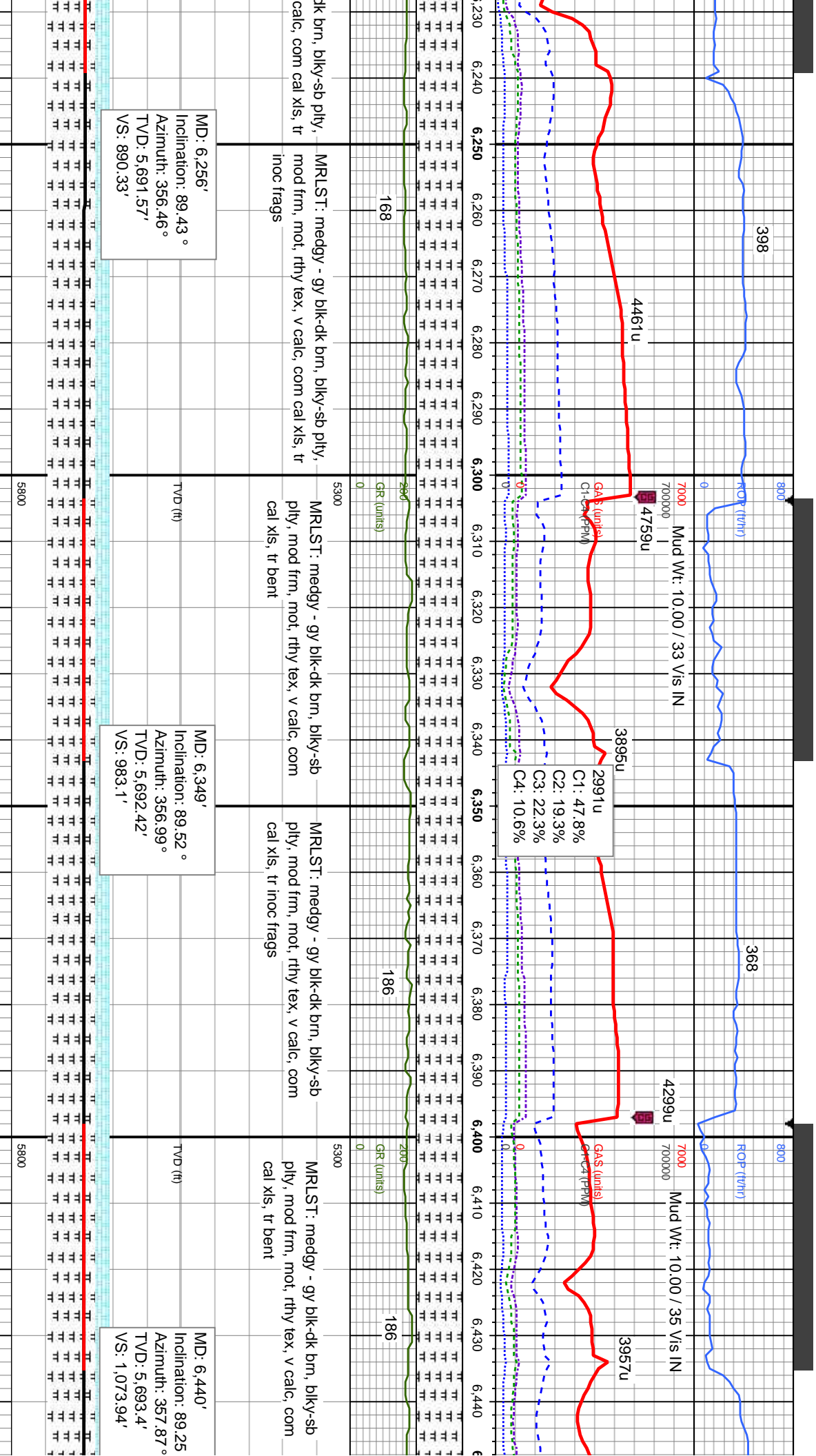
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MRLST: mod frm, mot, rthy tex, v calc, com cal xls, tr inoc frags, CHK: lgy, occ medgy, mod sft - mod frm, sb ply-sb blk, sb wxy tex - mot, v calc



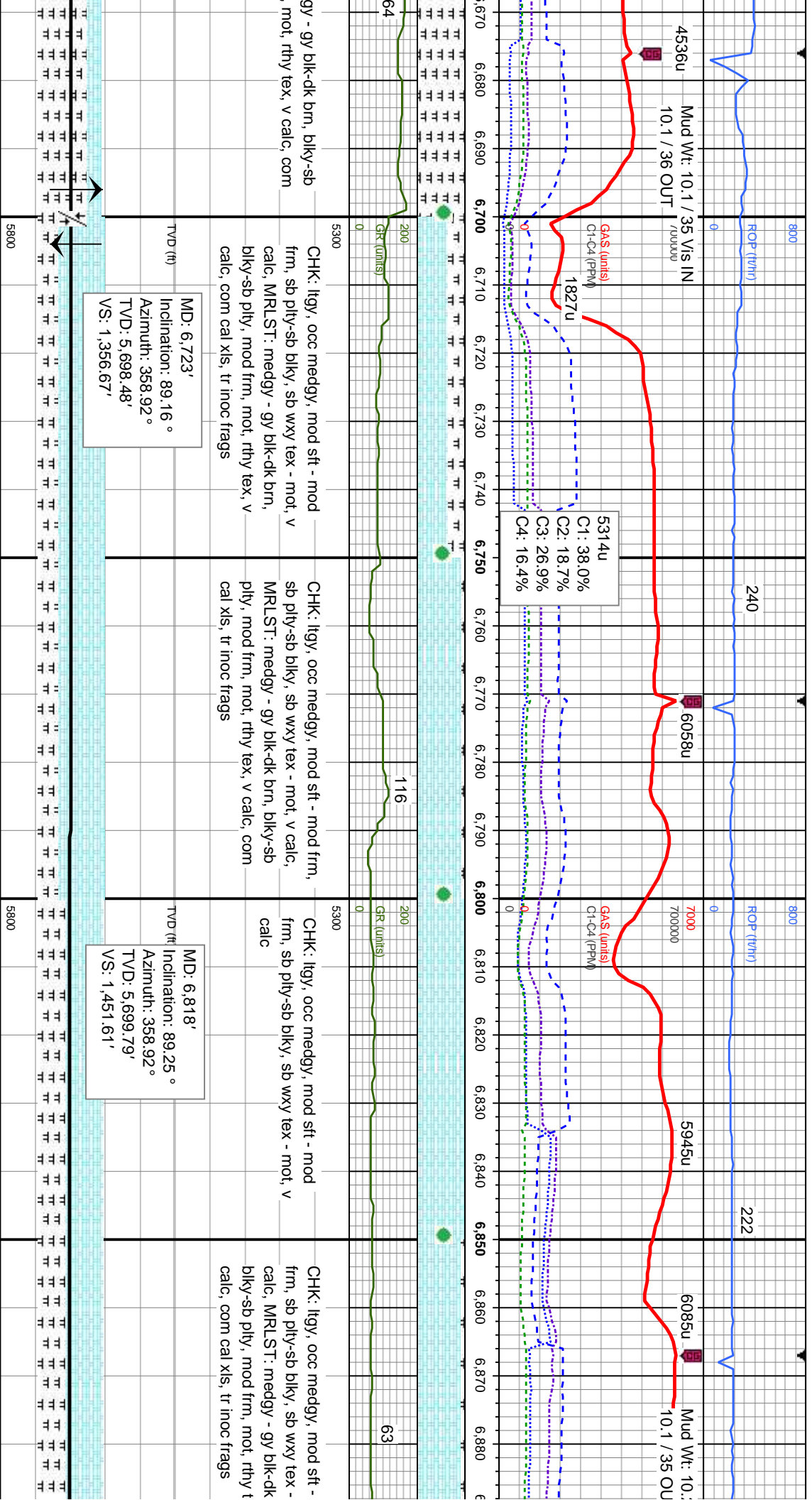












gy - gy blk-dk brn, blk-y-sb  
mot, rthy tex, v calc, com

CHK: Itgy, occ medgy, mod sft - mod  
frm, sb pty-sb blk-y, sb wxy tex - mot, v  
calc, MRLST: medgy - gy blk-dk brn,  
blk-y-sb pty, mod frm, mot, rthy tex, v  
calc, com cal xls, tr inoc frags

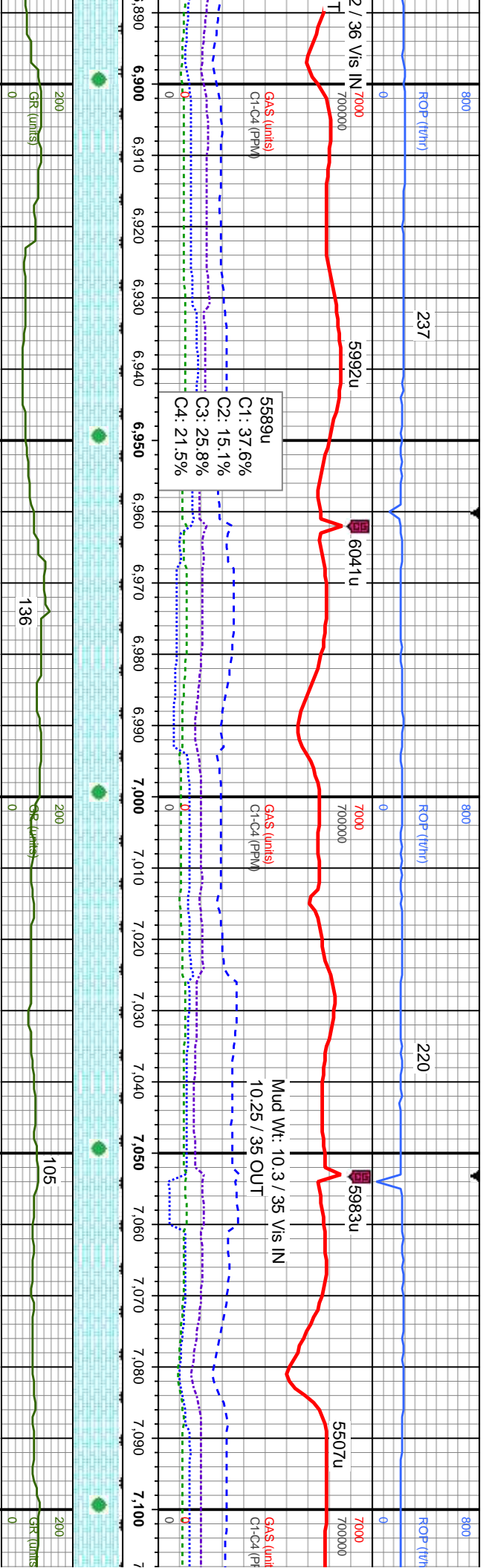
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sb pty-sb blk-y, sb wxy tex - mot, v calc,  
MRLST: medgy - gy blk-dk brn, blk-y-sb  
pty, mod frm, mot, rthy tex, v calc, com  
cal xls, tr inoc frags

CHK: Itgy, occ medgy, mod sft - mod  
frm, sb pty-sb blk-y, sb wxy tex - mot, v  
calc

CHK: Itgy, occ medgy, mod sft -  
frm, sb pty-sb blk-y, sb wxy tex -  
calc, MRLST: medgy - gy blk-dk  
blk-y-sb pty, mod frm, mot, rthy t  
calc, com cal xls, tr inoc frags





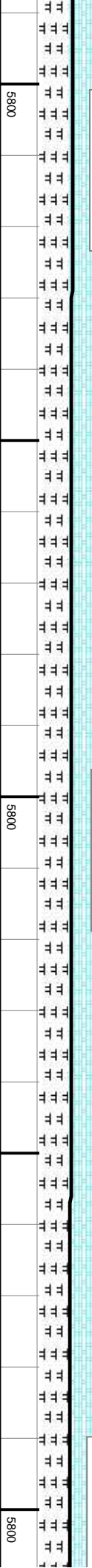


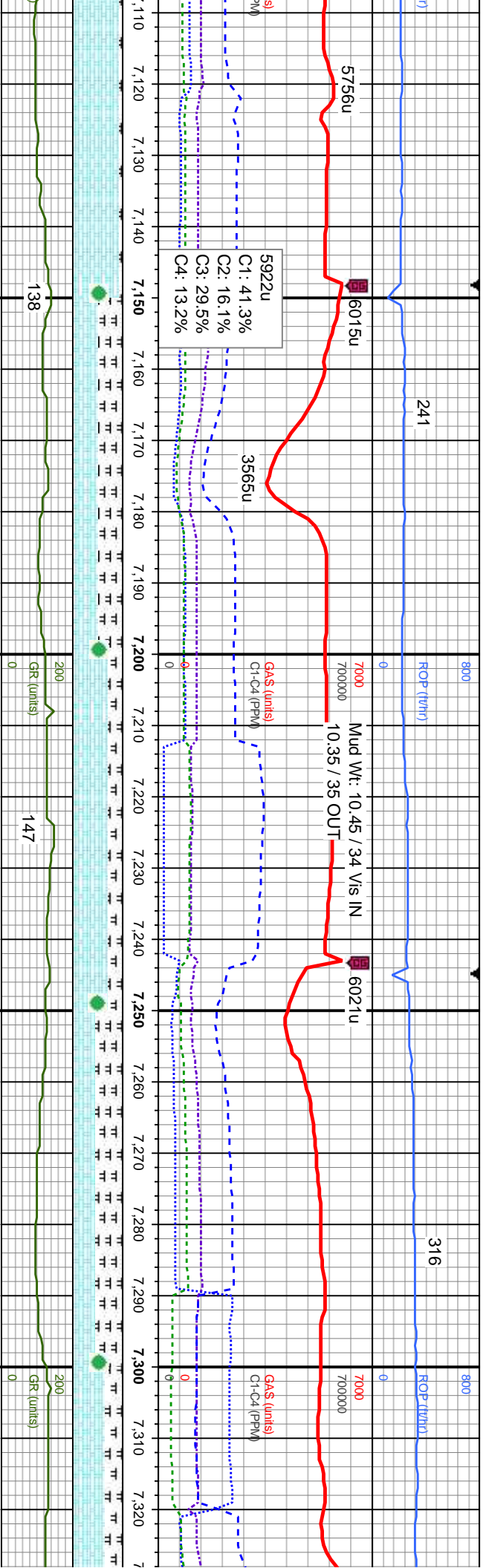
mod mot, v brn, ex, v	CHK: lgy, occ medgy, mod sft - mod frm, sb pty-sb blk, sb wxy tex - mot, v calc, MRLST: medgy - gy blk-dk brn, blk-y-sb pty, mod frm, mot, rthy tex, v calc, com cal xis, tr inoc frags	CHK: lgy, occ medgy, mod sft - mod frm, sb pty-sb blk, sb wxy tex - mot, v calc, MRLST: medgy - gy blk-dk brn, blk-y-sb pty, mod frm, mot, rthy tex, v calc, com cal xis, tr inoc frags	CHK: lgy, occ medgy, mod sft - mod frm, sb pty-sb blk, sb wxy tex - mot, v calc, MRLST: medgy - gy blk-dk brn, blk-y-sb pty, mod frm, mot, rthy tex, v calc, com cal xis, tr inoc frags	CHK: lgy, occ medgy, mod sft - mod frm, sb pty-sb blk, sb wxy tex - mot, v calc, MRLST: medgy - gy blk-dk brn, blk-y-sb pty, mod frm, mot, rthy tex, v calc, com cal xis, tr inoc frags
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MD: 6,912'  
Inclination: 89.16 °  
Azimuth: 358.74 °  
TVD: 5,701.1'  
VS: 1,545.55'

MD: 7,007'  
Inclination: 89.08 °  
Azimuth: 358.57 °  
TVD: 5,702.56'  
VS: 1,640.48'

MD: 7,101'  
Inclination: 89.16 °  
Azimuth: 358.57 °  
TVD: 5,704'  
VS: 1,734.4'





lgy, occ medgy, mod sft - mod frm,  
y-sb blkly, sb wxy tex - mot, v calc,  
ST: medgy - gy blk-dk brn, blkly-sb  
mod frm, mot, rthy tex, v calc, com  
s, tr inoc frags

CHK: lgy, occ medgy, mod sft - mod frm,  
sb ply-sb blkly, sb wxy tex - mot, v calc,  
MRLST: medgy - gy blk-dk brn, blkly-sb  
ply, mod frm, mot, rthy tex, v calc, com  
cal xls, tr inoc frags

CHK: lgy, occ medgy, mod sft - mod frm,  
sb ply-sb blkly, sb wxy tex - mot, v calc,  
MRLST: medgy - gy blk-dk brn, blkly-sb  
ply, mod frm, mot, rthy tex, v calc, com cal  
xls, tr inoc frags

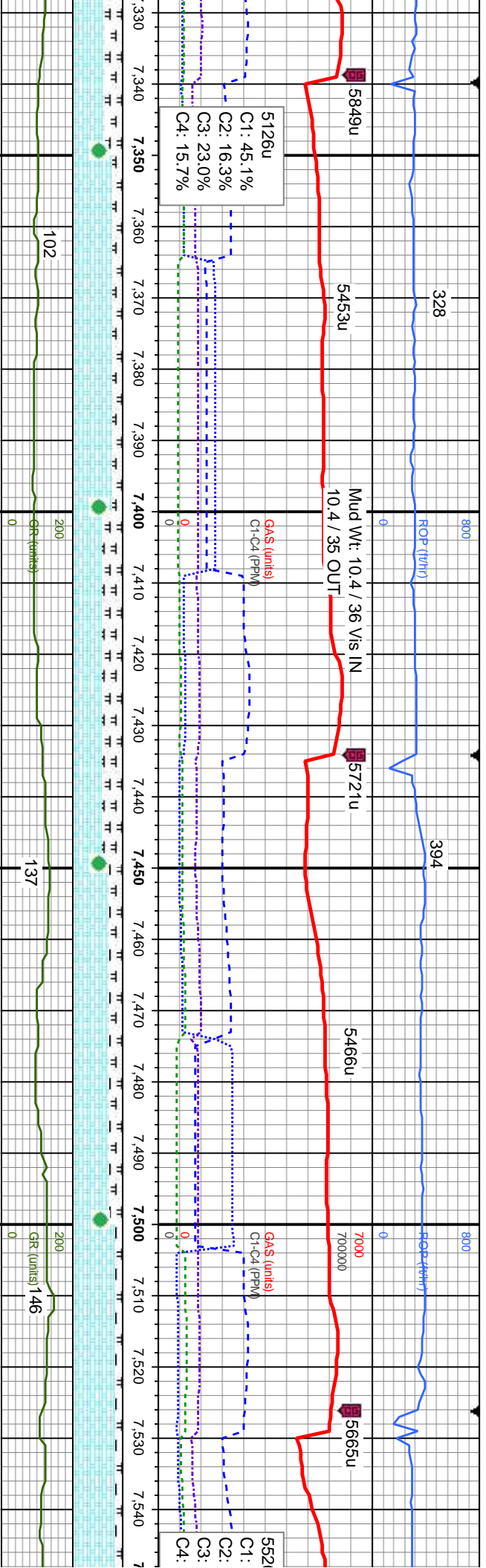
MRLST: medgy - gy blk-dk brn, blkly-sb  
ply, mod frm, mot, rthy tex, v calc, com  
cal xls, tr inoc frags, tr bent, CHK: lgy,  
occ medgy, mod sft - mod frm, sb ply-sb  
blkly, sb wxy tex - mot, v calc

CHK: lgy, occ medgy  
frm, sb ply-sb blkly, s  
calc, MRLST: medgy  
blkly-sb ply, mod frm,  
calc, com cal xls, tr in

MD: 7,196'  
Inclination: 89.25 °  
Azimuth: 359.1°  
TVD: 5,705.32'  
VS: 1,829.34'

MD: 7,290'  
Inclination: 88.99 °  
Azimuth: 359.1°  
TVD: 5,706.76'  
VS: 1,923.29'





mod sft - mod  
wxy tex - mot, v  
- gy blk-dk brn,  
mot, rthy tex, v  
occ frags, tr bent

CHK: ltgy, occ medgy, mod sft - mod  
frm, sb pty-sb blk, sb wxy tex - mot, v  
calc, MRLST: medgy - gy blk-dk brn,  
biky-sb pty, mod frm, mot, rthy tex, v  
calc, com cal xls, tr inoc frags

CHK: ltgy, occ medgy, mod sft - mod  
frm, sb pty-sb blk, sb wxy tex - mot, v  
calc, MRLST: medgy - gy blk-dk brn,  
biky-sb pty, mod frm, mot, rthy tex, v  
calc, com cal xls, tr inoc frags

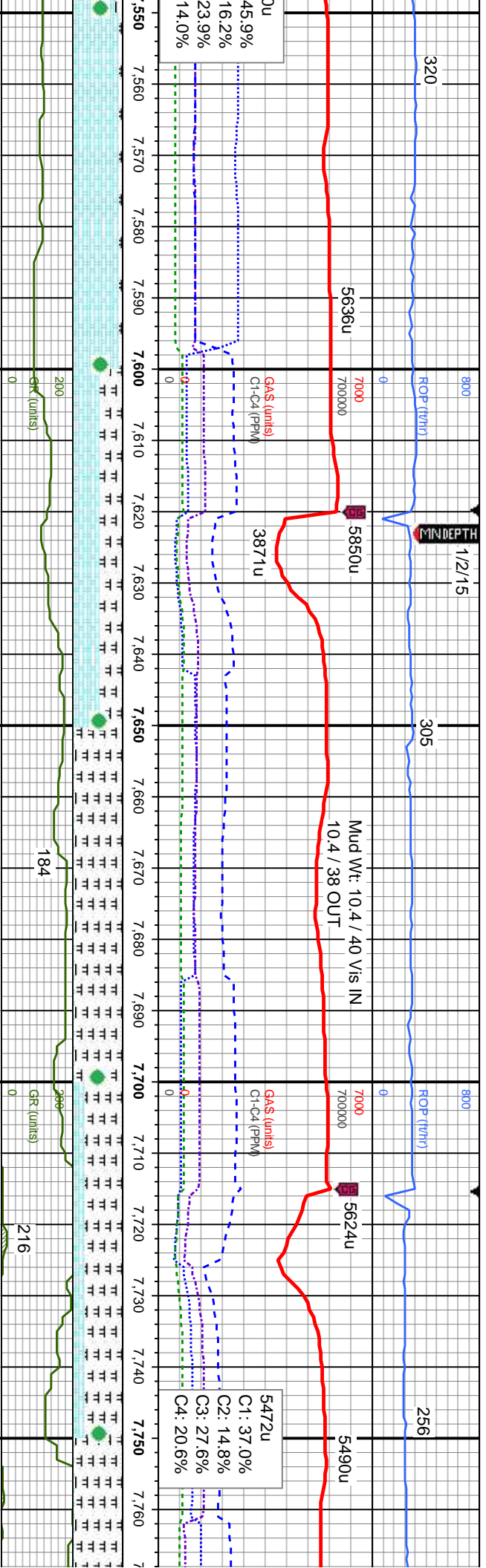
CHK: ltgy, occ medgy, mod sft - mod  
frm, sb pty-sb blk, sb wxy tex - mot, v  
calc, MRLST: medgy - gy blk-dk brn,  
biky-sb pty, mod frm, mot, rthy tex, v  
calc, com cal xls, tr inoc frags

MD: 7,385'  
Inclination: 90.13°  
Azimuth: 359.45°  
TVD: 5,707.49'  
VS: 2,018.26'

MD: 7,479'  
Inclination: 90.57°  
Azimuth: 359.8°  
TVD: 5,706.92'  
VS: 2,112.24'







CHK: ltgy, occ medgy, mod sft - mod frm, sb pty-sb blkly, sb wxy tex - mot, v calc, MRLST: medgy - gy blk-dk brn, blkly-sb ply, mod frm, mot, rthy tex, v calc, com cal xls, tr inoc frags

CHK: ltgy, occ medgy, mod sft - mod frm, sb pty-sb blkly, sb wxy tex - mot, v calc, MRLST: medgy - gy blk-dk brn, blkly-sb ply, mod frm, mot, rthy tex, v calc, com cal xls, tr inoc frags

MRLST: medgy - gy blk-dk brn, blkly-sb ply, mod frm, mot, rthy tex, v calc, com cal xls, tr inoc frags, tr bent, CHK: ltgy, occ medgy, mod sft - mod frm, sb pty-sb blkly, sb wxy tex - mot, v calc

MRLST: medgy - gy blk-dk brn, blkly-sb ply, mod frm, mot, rthy tex, v calc, com cal xls, tr inoc frags, tr bent, CHK: ltgy, occ medgy, mod sft - mod frm, sb pty-sb blkly, sb wxy tex - mot, v calc

MRLST: medgy - gy blk-dk brn, blkly-sb ply, mod frm, mot, rthy tex, v calc, com cal xls, tr inoc frags, tr bent, CHK: ltgy, occ medgy, mod sft - mod frm, sb pty-sb blkly, sb wxy tex - mot, v calc

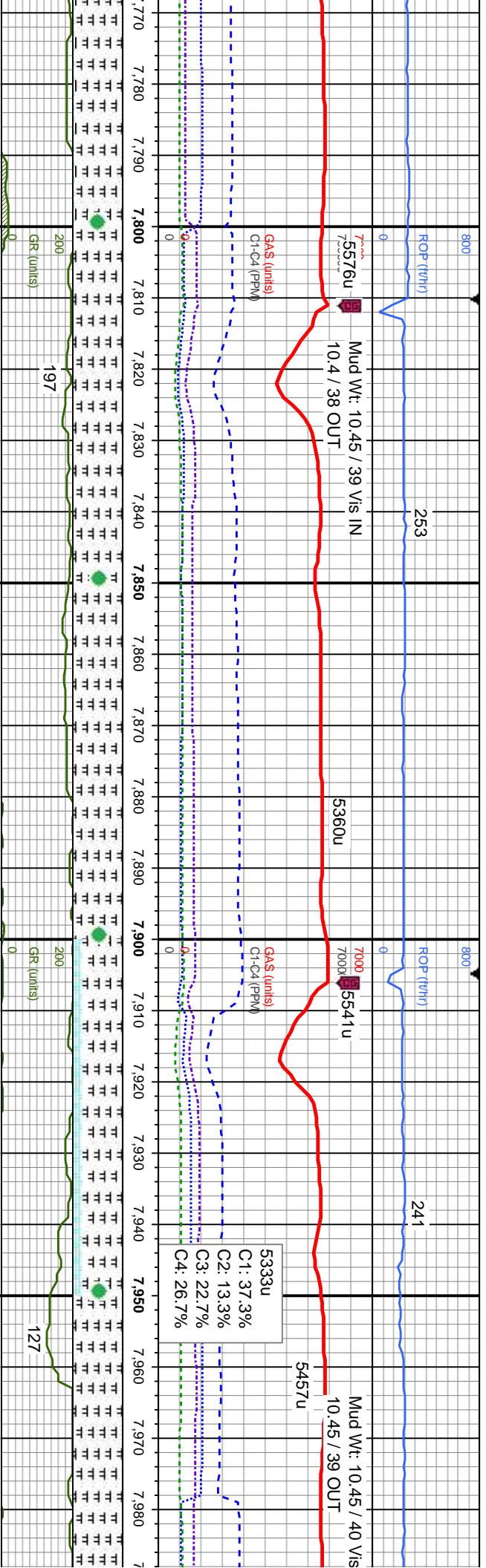
MD: 7,574'  
Inclination: 90.66°  
Azimuth: 359.97°  
TVD: 5,705.9'  
VS: 2,207.22'

MD: 7,668'  
Inclination: 90.84°  
Azimuth: 359.97°  
TVD: 5,704.67'  
VS: 2,301.21'

MD: 7,763'  
Inclination: 91.1°  
Azimuth: 359.8°  
TVD: 5,703.13'  
VS: 2,396.19'







Y - gy blk-dk brn, blk-y-sb  
mot, rthy tex, v calc, com  
frags, CHK: ltgy, occ  
t - mod frm, sb ply-sb  
x - mot, v calc

MRLST: medgy - gy blk-dk brn, blk-y-sb  
ply, mod frm, mot, rthy tex, v calc, com  
cal xls, tr inoc frags

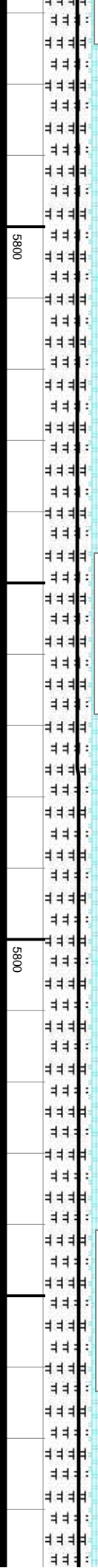
MRLST: medgy - gy blk-dk brn, blk-y-sb  
ply, mod frm, mot, rthy tex, v calc, com  
cal xls, tr inoc frags

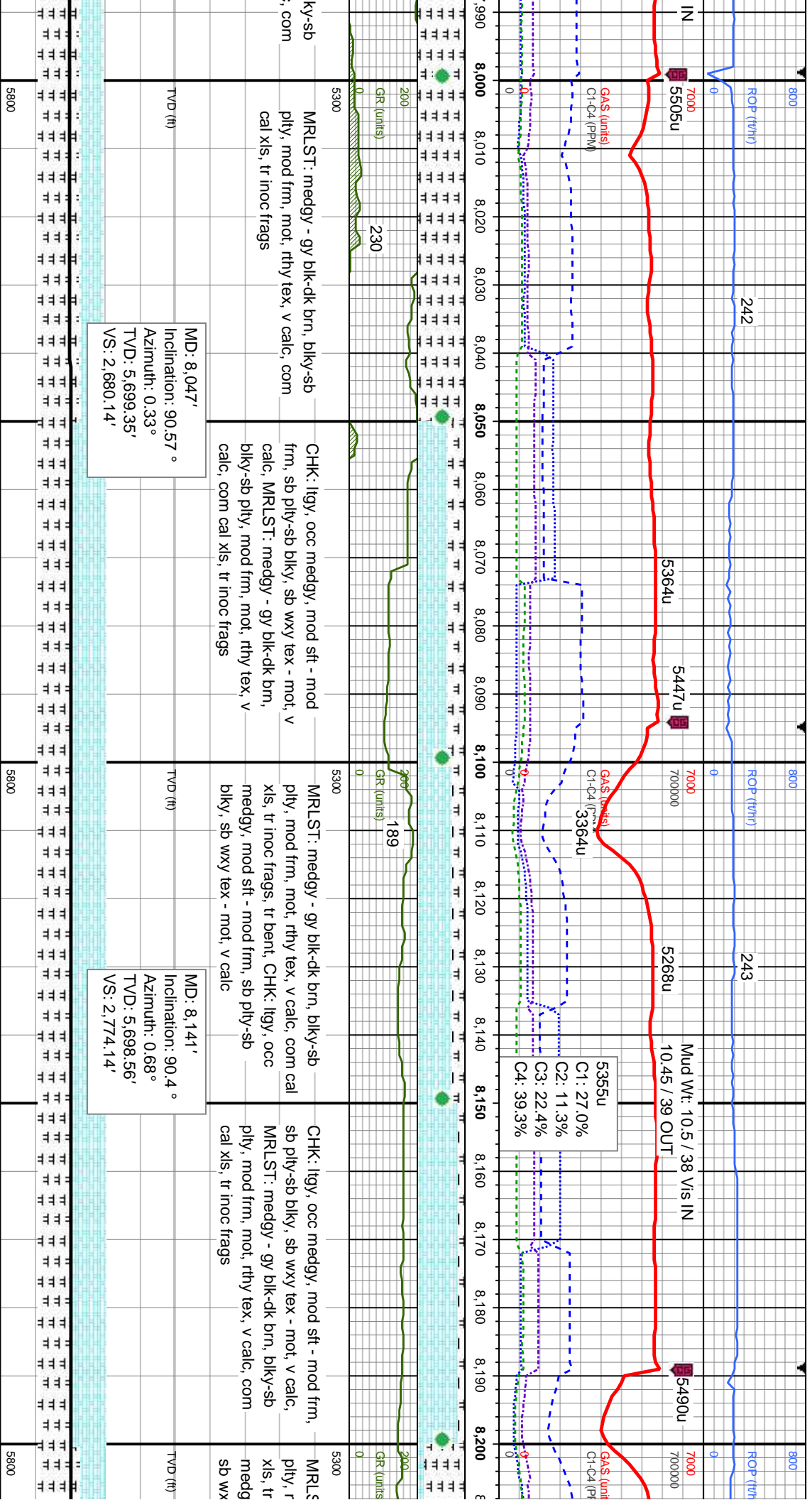
MRLST: medgy - gy blk-dk brn, blk-y-sb  
ply, mod frm, mot, rthy tex, v calc, com cal  
xls, tr inoc frags, CHK: ltgy, occ medgy,  
mod sft - mod frm, sb ply-sb blk-y, sb wxy  
tex - mot, v calc

MRLST: medgy - gy blk-dk brn, blk-y-sb  
ply, mod frm, mot, rthy tex, v calc  
cal xls, tr inoc frags

MD: 7.857'  
Inclination: 90.84 °  
Azimuth: 0.15 °  
TVD: 5,701.62'  
VS: 2,490.17'

MD: 7.952'  
Inclination: 90.66 °  
Azimuth: 359.97 °  
TVD: 5,700.37'  
VS: 2,585.15'



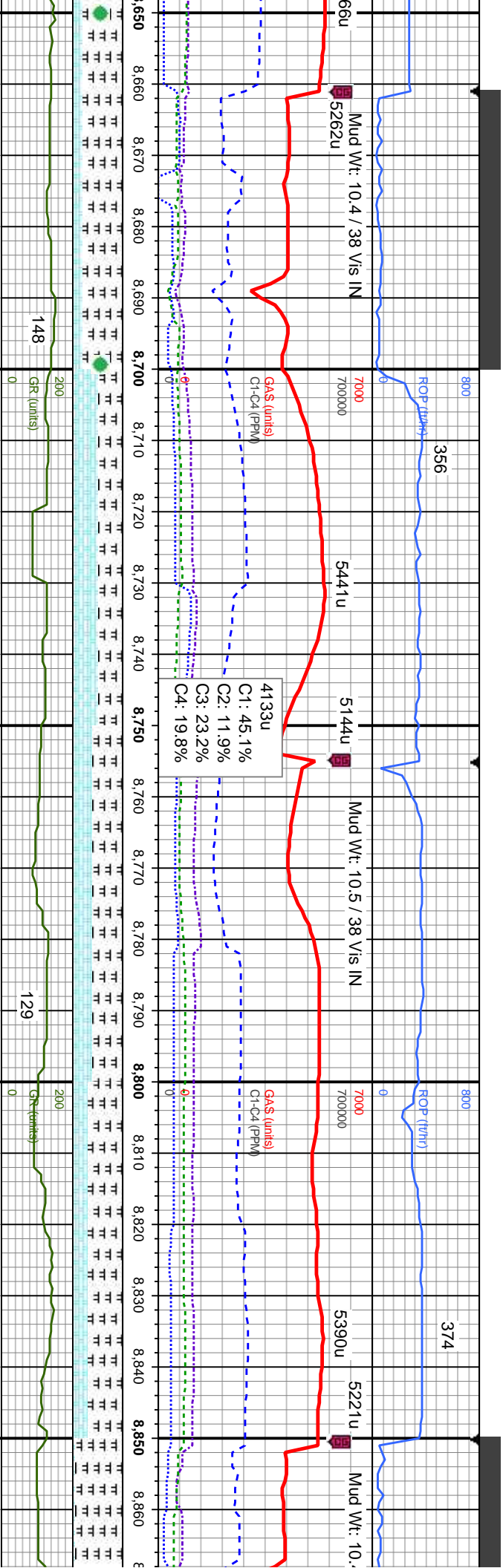












MRLST: medgy - gy blk-dk brn, blkly-sb  
ply, mod frm, mot, rthy tex, v calc, com cal  
xls, tr inoc frags, tr bent, CHK: itgy, occ  
medgy, mod sft - mod frm, sb ply-sb  
blkly, sb wxy tex - mot, v calc

MRLST: medgy - gy blk-dk brn, blkly-sb  
ply, mod frm, mot, rthy tex, v calc, com cal  
xls, tr inoc frags, tr bent, CHK: itgy, occ  
medgy, mod sft - mod frm, sb ply-sb  
blkly, sb wxy tex - mot, v calc

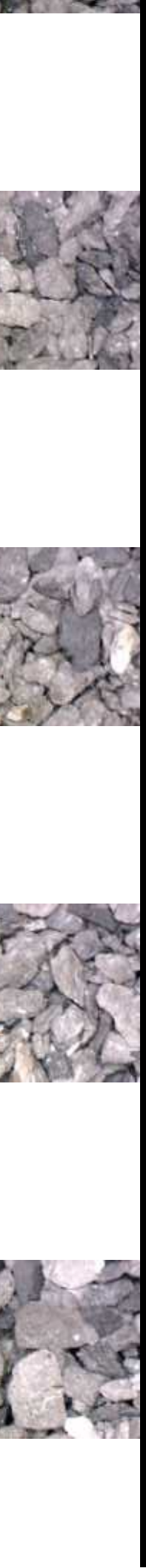
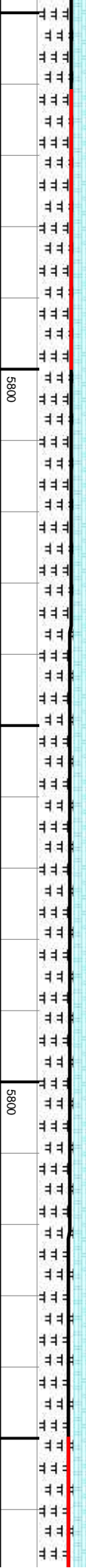
MRLST: medgy - gy blk-dk brn, blkly-sb  
ply, mod frm, mot, rthy tex, v calc, com cal  
xls, tr inoc frags, tr bent, CHK: itgy, occ  
medgy, mod sft - mod frm, sb ply-sb  
blkly, sb wxy tex - mot, v calc

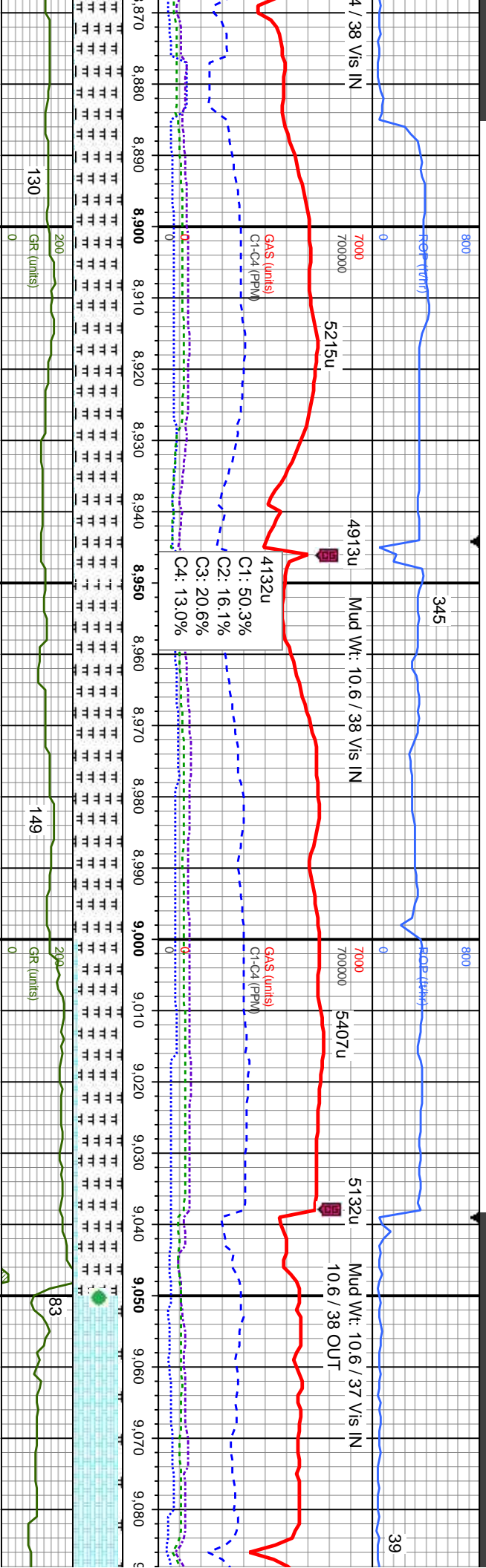
MRLST: medgy - gy blk-dk brn, blkly-sb  
ply, mod frm, mot, rthy tex, v calc, com cal  
xls, tr inoc frags, tr bent, CHK: itgy, occ  
medgy, mod sft - mod frm, sb ply-sb  
blkly, sb wxy tex - mot, v calc

MRLST: medgy - gy blk-dk brn, blkly-sb  
ply, mod frm, mot, rthy tex, v calc, com cal  
xls, tr inoc frags, tr bent, CHK: itgy, occ  
medgy, mod sft - mod frm, sb ply-sb  
blkly, sb wxy tex - mot, v calc

MD: 8,708'  
Inclination: 88.46°  
Azimuth: 358.38°  
TVD: 5,702.61'  
VS: 3,341'

MD: 8,802'  
Inclination: 88.72°  
Azimuth: 358.74°  
TVD: 5,704.92'  
VS: 3,434.91'





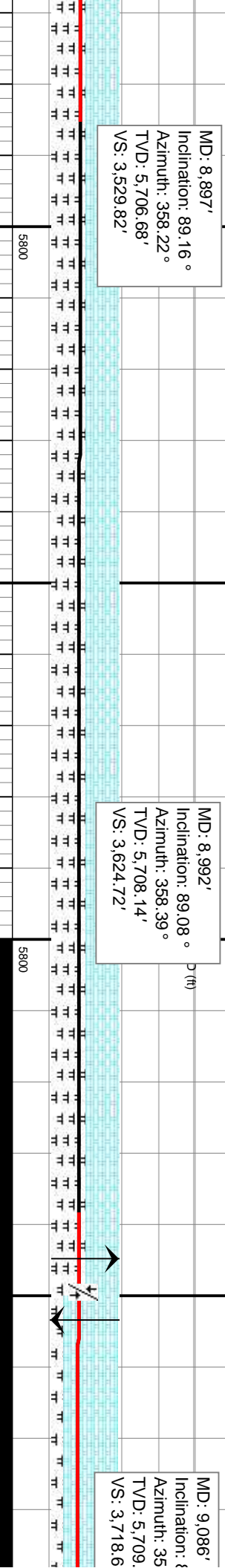
gy blk-dk brn, blk-y-sb  
mot, rthy tex, v calc, com cal  
tr bent, CHK: ltgy, occ  
mod frm, sb pty-sb  
- mot, v calc

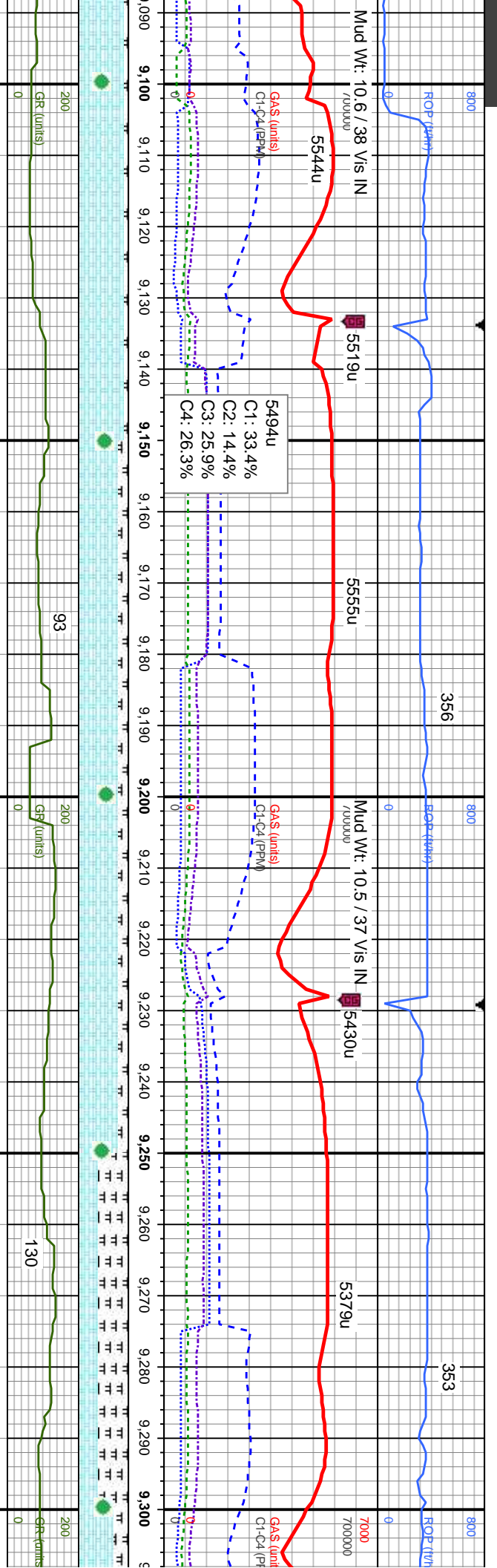
MRSLT: medgy - gy blk-dk brn, blk-y-sb  
pty, mod frm, mot, rthy tex, v calc, com cal  
xls, tr inoc frags, tr bent, CHK: ltgy, occ  
medgy, mod sft - mod frm, sb pty-sb  
blk-y, sb wxy tex - mot, v calc

MRSLT: medgy - gy blk-dk brn, blk-y-sb  
pty, mod frm, mot, rthy tex, v calc, com cal  
xls, tr inoc frags, tr chk  
medgy, mod sft - mod frm, sb pty-sb  
blk-y, sb wxy tex - mot, v calc

MRSLT: medgy - gy blk-dk brn, blk-y-sb  
pty, mod frm, mot, rthy tex, v calc, com cal  
xls, tr inoc frags, tr bent, CHK: ltgy, occ  
medgy, mod sft - mod frm, sb pty-sb  
blk-y, sb wxy tex - mot, v calc

CHK: ltgy, occ medgy, mod sft - mu  
sb pty-sb blk-y, sb wxy tex - mot, v  
MRSLT: medgy - gy blk-dk brn, blk  
pty, mod frm, mot, rthy tex, v calc,  
cal xls, tr inoc frags





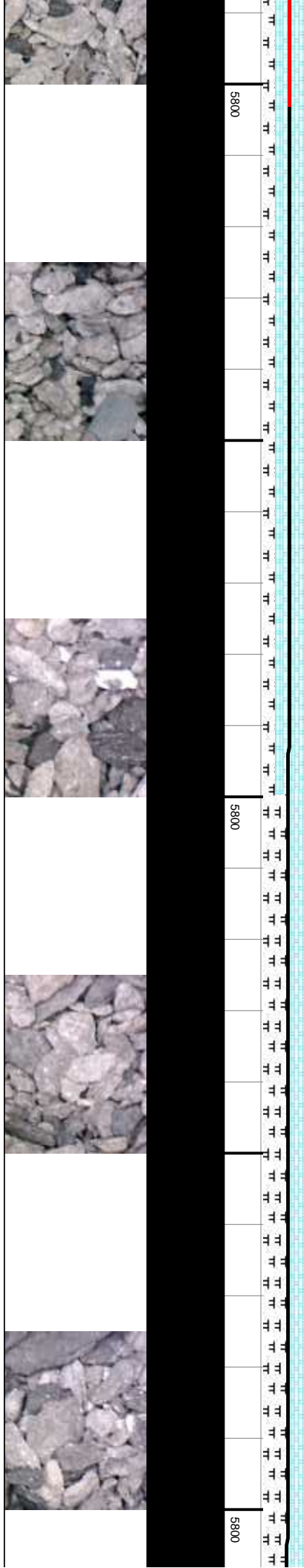
CHK: Itgy, occ medgy, mod sft - mod frm, sb ply-sb blk, sb wxy tex - mot, v calc, MRLST: medgy - gy blk-dk brn, blkly-sb ply, mod frm, mot, rthy tex, v calc, com cal xls, tr inoc frags

CHK: Itgy, occ medgy, mod sft - mod frm, sb ply-sb blk, sb wxy tex - mot, v calc, MRLST: medgy - gy blk-dk brn, blkly-sb ply, mod frm, mot, rthy tex, v calc, com cal xls, tr inoc frags

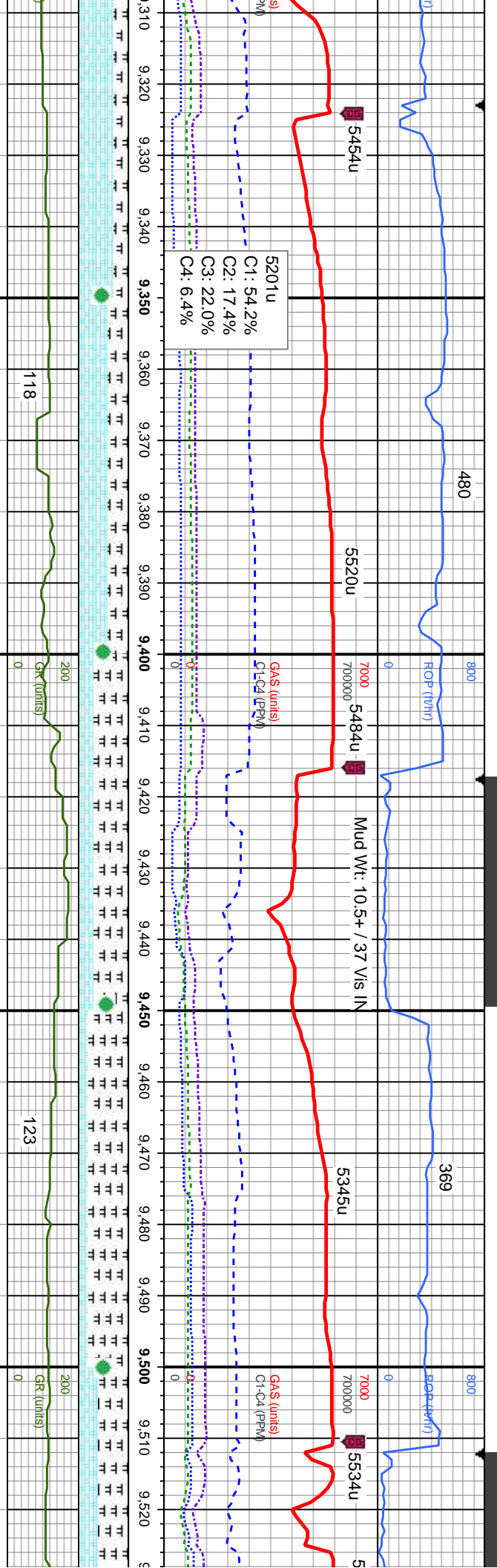
CHK: Itgy, occ medgy, mod sft - mod frm, sb ply-sb blk, sb wxy tex - mot, v calc, MRLST: medgy - gy blk-dk brn, blkly-sb ply, mod frm, mot, rthy tex, v calc, com cal xls, tr inoc frags

MD: 9,181' Inclination: 89.34° Azimuth: 357.16° TVD: 5,710.95' VS: 3,813.43'

MD: 9,276' Inclination: 88.99° Azimuth: 357.34° TVD: 5,712.34' VS: 3,908.24'







lgy, occ medgy, mod sft - mod frm, -  
-sb blk, sb wxy tex - mot, v calc,  
-T: medgy - gy blk-dk brn, blk-sb  
mod frm, mot, rthy tex, v calc, com  
s, tr inoc frags

CHK: lgy, occ medgy, mod sft - mod frm,  
sb pty-sb blk, sb wxy tex - mot, v calc,  
MRLST: medgy - gy blk-dk brn, blk-sb  
pty, mod frm, mot, rthy tex, v calc, com  
cal xls, tr inoc frags

MRLST: medgy - gy blk-dk brn, blk-sb  
pty, mod frm, mot, rthy tex, v calc, com cal  
xls, tr inoc frags, tr bent, CHK: lgy, occ  
medgy, mod sft - mod frm, sb pty-sb  
blk, sb wxy tex - mot, v calc

MRLST: medgy - gy blk-dk brn, blk-sb  
pty, mod frm, mot, rthy tex, v calc, com cal  
xls, tr inoc frags, tr bent, CHK: lgy, occ  
medgy, mod sft - mod frm, sb pty-sb  
blk, sb wxy tex - mot, v calc

MD: 9,370'  
Inclination: 88.02 °  
Azimuth: 356.46 °  
TVD: 5,714.79'  
VS: 4,002'

MD: 9,464'  
Inclination: 89.69 °  
Azimuth: 356.99 °  
TVD: 5,716.67'  
VS: 4,095.75'

