



Scale: 5" / 100'
Measured Depth Log

Well Name Oscar Y10-75-1HN

Location SEC 10 T2N R64W

State SEC 10 T2N R64W

Country USA

API Number 05-123-38200

Region DJ BASIN

Spud Date 10/23/2014

Surface Coordinates NWSE SEC 10 T2N R64W
2,380' FSL; 2,060' FEL

LAT/LON: 40.15223/-104.53547

Bottom Hole Coordinates NWNE SEC 3 T2N R64W
75' FNL; 2,310' FEL

Ground Elevation 4,924'

K.B. Elevation 4,948'

Logged Interval 6,318' To 14,437'

Total Depth 14,437'

Formation NIOBRARA C CHALK

Type of Drilling Fluid LSND

County WELD

Rig Number H&P 315

AFE # 200201

Field WATTENBERG

Drilling Completed 10/27/2014

Operator

Company Noble Energy Inc

Address 1625 BROADWAY SUITE 2200
DENVER, CO 80202

Geologist

Name NATHAN MURPHY; ZACH UBER

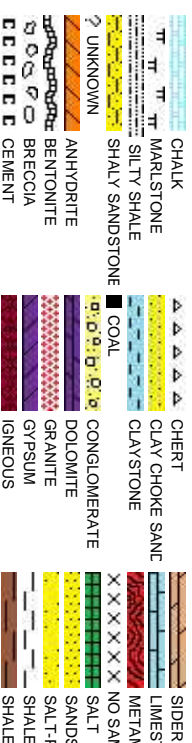
Company COLUMBINE LOGGING, INC
Address 2385 S LIPAN ST
DENVER, CO 80223

Zone Color Coding

Oil
Note
Error

Condensate
Core
Water

Rock Types

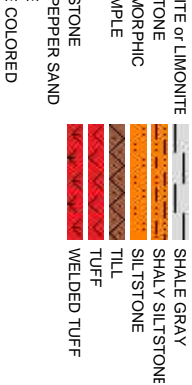


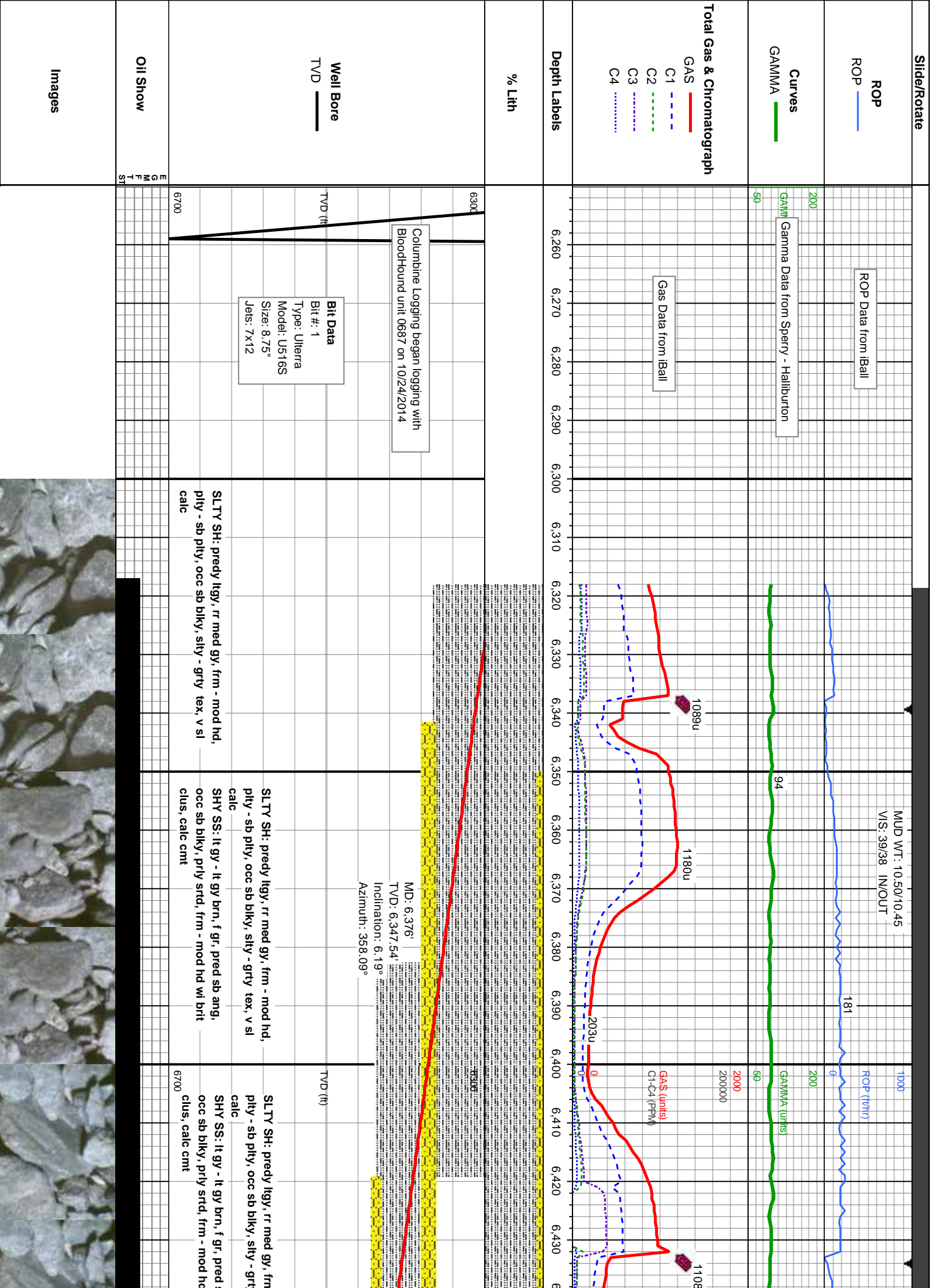
Accessories

Fossils		Stringer	
F FOSSIL	— ARGILLACEOUS	✓ GLAUCONITE	✓ TUFFACEOUS
GA GASTROPOD	/ ARGILLITE GRAIN	GY GYPSIFEROUS	
OL OOLITE	B BENTONITE	H HEAVY MINERAL	
OST OSTRACOD	BIT BITUMENOUS SUBSTANCE	INO INOCERAMUS	
PE PELECYPOD	BRE BRECCIA FRAGMENTS	K KAOLIN	
BI BIOCLASTIC	CA CALCAREOUS	M MARLSTONE	
BR BRACHIOPOD	FL CARBONACEOUS FLAKES	MIN MINERAL CRYSTALS	
PIS PISOLITE	CHT CHITDK	N NODULES	
PL PLANT REMAINS	CHT CHITL	PP PHOSPHATE PELLETS	
SP SPERMATOPHYTES	CO COAL - THIN BEDS	P PYRITE	
SC SCAPHOPOD	DO DOLOMITIC	SALT CAST	
CR CRINOID	+ FELDSPAR	S SANDY	
ECH ECHINOID	FERR FERRUGINOUS PELLETS	SIL SILICEOUS	
FIS FISH	FERR FERRUGINOUS	SILTY	
FOR FORAMINIFERA	ANH ANHYDRITIC		SH SHALE STRINGER
			SILT SILTSTONE STRINGER

Other Symbols

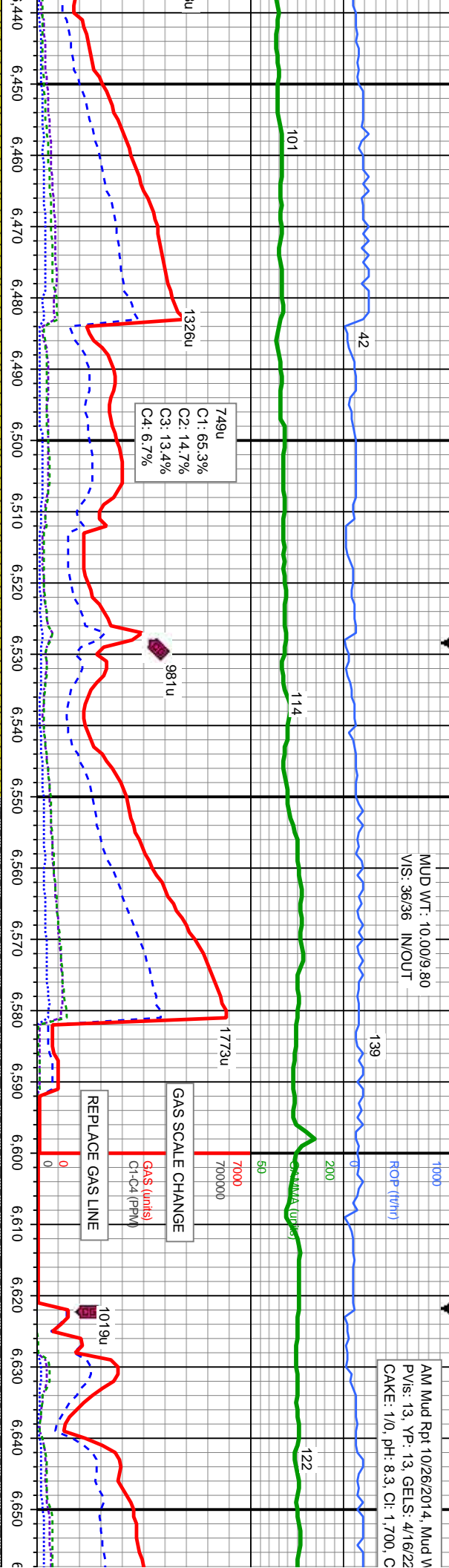
Oil Show		Engineering		Rounding	
O ORGANIC	■ CORE - RECOVERED	TRIP GAS	E EARTHY		
P PINPOINT	DST INTERVAL	WIRELINE TESTED - LEFT	FX FINELY XLN		
DEAD	V VUGGY	WIRELINE TESTED - RT	BS GRAINSTONE		
EVEN	FORMATION TOP	L LITHOGRAPHIC	MX MICRO XLN		
QUESTIONABLE	GAS SHOW				
SPOTTED STAINING	BIT	MIN DEPTH	ANGULAR	M MUDSTONE	
Porosity		Textures		Sorting	
CONNECTION (DOWN)	NORMAL FAULT	R ROUNDED	PS PACKSTONE		
CONNECTION (LEFT)	OIL SHOW	S SUBANG	WS WACKESTONE		
CONNECTION (RIGHT)	OVERTURNED STRATA	SUBRND			
FENESTRAL	REVERSE FAULT				
FRACTURE	SIDEWALL CORE (LEFT)				
INTERCRYSTALLINE	SIDEWALL CORE (RIGHT)	BS BOUNDSTONE	M MODERATE		
INTEROOLITIC	CONNECTION GAS DOWN...	CHALKY	P POOR		
MOLDIC	SLIDE	CRYPTOXLN	W WELL		
	CORE - LOST				
	SURVEY				





MUD WT: 10.00/9.80
VIS: 36/36 IN/OUT

AM Mud Rpt 10/26/2014, Mud W
PV/s: 13, yp: 13, GELS: 4/16/22
CAKE: 1/0, pH: 8.3, Cl: 1,700, C



MD: 6,471'
TVD: 6,441.46'
Inclination: 10.91°
Azimuth: 351.75°

SLTY SH: predy llyg, rr med gy, frm - mod hd, pily - sb pily, occ sb blkly, slty - grty tex, v sl calc
SHY SS: lt gy - lt gy brn, f gr, pred sb ang, occ sb blkly, pily strd, frm - mod hd wi brit clus, calc cmt

SLTY SH: predy llyg, rr med gy, frm - mod hd, pily - sb pily, occ sb blkly, slty - grty tex, v sl calc
SHY SS: lt gy - lt gy brn, f gr, pred sb ang, occ sb blkly, pily strd, frm - mod hd wi brit clus, calc cmt

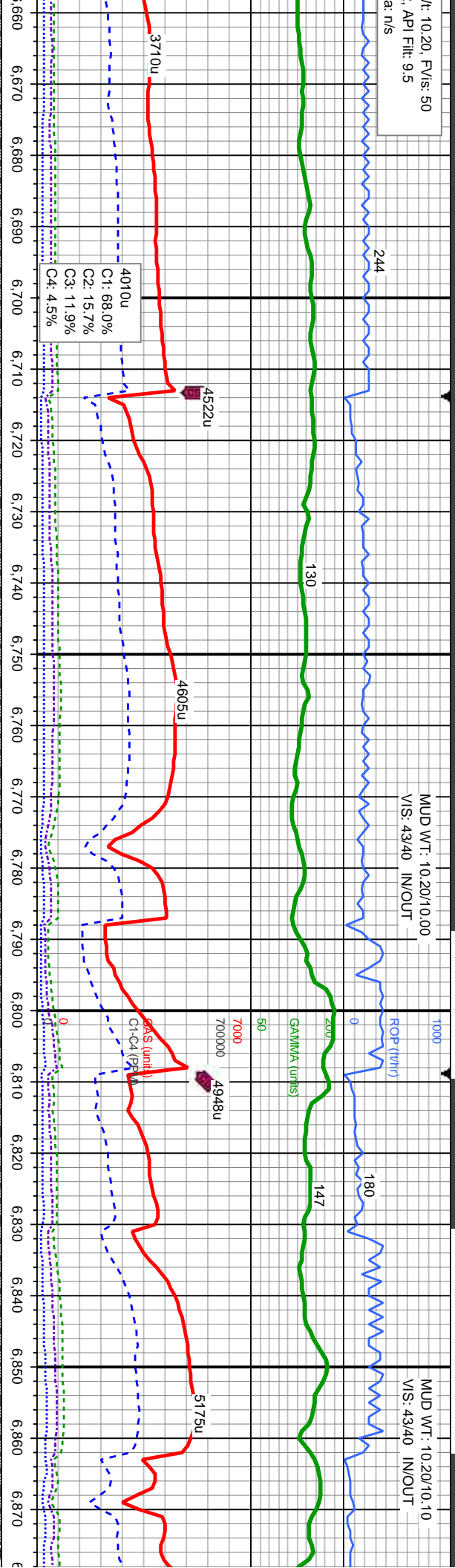
SLTY SH: predy llyg, rr med gy, frm - mod hd, pily - sb pily, occ sb blkly, slty - grty tex, v sl calc

SLTY SH: predy llyg, rr med gy, frm - mod hd, pily - sb pily, occ sb blkly, slty - grty tex, v sl calc

SLTY S
- sb pily



10.20, FV/S: 50
API Fil: 9.5
a: n/s



MUD WT: 10.20/10.00
V/S: 43/40 IN/OUT

MUD WT: 10.20/10.10
V/S: 43/40 IN/OUT

Sharon Springs Mkr @
6,794' MD; 6,731' TVD

SCALE CHANGE

Nio A Marl Top @
6,878' MD; 6,786' TVD

MD: 6,755'
TVD: 6,703.29'
Inclination: 41.48°
Azimuth: 352.18°

MD: 6,803'
TVD: 6,737.5'
Inclination: 47.58°
Azimuth: 355.18°

MD: 6,850'
TVD: 6,768.41'
Inclination: 50.17°
Azimuth: 356.54°

SLTY SH: predy lty, rr med gy, frm - mod hd, pty
- sb pty, occ sb blk, sily - grty tex, v sl calc
abnt bent

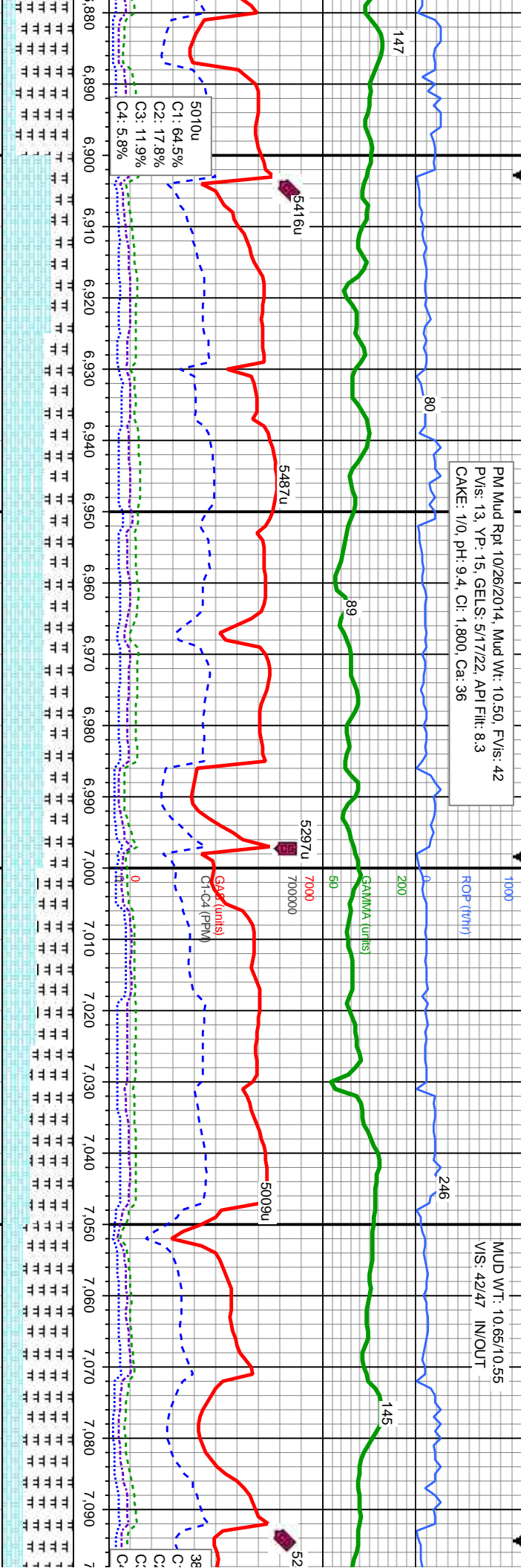
SLTY SH: predy lty, rr med gy, frm - mod hd, pty
- sb pty, occ sb blk, sily - grty tex, v sl calc
abnt bent

SLTY SH: predy lty, rr med gy, frm - mod hd, pty
- sb pty, occ sb blk, sily - grty tex, v sl calc
abnt bent



PM Mud Rpt 10/26/2014, Mud Wt: 10.50, FVis: 42
PVis: 13, YP: 15, GELS: 5/17/22, API Filtr: 8.3
CAKE: 1/0, pH: 9.4, Cl: 1,800, Ca: 36

MUD WT: 10.65/10.55
VIS: 42/47 IN/OUT



Nio B Chalk Top @
6,886 MD: 6,790 TVD

Nio B Marl Top @
6,972 MD: 6,838 TVD

MD: 6,898'
TVD: 6,798.15'
Inclination: 53.24°
Azimuth: 357.25°

MD: 6,945'
TVD: 6,824.69'
Inclination: 57.99°
Azimuth: 357.57°

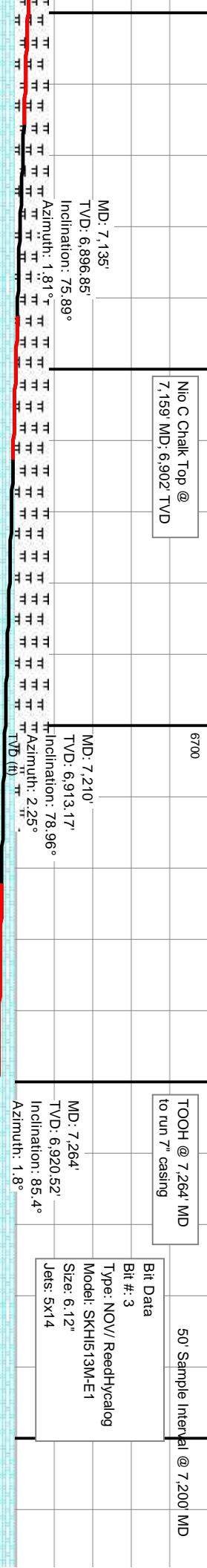
MD: 6,993'
TVD: 6,848.4'
Inclination: 62.8°
Azimuth: 0.12°

MD: 7,040'
TVD: 6,867.92'
Inclination: 68.09°
Azimuth: 1.17°

MD: 7,088'
TVD: 6,884.07'
Inclination: 72.57°
Azimuth: 1.57°

tr dk gy, frm - mod hd, y, silty - grty tex, v sl	CHK: tan - llgy, mot wi wh, lam, v sft - frm, sb ply - sb blkly, rthy tex, v calc, tr bent, tr fos frag MRL: lt - med gy, occ blk, frm - mod hd, sb ply - sb blkly, silty - grty tex, sme bent, tr fos frag	CHK: tan - llgy, mot wi wh, lam, v sft - frm, sb ply - sb blkly, rthy tex, v calc, tr bent, tr fos frag MRL: lt - med gy, occ blk, frm - mod hd, sb ply - sb blkly, silty - grty tex, sme bent, tr fos frag	CHK: tan - llgy, mot wi wh, lam, v sft - frm, sb ply - sb blkly, rthy tex, v calc, tr bent, tr fos frag MRL: lt - med gy, occ blk, frm - mod hd, sb ply - sb blkly, silty - grty tex, tr bent, tr fos frag	CHK: crm - bf, lt - dk brn/gy, mot gy, v frm, brit, sb ply - sb blkly, sb wxy - rthy tex, arg calc mtz, MRLST: med - dk gy, frm, brit, microxin, sb blkly, tr pyr clus, v sl tr scat bent, v calc
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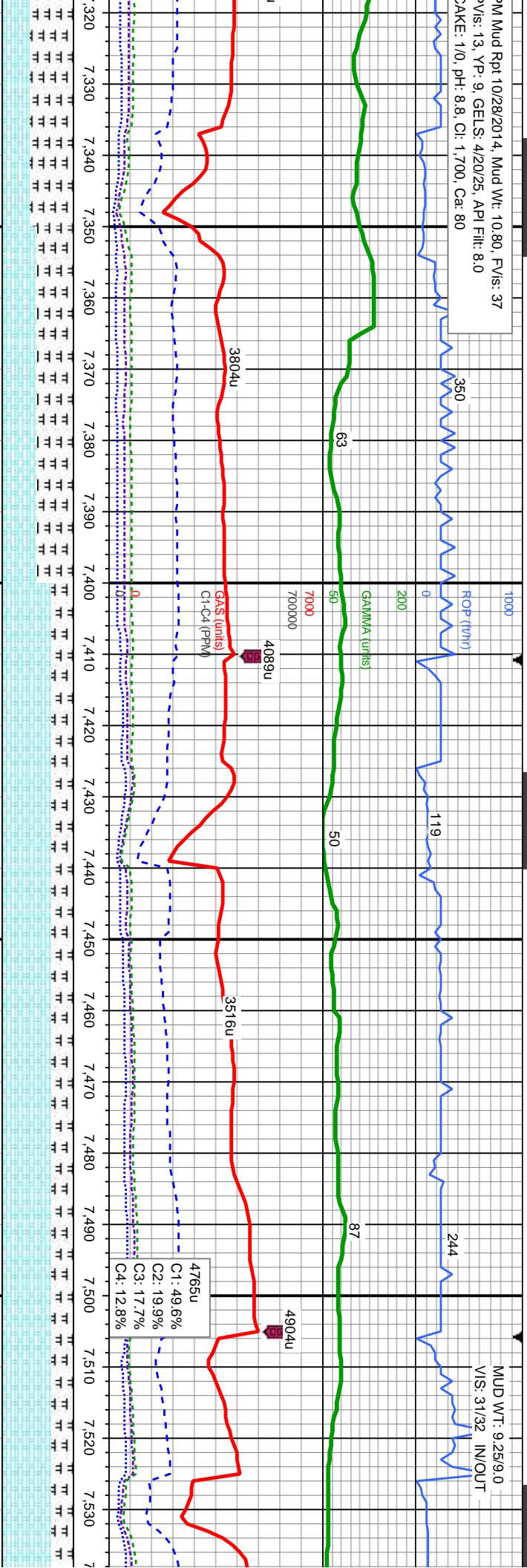




CHK: crm - bf, lt - dk brn/gy, mot gy, v frm, brit, sb ply - sb blkly, sb wxy - rthy tex, arg calc mtx, MRLST: med - dk gy, frm, brit, microxin, sb blkly, tr pyr clus, tr scat bent, v calc	CHK: crm - bf, lt - dk brn/gy, mot gy, v frm, brit, sb ply - sb blkly, sb wxy - rthy tex, arg calc mtx, MRLST: med - dk gy, frm, brit, microxin, sb blkly, tr scat bent, v calc	CHK: crm - bf, lt - dk brn/gy, mot gy, v frm, brit, sb ply - sb blkly, sb wxy - rthy tex, arg calc mtx, MRLST: med - dk gy, frm, brit, microxin, sb blkly, tr scat bent, v calc	7100	30% CHK: crm - bf, lt - dk brn/gy, mot gy, v frm, brit, sb ply - sb blkly, sb wxy - rthy tex, arg calc mtx, tr bent, mod fos frag	70% MRLST: med - dk gy, frm, brit, microxin, sb blkly, v calc, tr bent, mod fos frag	40% CHK: crm - b brit, sb ply - sb bl blkly, v calc, tr bent
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Mud Rpt 10/28/2014, Mud Wt: 10.80, FVIs: 37
Vis: 13, YP: 9, GELS: 4/20/25, API Filtr: 8.0
SAKE: 1/0, pH: 8.8, Cl: 1,700, Ca: 80

MUD WT: 9.25/9.0
VIS: 31/32 IN/OUT

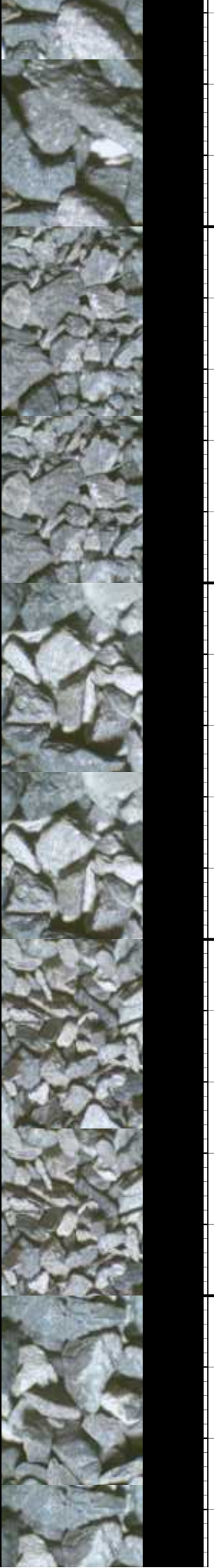


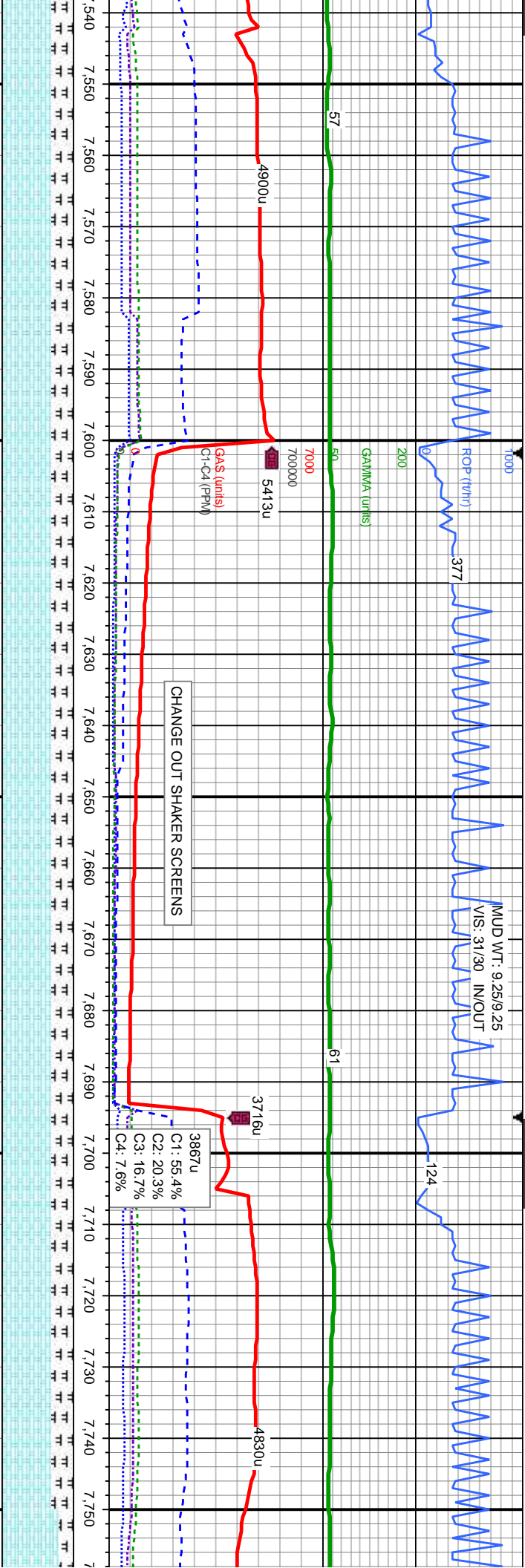
MD: 7.353'
TVD: 6,932.27'
Inclination: 85.68°
Azimuth: 1.57°

MD: 7.448'
TVD: 6,937.72'
Inclination: 87.75°
Azimuth: 0.81°

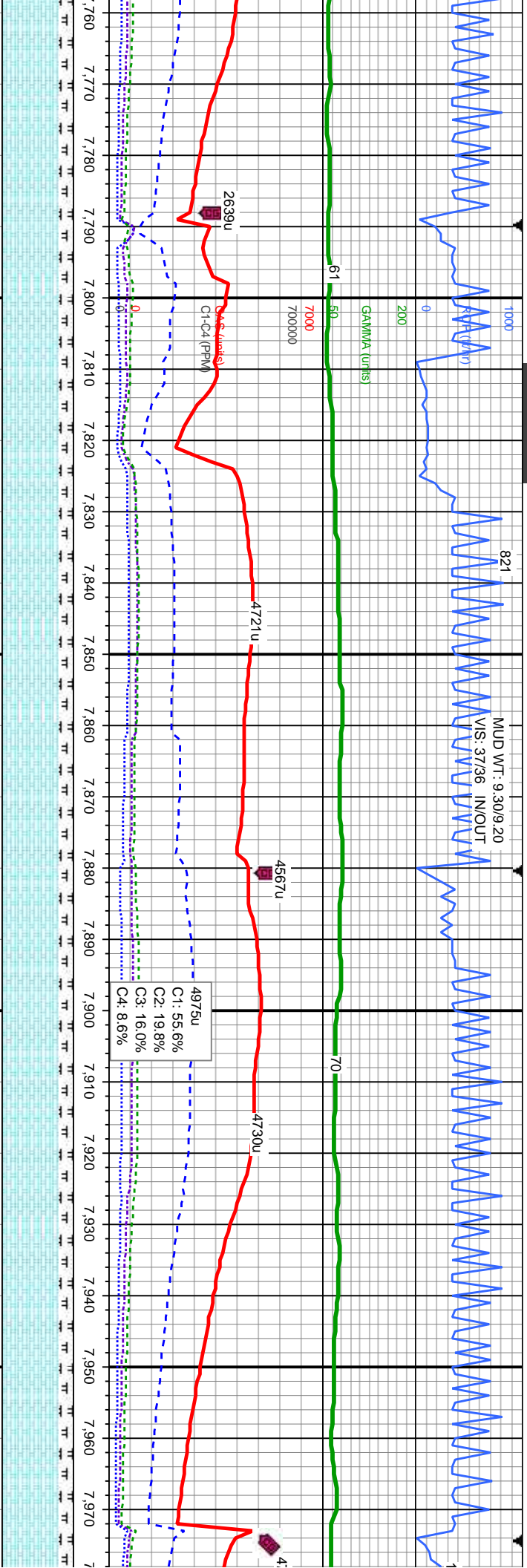
MD
TVD
Incl
Azi

Depth (ft)	7,320	7,330	7,340	7,350	7,360	7,370	7,380	7,390	7,400	7,410	7,420	7,430	7,440	7,450	7,460	7,470	7,480	7,490	7,500	7,510	7,520	7,530
50% CHK: crm - bf, lt - dk brn/gy, mot gy, v frm, brit, sb ply - sb blkly, sb wxy - rthy tex, arg calc	50% CHK: crm - bf, lt - dk brn/gy, mot gy, v frm, brit, sb ply - sb blkly, sb wxy - rthy tex, arg calc	50% CHK: crm - bf, lt - dk brn/gy, mot gy, v frm, brit, sb ply - sb blkly, sb wxy - rthy tex, arg calc	50% CHK: crm - bf, lt - dk brn/gy, mot gy, v frm, brit, sb ply - sb blkly, sb wxy - rthy tex, arg calc	50% CHK: crm - bf, lt - dk brn/gy, mot gy, v frm, brit, sb ply - sb blkly, sb wxy - rthy tex, arg calc	50% CHK: crm - bf, lt - dk brn/gy, mot gy, v frm, brit, sb ply - sb blkly, sb wxy - rthy tex, arg calc	50% CHK: crm - bf, lt - dk brn/gy, mot gy, v frm, brit, sb ply - sb blkly, sb wxy - rthy tex, arg calc	50% CHK: crm - bf, lt - dk brn/gy, mot gy, v frm, brit, sb ply - sb blkly, sb wxy - rthy tex, arg calc	50% CHK: crm - bf, lt - dk brn/gy, mot gy, v frm, brit, sb ply - sb blkly, sb wxy - rthy tex, arg calc	50% CHK: crm - bf, lt - dk brn/gy, mot gy, v frm, brit, sb ply - sb blkly, sb wxy - rthy tex, arg calc	50% CHK: crm - bf, lt - dk brn/gy, mot gy, v frm, brit, sb ply - sb blkly, sb wxy - rthy tex, arg calc	50% CHK: crm - bf, lt - dk brn/gy, mot gy, v frm, brit, sb ply - sb blkly, sb wxy - rthy tex, arg calc	50% CHK: crm - bf, lt - dk brn/gy, mot gy, v frm, brit, sb ply - sb blkly, sb wxy - rthy tex, arg calc	50% CHK: crm - bf, lt - dk brn/gy, mot gy, v frm, brit, sb ply - sb blkly, sb wxy - rthy tex, arg calc	50% CHK: crm - bf, lt - dk brn/gy, mot gy, v frm, brit, sb ply - sb blkly, sb wxy - rthy tex, arg calc	50% CHK: crm - bf, lt - dk brn/gy, mot gy, v frm, brit, sb ply - sb blkly, sb wxy - rthy tex, arg calc	50% CHK: crm - bf, lt - dk brn/gy, mot gy, v frm, brit, sb ply - sb blkly, sb wxy - rthy tex, arg calc	50% CHK: crm - bf, lt - dk brn/gy, mot gy, v frm, brit, sb ply - sb blkly, sb wxy - rthy tex, arg calc	50% CHK: crm - bf, lt - dk brn/gy, mot gy, v frm, brit, sb ply - sb blkly, sb wxy - rthy tex, arg calc	50% CHK: crm - bf, lt - dk brn/gy, mot gy, v frm, brit, sb ply - sb blkly, sb wxy - rthy tex, arg calc	50% CHK: crm - bf, lt - dk brn/gy, mot gy, v frm, brit, sb ply - sb blkly, sb wxy - rthy tex, arg calc	50% CHK: crm - bf, lt - dk brn/gy, mot gy, v frm, brit, sb ply - sb blkly, sb wxy - rthy tex, arg calc	50% CHK: crm - bf, lt - dk brn/gy, mot gy, v frm, brit, sb ply - sb blkly, sb wxy - rthy tex, arg calc
50% MRLST: med - dk gy, frm, brit, microxln, sb blkly, v calc, tr bent, mod fos frag	50% MRLST: med - dk gy, frm, brit, microxln, sb blkly, v calc, tr bent, mod fos frag	50% MRLST: med - dk gy, frm, brit, microxln, sb blkly, v calc, tr bent, mod fos frag	50% MRLST: med - dk gy, frm, brit, microxln, sb blkly, v calc, tr bent, mod fos frag	50% MRLST: med - dk gy, frm, brit, microxln, sb blkly, v calc, tr bent, mod fos frag	50% MRLST: med - dk gy, frm, brit, microxln, sb blkly, v calc, tr bent, mod fos frag	50% MRLST: med - dk gy, frm, brit, microxln, sb blkly, v calc, tr bent, mod fos frag	50% MRLST: med - dk gy, frm, brit, microxln, sb blkly, v calc, tr bent, mod fos frag	50% MRLST: med - dk gy, frm, brit, microxln, sb blkly, v calc, tr bent, mod fos frag	50% MRLST: med - dk gy, frm, brit, microxln, sb blkly, v calc, tr bent, mod fos frag	50% MRLST: med - dk gy, frm, brit, microxln, sb blkly, v calc, tr bent, mod fos frag	50% MRLST: med - dk gy, frm, brit, microxln, sb blkly, v calc, tr bent, mod fos frag	50% MRLST: med - dk gy, frm, brit, microxln, sb blkly, v calc, tr bent, mod fos frag	50% MRLST: med - dk gy, frm, brit, microxln, sb blkly, v calc, tr bent, mod fos frag	50% MRLST: med - dk gy, frm, brit, microxln, sb blkly, v calc, tr bent, mod fos frag	50% MRLST: med - dk gy, frm, brit, microxln, sb blkly, v calc, tr bent, mod fos frag	50% MRLST: med - dk gy, frm, brit, microxln, sb blkly, v calc, tr bent, mod fos frag	50% MRLST: med - dk gy, frm, brit, microxln, sb blkly, v calc, tr bent, mod fos frag	50% MRLST: med - dk gy, frm, brit, microxln, sb blkly, v calc, tr bent, mod fos frag	50% MRLST: med - dk gy, frm, brit, microxln, sb blkly, v calc, tr bent, mod fos frag	50% MRLST: med - dk gy, frm, brit, microxln, sb blkly, v calc, tr bent, mod fos frag	50% MRLST: med - dk gy, frm, brit, microxln, sb blkly, v calc, tr bent, mod fos frag	50% MRLST: med - dk gy, frm, brit, microxln, sb blkly, v calc, tr bent, mod fos frag



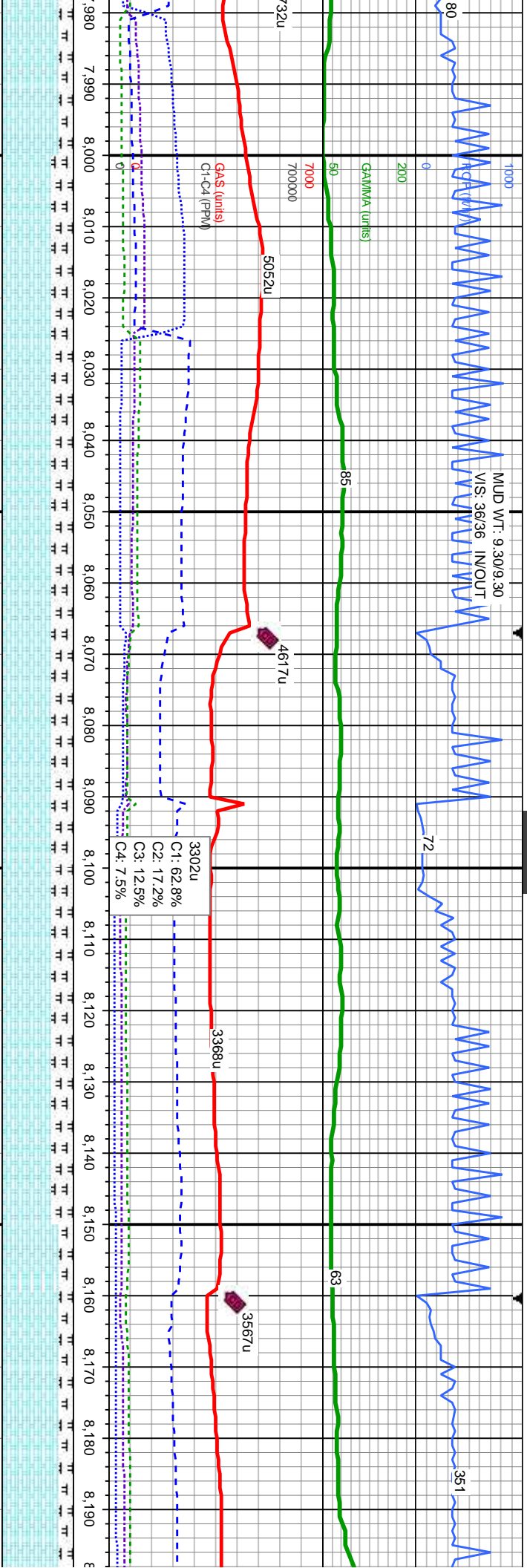


7,543'	MD: 7.638'	MD: 7.731'
6,939.91'	TVD: 6,940.91'	TVD: 6,942.04'
Inclination: 89.6°	Inclination: 89.2°	Inclination: 89.41°
imuth: 0.46°	Azimuth: 359.34°	Azimuth: 359.39°
7,540	7,550	7,560
7,570	7,580	7,590
7,600	7,610	7,620
7,630	7,640	7,650
7,660	7,670	7,680
7,690	7,700	7,710
7,720	7,730	7,740
7,750		
7,760		
7,770		
7,780		
7,790		
7,800		
7,810		
7,820		
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7,900		
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9,350		
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12,910		
12,9		



6700	MD: 7.825' TVD: 6,941.96' Inclination: 90.68° Azimuth: 359.72°	MD: 7.919' TVD: 6,940.42' Inclination: 91.2° Azimuth: 359.59°
CHK: crm - bf, lt - dk brn/gy, mot gy, v frm, pily - sb blkly, sb wxy - rthy tex, arg calc bent, mod fos frag	CHK: crm - bf, lt - dk brn/gy, mot gy, v frm, brit, sb pily - sb blkly, sb wxy - rthy tex, arg calc mtz, tr bent	CHK: crm - bf, lt - dk brn/gy, mot gy, v frm, brit, sb pily - sb blkly, sb wxy - rthy tex, arg calc mtz, tr bent, mod fos frag
RLST: med - dk gy, frm, brit, microxln, sb calc, tr bent, tr wh inoc foss	RLST: med - dk gy, frm, brit, microxln, blkly, v calc, tr bent, tr wh inoc foss	RLST: med - dk gy, frm, brit, microxln, blkly, v calc, tr bent, tr wh inoc foss





6700	MD: 8.011' TVD: 6.938.56' Inclination: 91.11° Azimuth: 358.49°	MD: 8.103' TVD: 6.937.18' Inclination: 90.62° Azimuth: 359.34°	MD: 8.196' TVD: 6.935. Inclination: Azimuth: 35
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7000	70% CHK: crm - bf, lt - dk brn/gy, mot gy, v frm, brit, sb ply - sb blk, sb wxy - rthy tex, arg calc 30% MRLST: med - dk gy, frm, brit, microxn, sb blk, v calc, tr bent, mod fos frag	70% CHK: crm - bf, lt - dk brn/gy, mot gy, v brit, sb ply - sb blk, sb wxy - rthy tex, arg calc 30% MRLST: med - dk gy, frm, brit, microxn, sb blk, v calc, tr bent, mod fos frag	80% CHK: crm - bf, lt - dk brn/gy, mot gy, v frm, brit, sb ply - sb blk, sb wxy - rthy tex, arg calc 20% MRLST: med - dk gy, frm, brit, microxn, sb blk, v calc, tr bent
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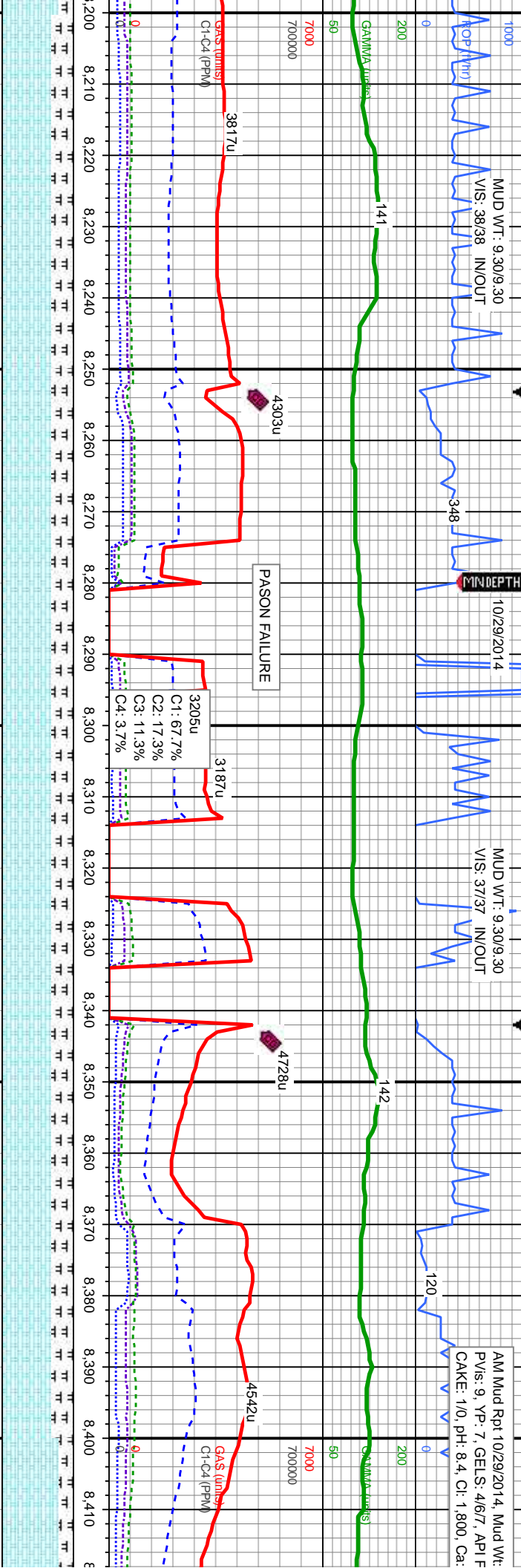


MUD WT: 9.30/9.30
VIS: 38/38 IN/OUT

10/29/2014

MUD WT: 9.30/9.30
VIS: 37/37 IN/OUT

AM Mud Rpt 10/29/2014, Mud Wt:
PV/s: 9, YP: 7, GELS: 4/6/7, API F
CAKE: 1/0, pH: 8.4, Cl: 1.800, Ca:

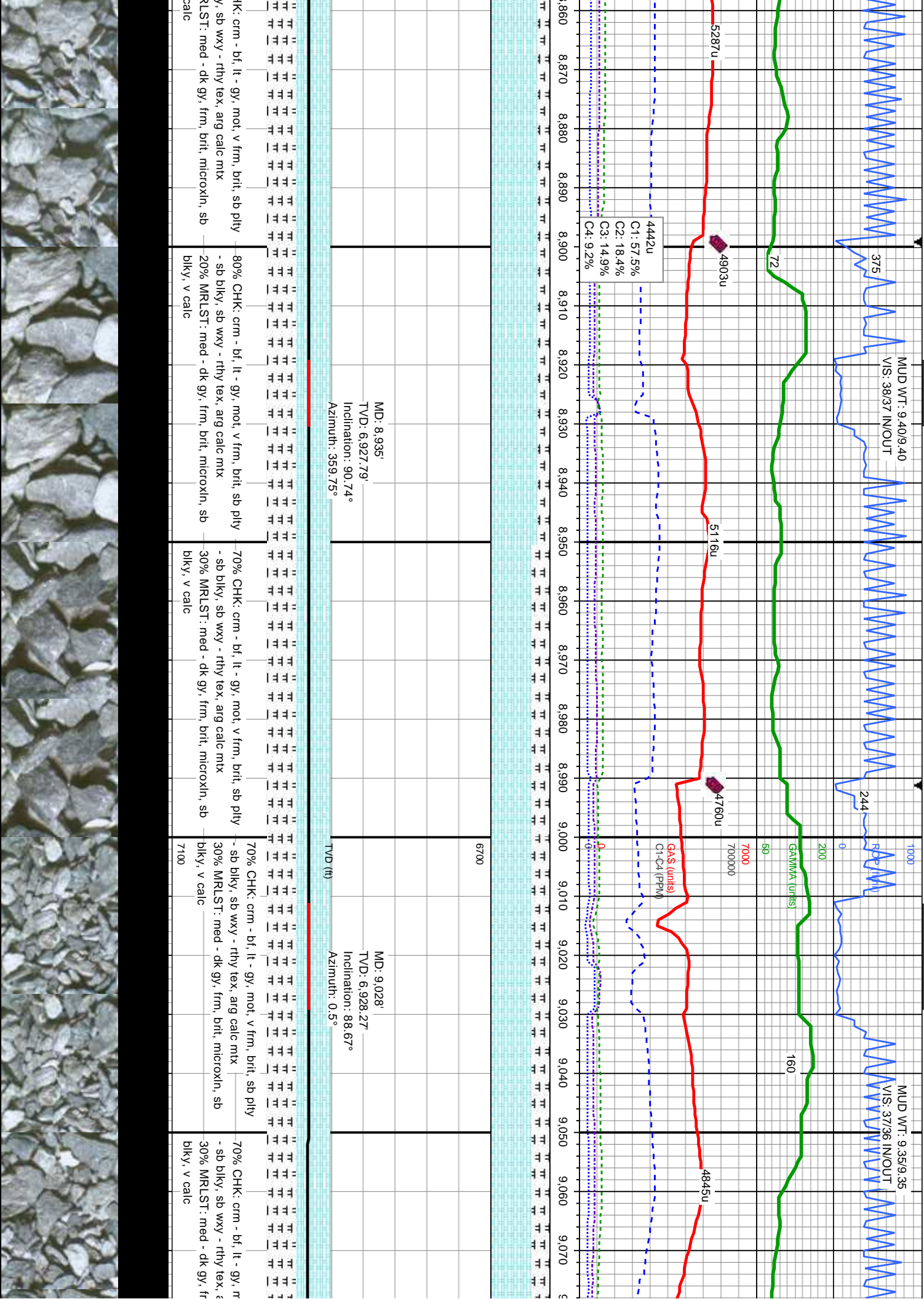


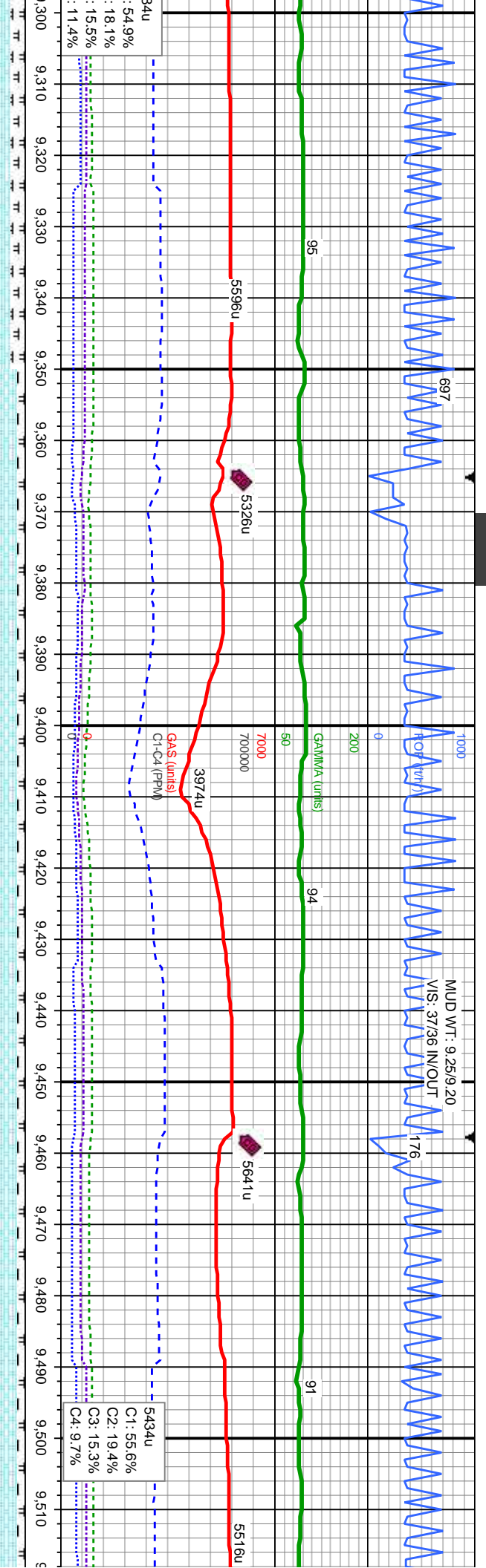
MD: 8,289'
TVD: 6,933.82'
Inclination: 91.42°
Azimuth: 359.38°

MD: 8,381'
TVD: 6,932.75'
Inclination: 89.91°
Azimuth: 359.35°

7000	70% CHK: crm - bf, lt - dk brn/gy, mot gy, v frm, brit, sb pily - sb blkly, sb wxy - rthy tex, arg calc mtx, tr bent, mod fos frag	70% CHK: crm - bf, lt - dk brn/gy, mot gy, v frm, brit, sb pily - sb blkly, sb wxy - rthy tex, arg calc mtx	70% CHK: crm - bf, lt - gy, mot, v frm, brit, sb pily - sb blkly, sb wxy - rthy tex, arg calc mtx	70% CHK: crm - bf, lt - gy, mot, v frm, brit, sb pily - sb blkly, sb wxy - rthy tex, arg calc mtx	80% CHK: crm - bf - sb blkly, sb wxy - 20% MRLST: med blkly, v calc, v tr be
7000	30% MRLST: med - dk gy, frm, brit, microxln, sb blkly, v calc	30% MRLST: med - dk gy, frm, brit, microxln, sb blkly, v calc	30% MRLST: med - dk gy, frm, brit, microxln, sb blkly, v calc	30% MRLST: med - dk gy, frm, brit, microxln, sb blkly, v calc	30% MRLST: med - dk gy, frm, brit, microxln, sb blkly, v calc
7100					

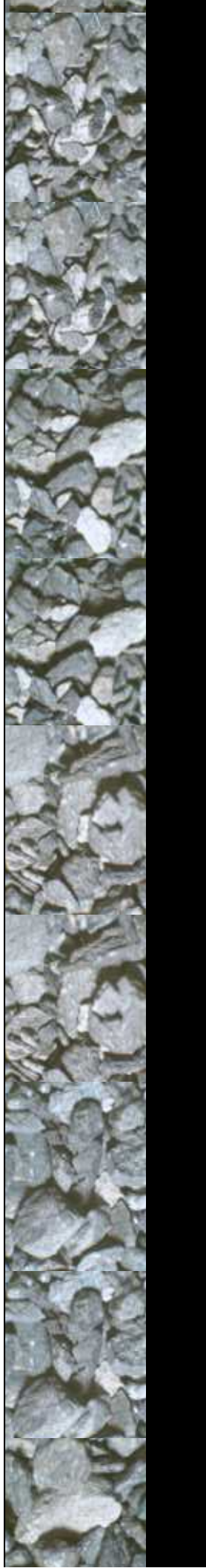


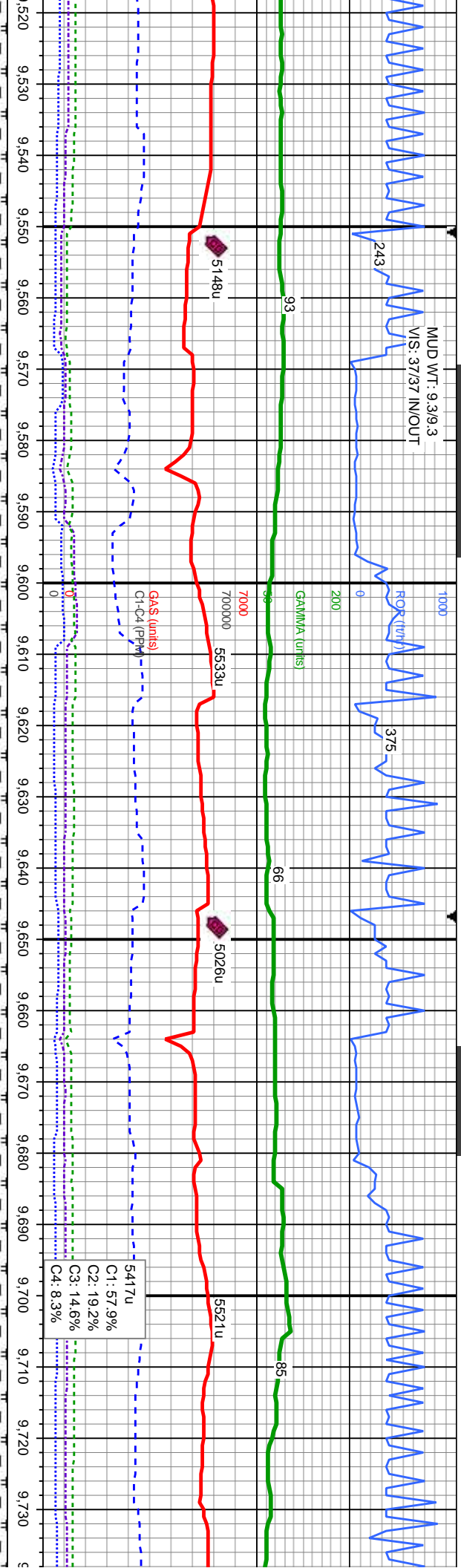




MD: 9,307' TVD: 6,934.67' Inclination: 89.69° Azimuth: 0.36°	MD: 9,399' TVD: 6,934.74' Inclination: 90.22° Azimuth: 359.95°	MD: 9,491' TVD: 6,934.59' Inclination: 89.97° Azimuth: 358.16°
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80% CHK: crm - bf, lt - gy, mot, v frm, brit, sb pily - sb blkly, sb wxy - rthy tex, arg calc mtx 20% MRLST: med - dk gy, frm, brit, microxln, sb blkly, v calc	90% CHK: crm - bf, lt - gy, mot, v frm, brit, sb pily - sb blkly, sb wxy - rthy tex, arg calc mtx 10% MRLST: med - dk gy, frm, brit, microxln, sb blkly, v calc	90% CHK: crm - bf, lt - gy, mot, v frm, brit, sb pily - sb blkly, sb wxy - rthy tex, arg calc mtx 10% MRLST: med - dk gy, frm, brit, microxln, sb blkly, v calc	90% CHK: crm - bf, lt - gy, mot, v frm, brit, sb pily - sb blkly, sb wxy - rthy tex, arg calc mtx 10% MRLST: med - dk gy, frm, brit, microxln, sb blkly, v calc
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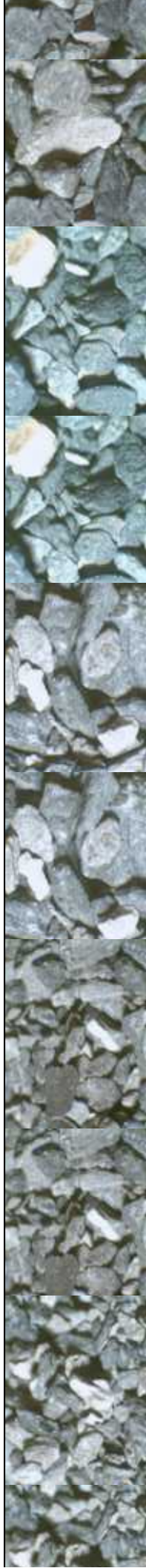


MD: 9.586'
TVD: 6.934.68'
Inclination: 89.91°
Azimuth: 357.64°

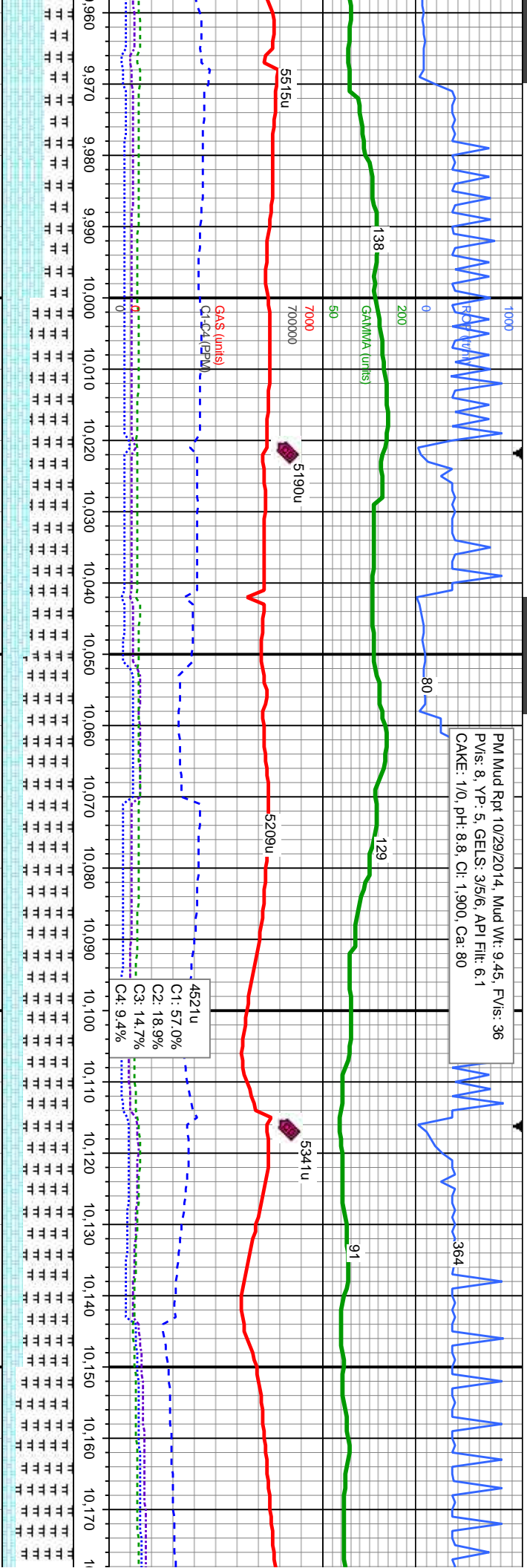
TVD (ft)

MD: 9.681'
TVD: 6.934.75'
Inclination: 90°
Azimuth: 359.74°

It - gy, mot, v frm, brit, sb plty	90% CHK: crm - bf, lt - gy, mot, v frm, brit, sb plty	90% CHK: crm - bf, lt - gy, mot, v frm, brit, sb plty	90% CHK: crm - bf, lt - gy, mot, v frm, brit, sb plty
rthy tex, arg calc mtx	- sb blk, sb wxy - rthy tex, arg calc mtx	- sb blk, sb wxy - rthy tex, arg calc mtx	- sb blk, sb wxy - rthy tex, arg calc mtx
- dk gy, frm, brit, microxn, sb	10% MRLST: med - dk gy, frm, brit, microxn, sb	10% MRLST: med - dk gy, frm, brit, microxn, sb	10% MRLST: med - dk gy, frm, brit, microxn, sb
	blk, v calc	blk, v calc	blk, v calc



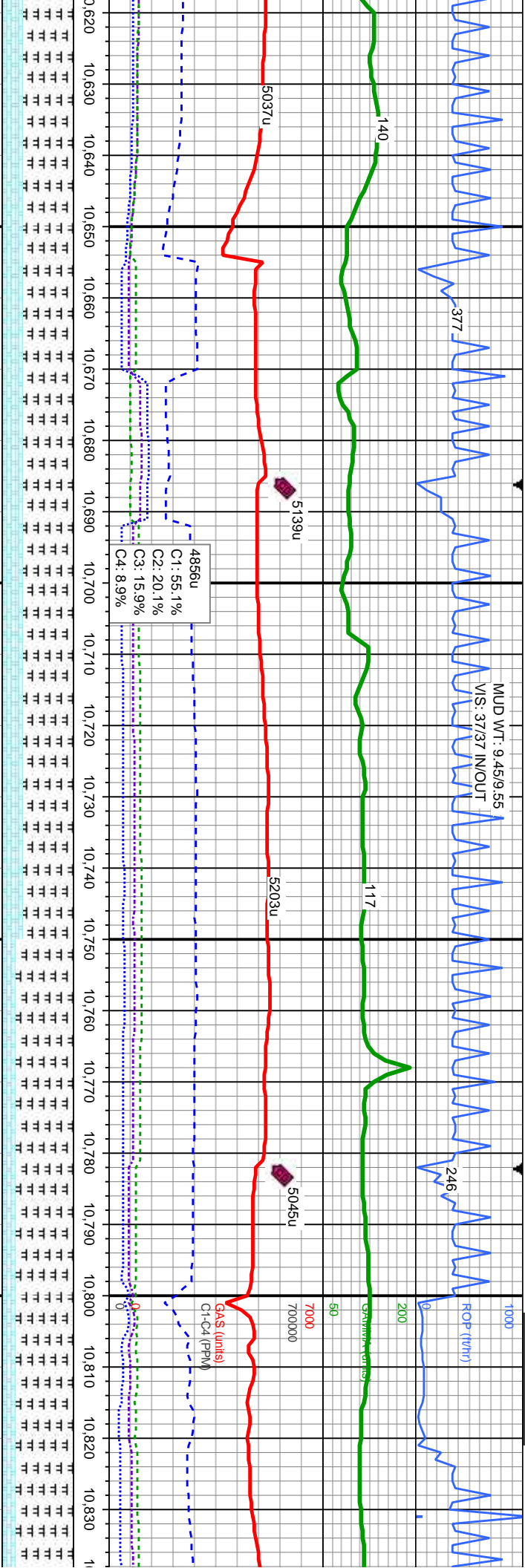
PM Mud Rpt 10/29/2014, Mud Wt: 9.45, FV/s: 36
PV/s: 8, YP: 5, GE/S: 35/6, API Filtr: 6.1
CAKE: 1/0, pH: 8.8, Cl: 1,900, Ca: 80



MD: 9.966'		MD: 10.060'		MD: 10.155'	
TVD: 6,929.01'		TVD: 6,929.99'		TVD: 6,932.47'	
Inclination: 90.65°		Inclination: 88.15°		Inclination: 88.86°	
Azimuth: 0.85°		Azimuth: 2.13°		Azimuth: 1.48°	
TVD (ft)					
6700					

CHK: crm - bf, lt - gy, mot, v frm, brit, sb ply	40% CHK: crm - bf, lt - gy, mot, v frm, brit, sb ply	30% CHK: crm - bf, lt - gy, mot, v frm, brit, sb ply	30% CHK: crm - bf, lt - gy, mot, v frm, brit, sb ply	20% CHK: crm - bf, lt - gy, mot, v frm, brit, sb ply
- sb blkly, sb wxy - rthy tex, arg calc mtz	- sb blkly, sb wxy - rthy tex, arg calc mtz	- sb blkly, sb wxy - rthy tex, arg calc mtz	- sb blkly, sb wxy - rthy tex, arg calc mtz	- sb blkly, sb wxy - rthy tex, arg calc mtz
RLST: med - dk gy, frm, brit, microxln, sb	60% MRLST: med - dk gy, frm, brit, microxln, sb	70% MRLST: med - dk gy, frm, brit, microxln, sb	70% MRLST: med - dk gy, frm, brit, microxln, sb	80% MRLST: med - dk gy, frm, brit, microxln, sb
calc	blkly, v calc, tr bent	blkly, v calc	blkly, v calc	blkly, v calc, tr bent
7100				





MD: 10,629'
TVD: 6,937.48'
Inclination: 89.14°
Azimuth: 356.74°

MD: 10,724'
TVD: 6,940.08'
Inclination: 87.72°
Azimuth: 356.25°

MD: 10,819'
TVD: 6,942.94'
Inclination: 88.83°
Azimuth: 357.35°

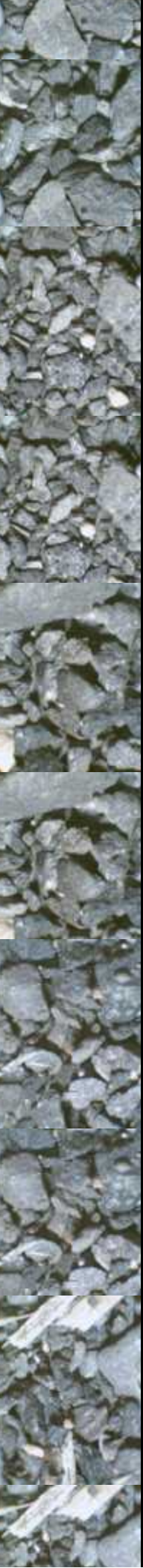
n - bf, lt - gy, mot, v frm, brit, sb
sb wxy - rthy tex, arg calc mtx
med - dk gy, frm, brit, microxln,
c

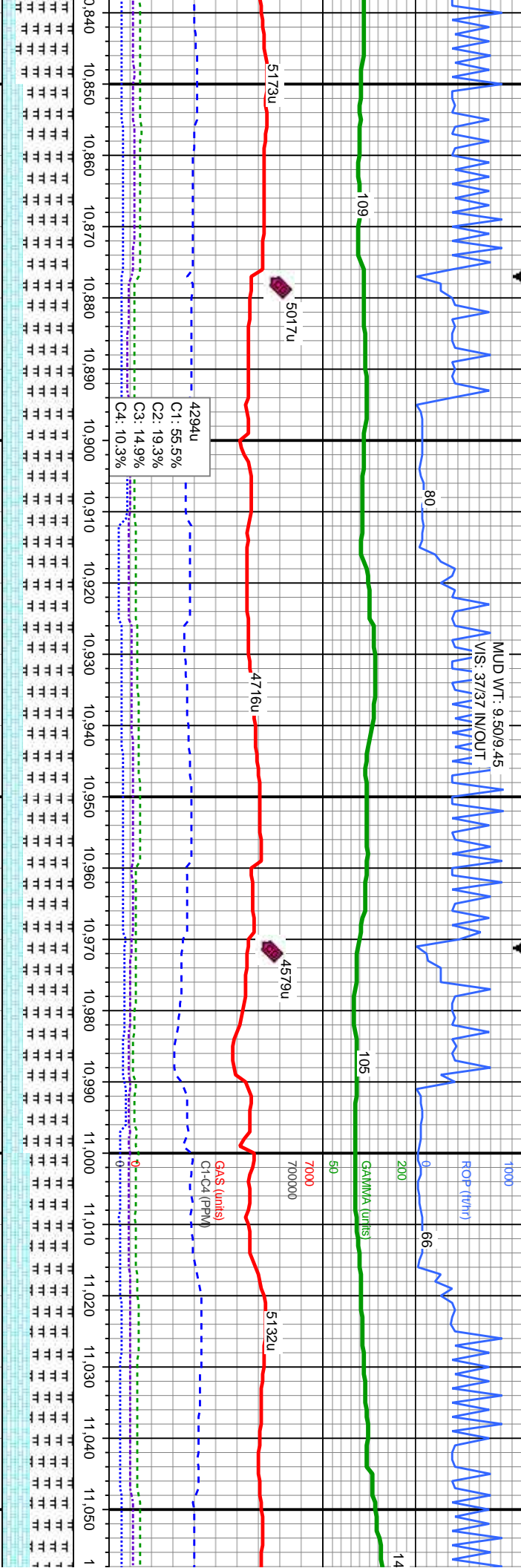
30% CHK: crm - bf, lt - gy, mot, v frm, brit, sb ply
- sb blk, sb wxy - rthy tex, arg calc mtx
70% MRLST: med - dk gy, frm, brit, microxln, sb
blk, v calc

30% CHK: crm - bf, lt - gy, mot, v frm, brit, sb ply -
sb blk, sb wxy - rthy tex, arg calc mtx
70% MRLST: med - dk gy, frm, brit, microxln, sb
blk, v calc

20% CHK: crm - bf, lt - gy, mot, v frm, brit,
sb ply - sb blk, sb wxy - rthy tex, arg calc
mtx
80% MRLST: med - dk gy, sme dk brn - blk,
frm, brit, microxln, sb blk, v calc

20% CHK: crm - bf, lt - gy, mot, v frm,
sb ply - sb blk, sb wxy - rthy tex,
mtx
80% MRLST: med - dk gy, sme dk k
frm, brit, microxln, sb blk, v calc





MD: 10,914'
TVD: 6,945.34'
Inclination: 88.27°
Azimuth: 356°

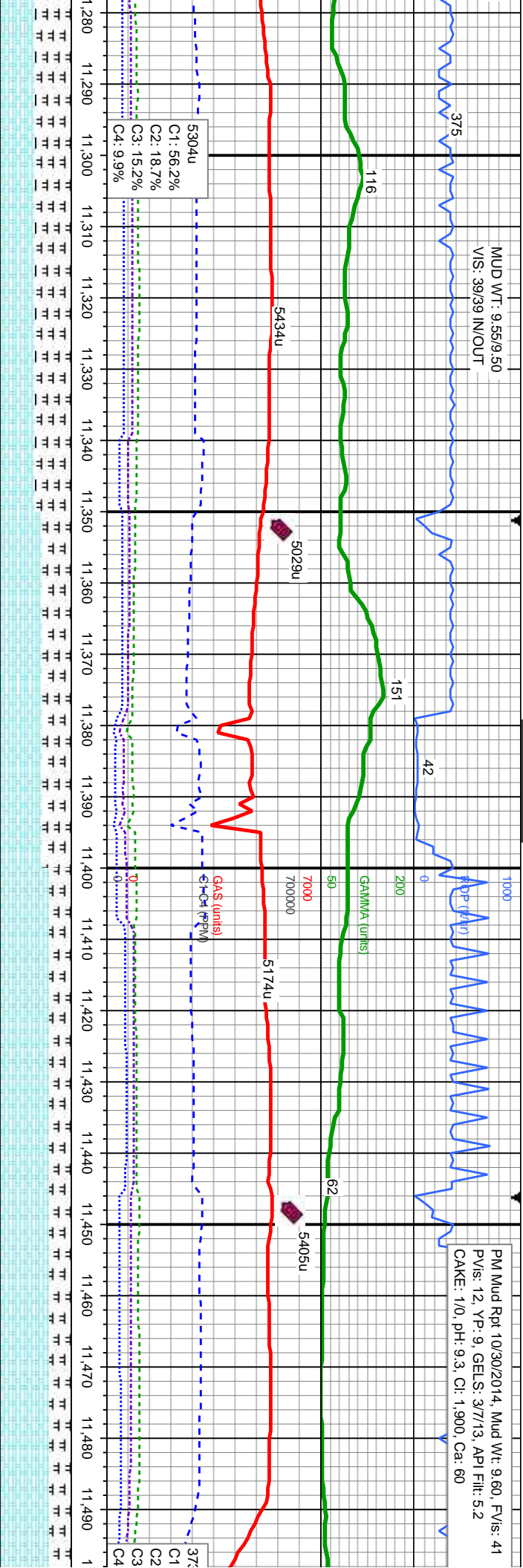
MD: 11,009'
TVD: 6,946.47'
Inclination: 90.37°
Azimuth: 358.14°

m, brit, arg calc om - blk,	30% CHK: crm - bf, lt - gy, mot, v frm, brit, sb ply - sb blk, sb wxy - rthy tex, arg calc mix 70% MRLST: med - dk gy, frm, brit, microxin, sb blk, v calc	30% CHK: crm - bf, lt - gy, mot, v frm, brit, sb ply - sb blk, sb wxy - rthy tex, arg calc mix 70% MRLST: med - dk gy, frm, brit, microxin, sb blk, v calc, tr bent	40% CHK: crm - bf, lt - gy, mot, v frm, brit, sb ply - sb blk, sb wxy - rthy tex, arg calc mix 60% MRLST: med - dk gy, frm, brit, microxin, sb blk, v calc, tr calcite, mod bent	40% CHK: crm - bf, lt - gy, mot, v frm, brit, sb ply - sb blk 60% MRLST: med - dk gy, frm, brit, microxin, blk, v
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MUD WT: 9.55/9.50
VIS: 39/39 IN/OUT

PM Mud Rpt 10/30/2014, Mud Wt: 9.60, FVis: 41
PVis: 12, YP: 9, GELS: 37/13, API Filtr: 5.2
CAKE: 1/0, pH: 9.3, CI: 1.900, Ca: 60



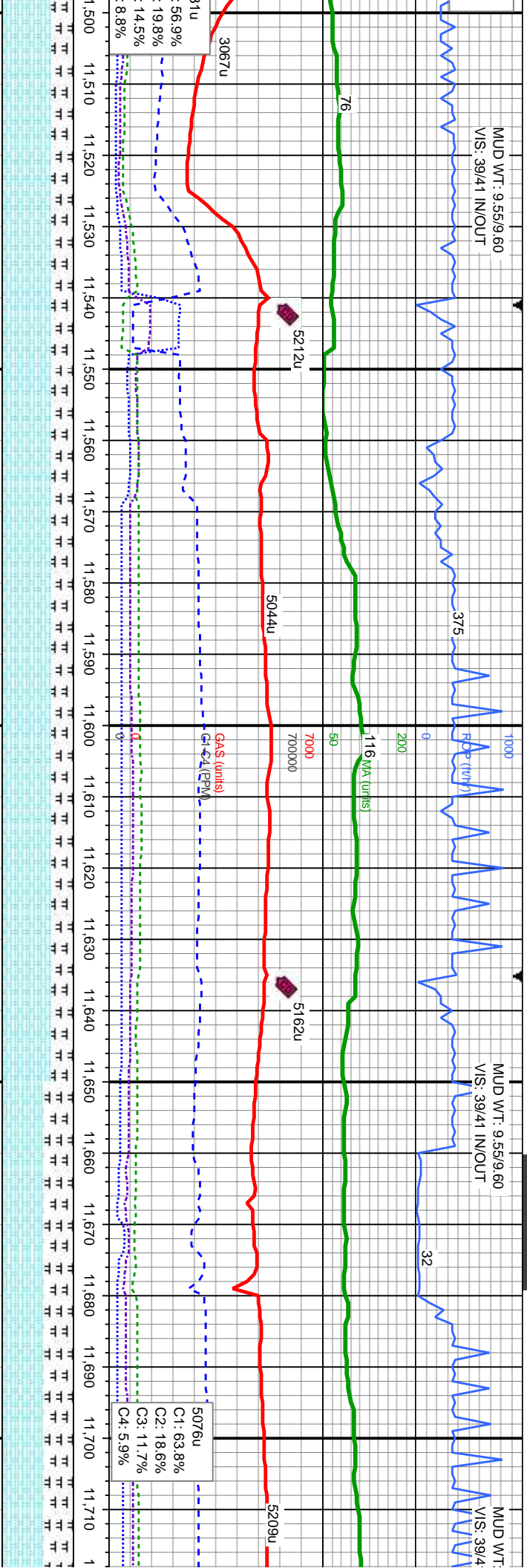
MD: 11,293'
TVD: 6,942.73'
Inclination: 91.39°
Azimuth: 358.63°

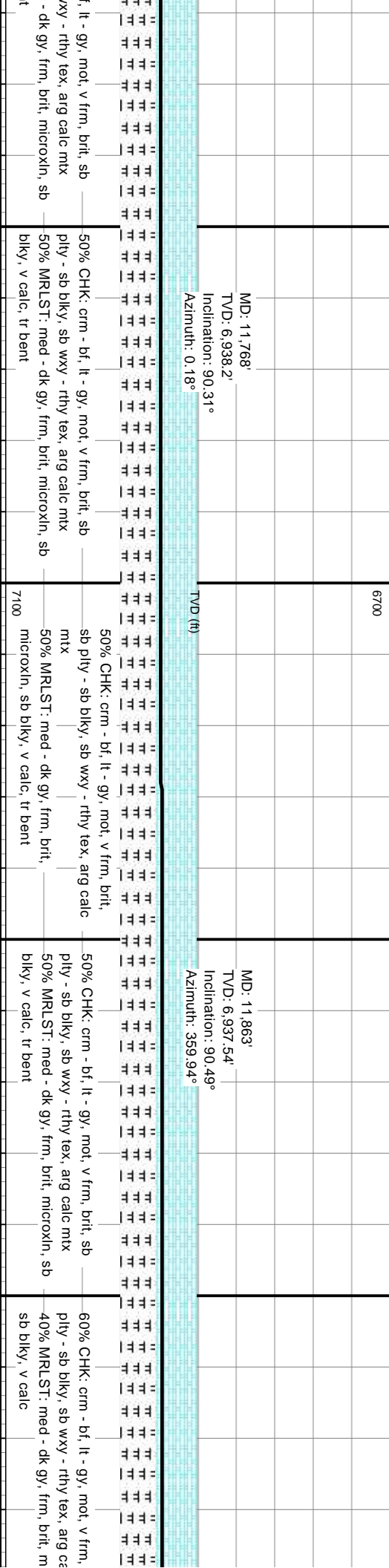
MD: 11,388'
TVD: 6,941.19'
Inclination: 90.46°
Azimuth: 359.42°

MD: 11,483'
TVD: 6,940.51'
Inclination: 90.37°
Azimuth: 359°

50% CHK: crm - bf, lt - gy, mot, v frm, brit, sb ply - sb blkly, sb wxy - rthy tex, arg calc mtx 50% MRLST: med - dk gy, frm, brit, microxln, sb blkly, v calc, tr bent	60% CHK: crm - bf, lt - gy, mot, v frm, brit, sb ply - sb blkly, sb wxy - rthy tex, arg calc mtx 40% MRLST: med - dk gy, frm, brit, microxln, sb blkly, v calc, tr calcite	70% CHK: crm - bf, lt - gy, mot, v frm, brit, sb ply - sb blkly, sb wxy - rthy tex, arg calc mtx 30% MRLST: med - dk gy, frm, brit, microxln, sb sb blkly, v calc, tr calcite	70% CHK: crm - bf, lt - gy, mot, v frm, brit, sb ply - sb blkly, sb wxy - rthy tex, arg calc mtx 30% MRLST: med - dk gy, frm, brit, microxln, sb blkly, v calc, tr bent, v sl tr calcite
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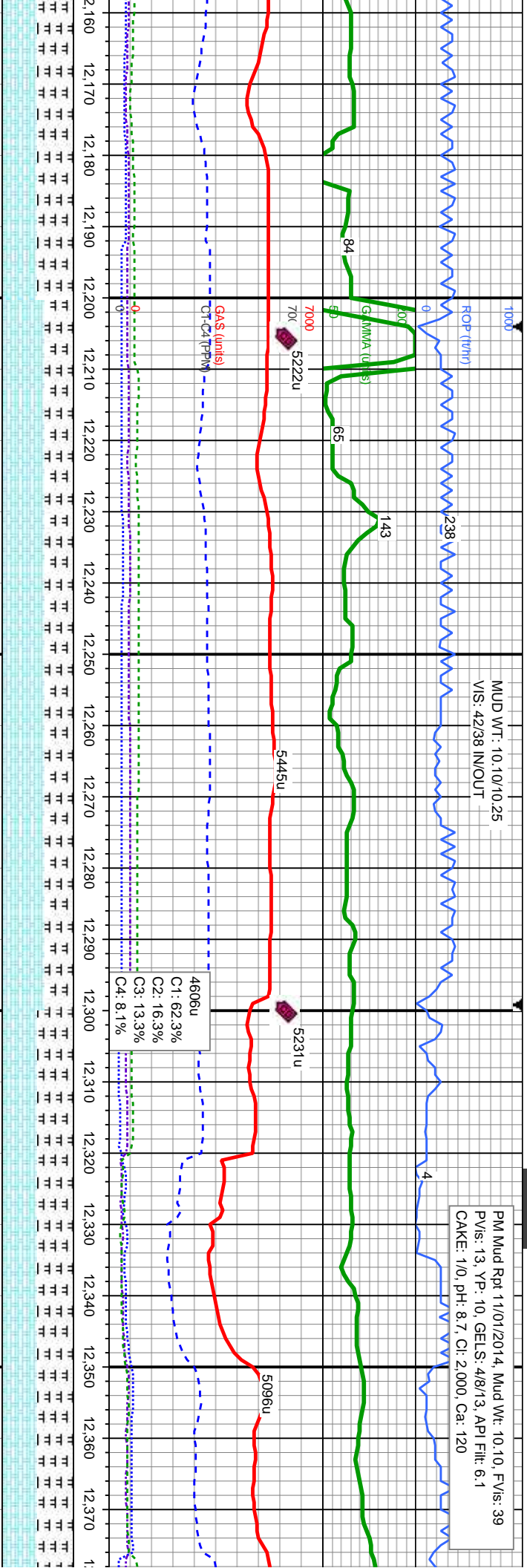






MUD WT: 10.10/10.25
VIS: 42/38 IN/OUT

PM Mud Rpt 11/01/2014, Mud Wt: 10.10, FVIs: 39
PVIs: 13, YP: 10, GELS: 4/8/13, API Filtr: 6.1
CAKE: 1/0, pH: 8.7, Cl: 2.000, Ca: 120

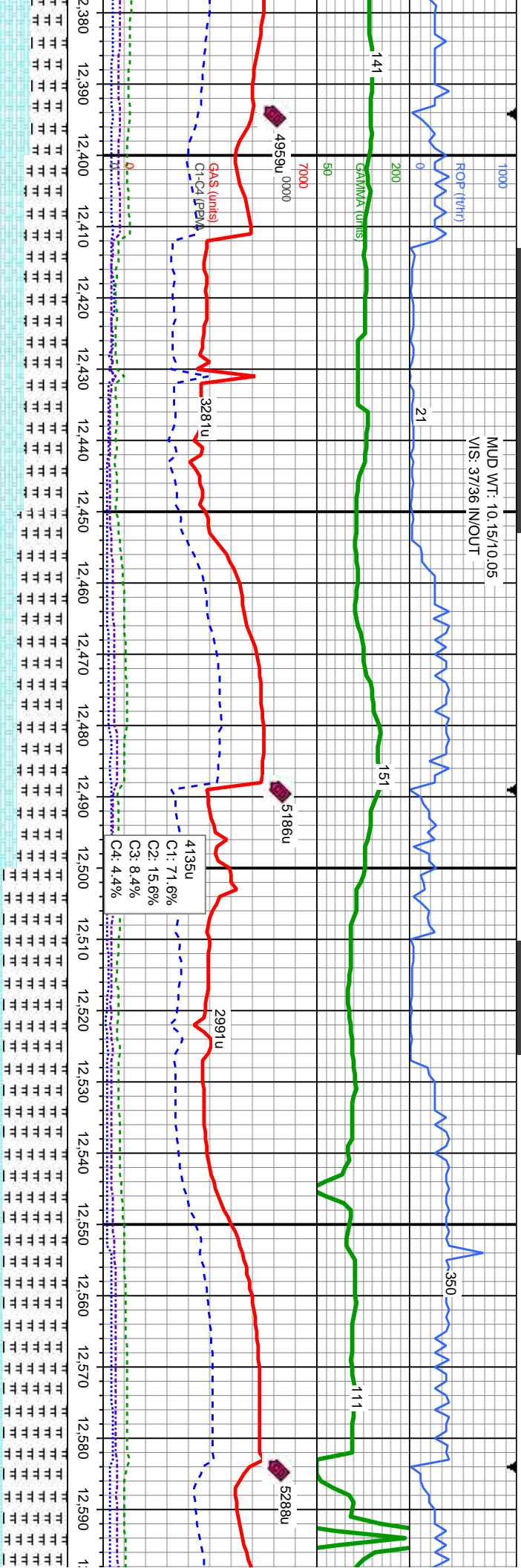


MD: 12.243'
TVD: 6,942.15'
Inclination: 87.44°
Azimuth: 1.17°

MD: 12.337'
TVD: 6,946.94'
Inclination: 86.73°
Azimuth: 0.31°

6700	60% CHK: crm - bf, lt - gy, mot, v frm, brit, sb sb ply - sb blkly, sb wxy - rthy tex, arg 40% MRLST: med - dk gy, frm, brit, microxn, sb blkly, v calc, abnt bent	60% CHK: crm - bf, lt - gy, mot, v frm, brit, sb ply - sb blkly, sb wxy - rthy tex, arg calc mtz 40% MRLST: med - dk gy, frm, brit, sb blkly, v calc, abnt bent	50% CHK: crm - bf, lt - gy, mot, v frm, brit, sb blkly, sb wxy - rthy tex, arg calc mtz 50% MRLST: med - dk gy, frm, brit, microxn, sb blkly, v calc, sme bent	50% CHK: crm - bf, lt - gy, r - sb blkly, sb wxy - rthy tex, & 50% MRLST: med - dk gy, fr blkly, v calc, sme bent
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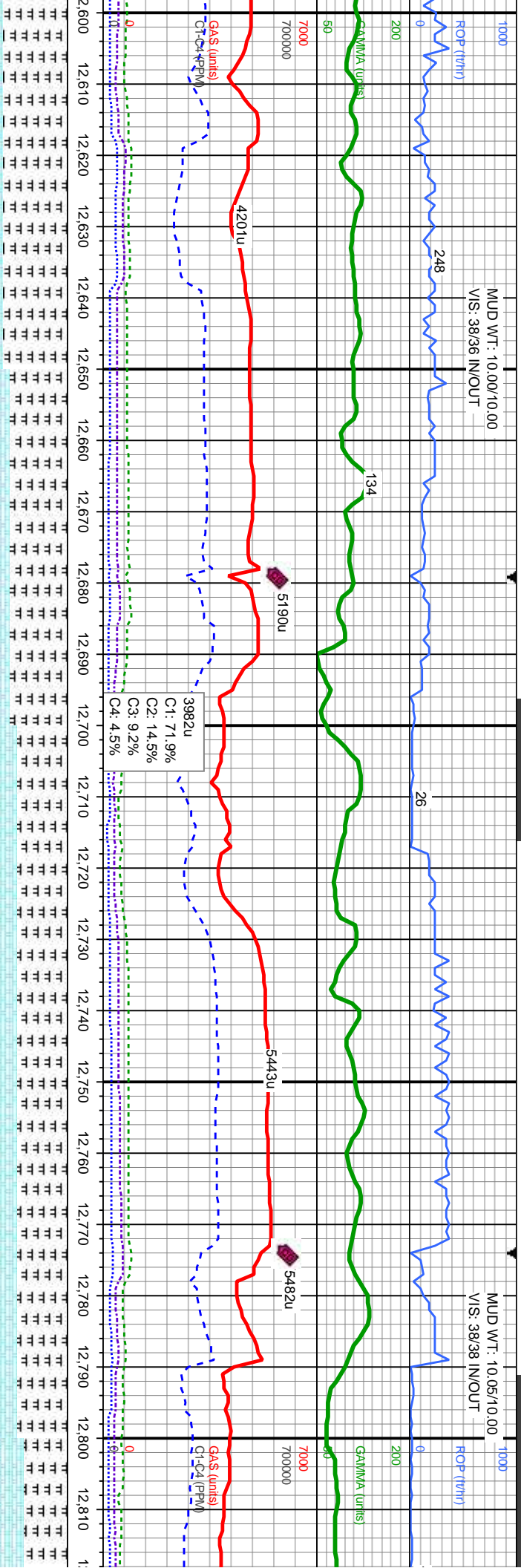
MUD WT: 10.15/10.05
VIS: 37/36 IN/OUT

MD: 12,432'
TVD: 6,951.72'
Inclination: 87.5°
Azimuth: 359.48°

MD: 12,527'
TVD: 6,954.19'
Inclination: 89.51°
Azimuth: 359.74°

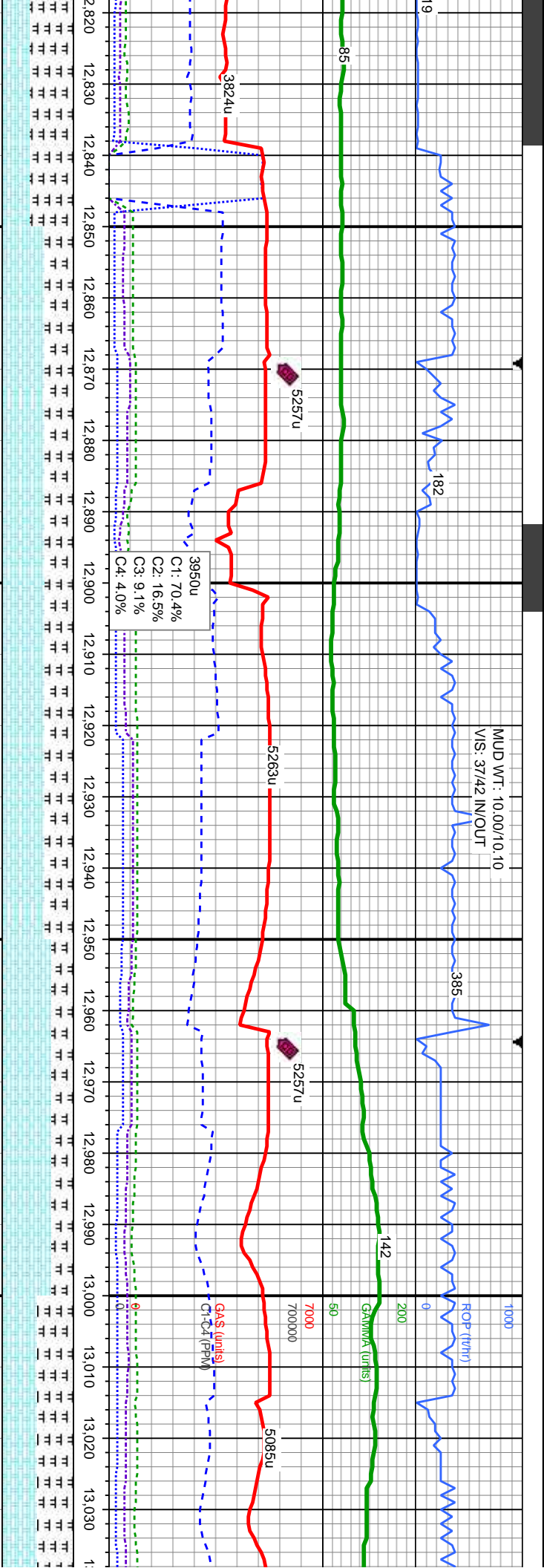
got, v frm, brit, sb ply	40% CHK: crm - bf, lt - gy, mot, v frm, brit, sb ply	30% CHK: crm - bf, lt - gy, mot, v frm, brit, sb ply	10% CHK: crm - bf, lt - gy, mot, v frm, brit, sb ply	10% CHK: crm - bf, lt - gy, mot, v frm, brit, sb ply
arg calc mtx	- sb blk, sb wxy - rthy tex, arg calc mtx	- sb blk, sb wxy - rthy tex, arg calc mtx	- sb blk, sb wxy - rthy tex, arg calc mtx	- sb blk, sb wxy - rthy tex, arg calc mtx
brit, microxn, sb	60% MRLST: med - dk gy, frm, brit, microxn, sb	70% MRLST: med - dk gy, frm, brit, microxn, sb	90% MRLST: med - dk gy, frm, brit, microxn, sb	90% MRLST: med - dk gy, frm, brit, microxn, sb
	blk, v calc, sme bent	blk, v calc, abnt bent	blk, v calc, abnt bent	blk, v calc, abnt bent





MD: 12.622 TVD: 6.956.23' Inclination: 88.03° Azimuth: 359.71°		10% CHK: crm - bf, lt - gy, mot, v frm, brit, sb ply - sb blk, sb wxy - rthy tex, arg calc mtx 90% MRLST: med - dk gy, frm, brit, microxin, sb blk, v calc, abnt bent	20% CHK: crm - bf, lt - gy, mot, v frm, brit, sb ply - sb blk, sb wxy - rthy tex, arg calc mtx 80% MRLST: med - dk gy, frm, brit, microxin, sb blk, v calc, abnt bent	30% CHK: crm - bf, lt - gy, mot, v frm, brit, sb ply - sb blk, sb wxy - rthy tex, arg calc mtx 70% MRLST: med - dk gy, frm, brit, microxin, sb blk, v calc, sme bent	30% CHK: crm - bf, lt - gy, mot, v frm, brit, sb ply - sb blk, sb wxy - rthy tex, arg calc mtx 70% MRLST: med - dk gy, frm, brit, microxin, sb blk, v calc, sme bent
MD: 12.717 TVD: 6.959.78' Inclination: 87.69° Azimuth: 358.84°					
MD: 12.812 TVD: 6.962.36' Inclination: 89.2° Azimuth: 358.2°		40% CHK: crm - bf, lt - gy, mot, v frm, brit, sb ply - sb blk, sb wxy - rthy tex, arg calc mtx 60% MRLST: med - dk gy, frm, brit, microxin, sb blk, v calc, sme bent			





MD: 12,907'
TVD: 6,961.61'
Inclination: 91.7°
Azimuth: 359.36°

MD: 13,001'
TVD: 6,958.88'
Inclination: 91.63°
Azimuth: 359.11°

60% CHK: crm - bf, lt - gy, mot, v frm, brit, sb blk, sb wxy - rthy tex, arg calc

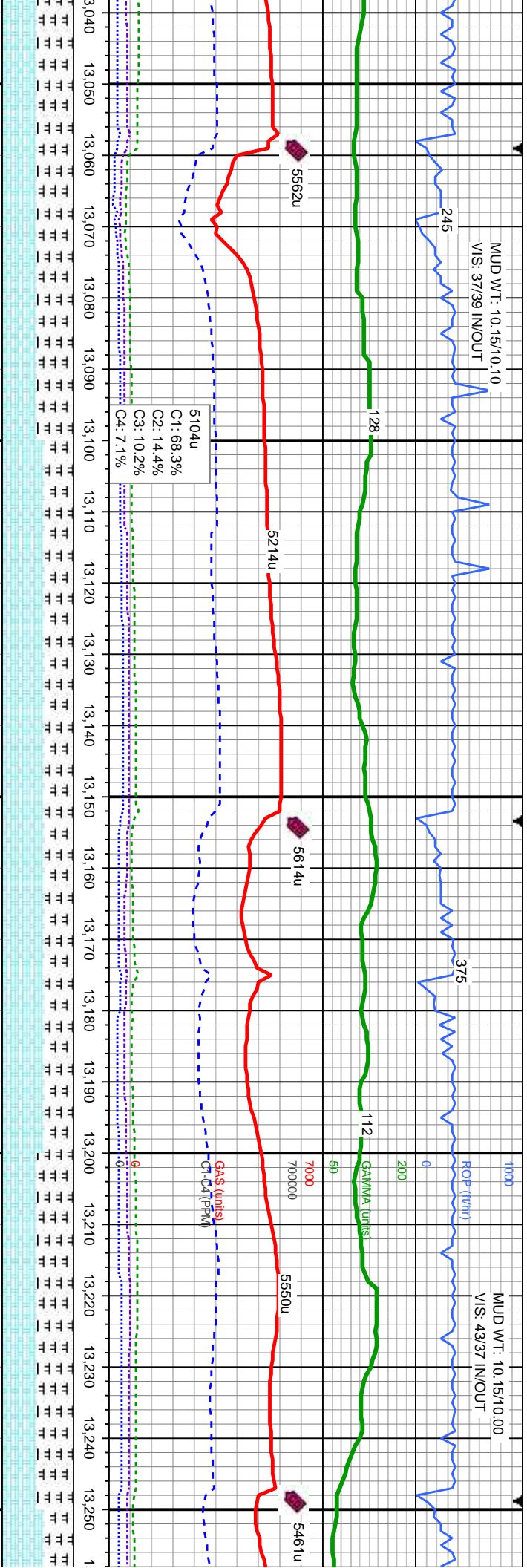
60% CHK: crm - bf, lt - gy, mot, v frm, brit, sb blk, sb wxy - rthy tex, arg calc mt, tr calcite

60% CHK: crm - bf, lt - gy, mot, v frm, brit, sb blk, sb wxy - rthy tex, arg calc mt, tr calcite

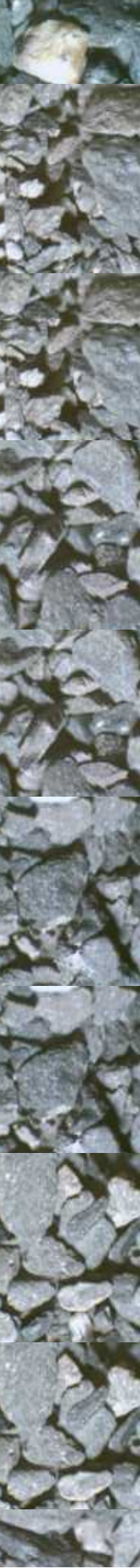
70% CHK: crm - bf, lt - gy, mot, v frm, brit, sb blk, sb wxy - rthy tex, arg calc mt, tr calcite

50% CHK: crm - bf, lt - gy, mot, v frm, brit, sb blk, sb wxy - rthy tex, arg calcite





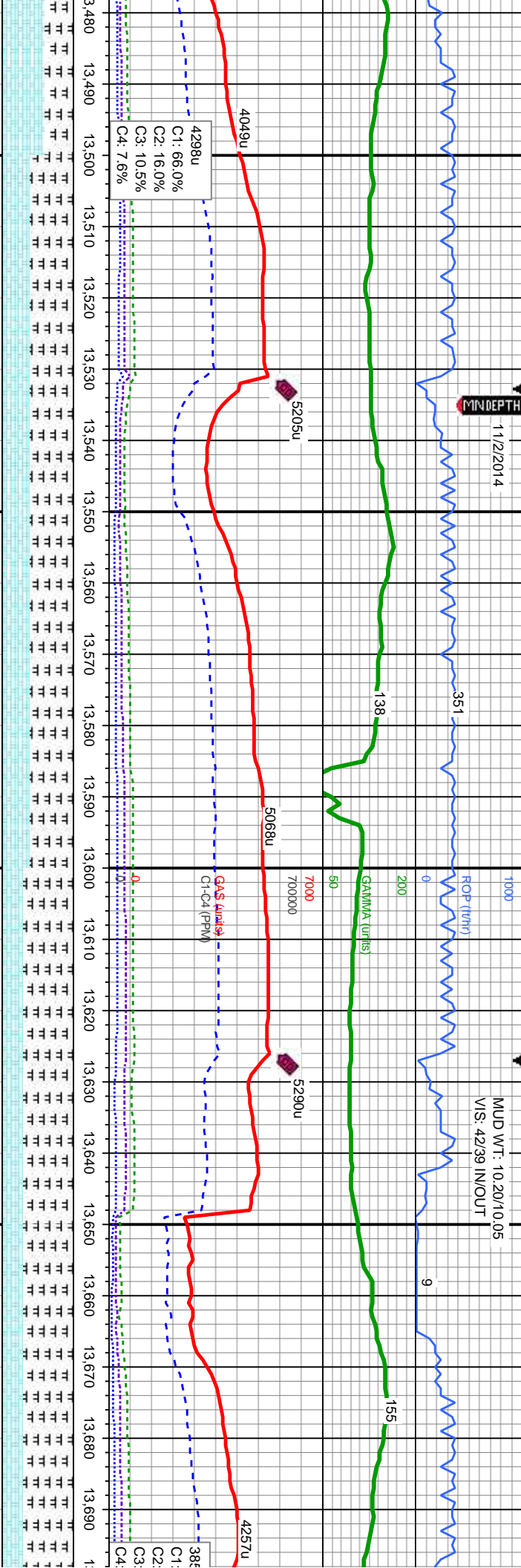
MD: 13.096' TVD: 6,955.79' Inclination: 92.1° Azimuth: 358.59°		MD: 13.191' TVD: 6,951.93' Inclination: 92.56° Azimuth: 358.3°		MD: 13.191' TVD: 6,951.93' Inclination: 92.56° Azimuth: 358.3°	
n, brit, sb		60% CHK: crm - bf, lt - gy, mot, v frm, brit, sb		50% CHK: crm - bf, lt - gy, mot, v frm, brit,	
calc mtx,		- sb blk, sb wxy - rthy tex, arg calc mtx, tr		sb pily - sb blk, sb wxy - rthy tex, arg calc	
microxln,		40% MRLST: med - dk gy, frm, brit, microxln, sb		50% MRLST: med - dk gy, frm, brit,	
cross		blk, v calc, tr bent, tr wh inoc foss		microxln, sb blk, v	



11/2/2014

MINDEPTH

MUD WT: 10.20/10.05
VIS: 42/39 IN/OUT

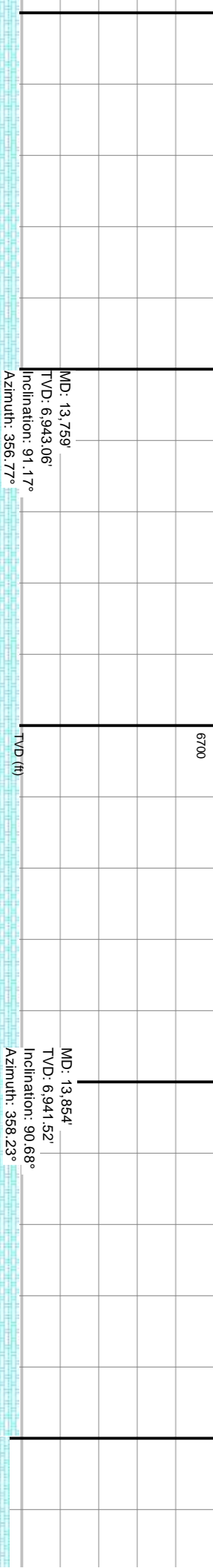
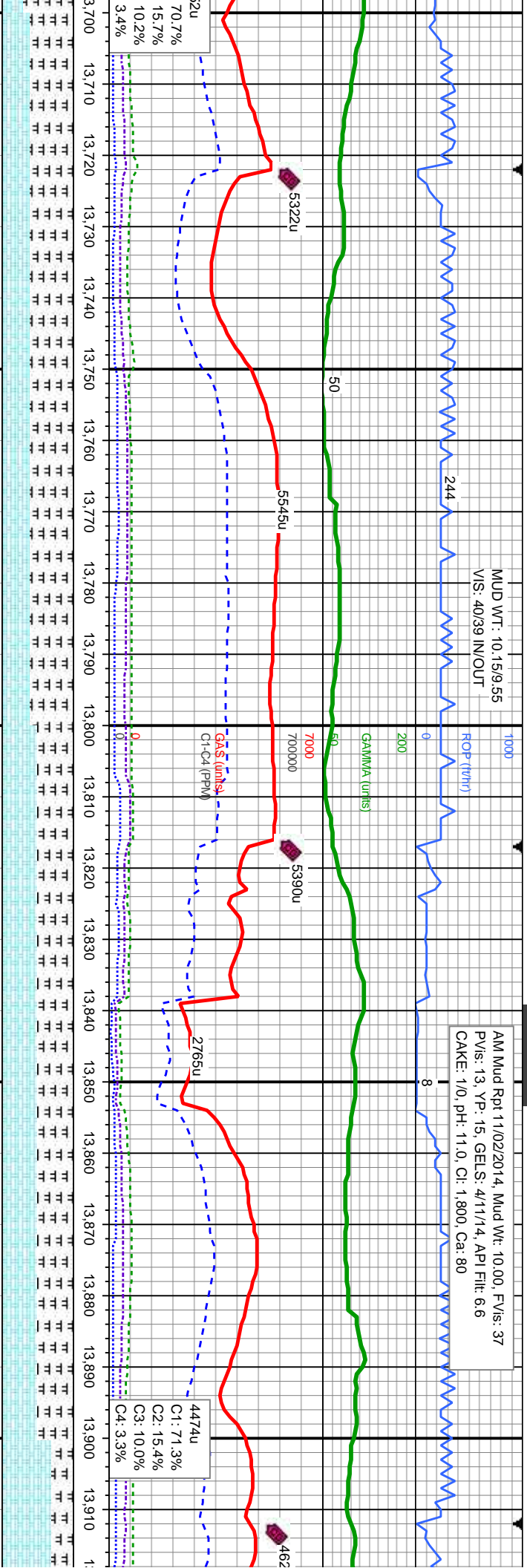


MD: 13,570'
TVD: 6,945.16'
Inclination: 88.8°
Azimuth: 356.94°

MD: 13,665'
TVD: 6,945.08'
Inclination: 91.3°
Azimuth: 357.71°

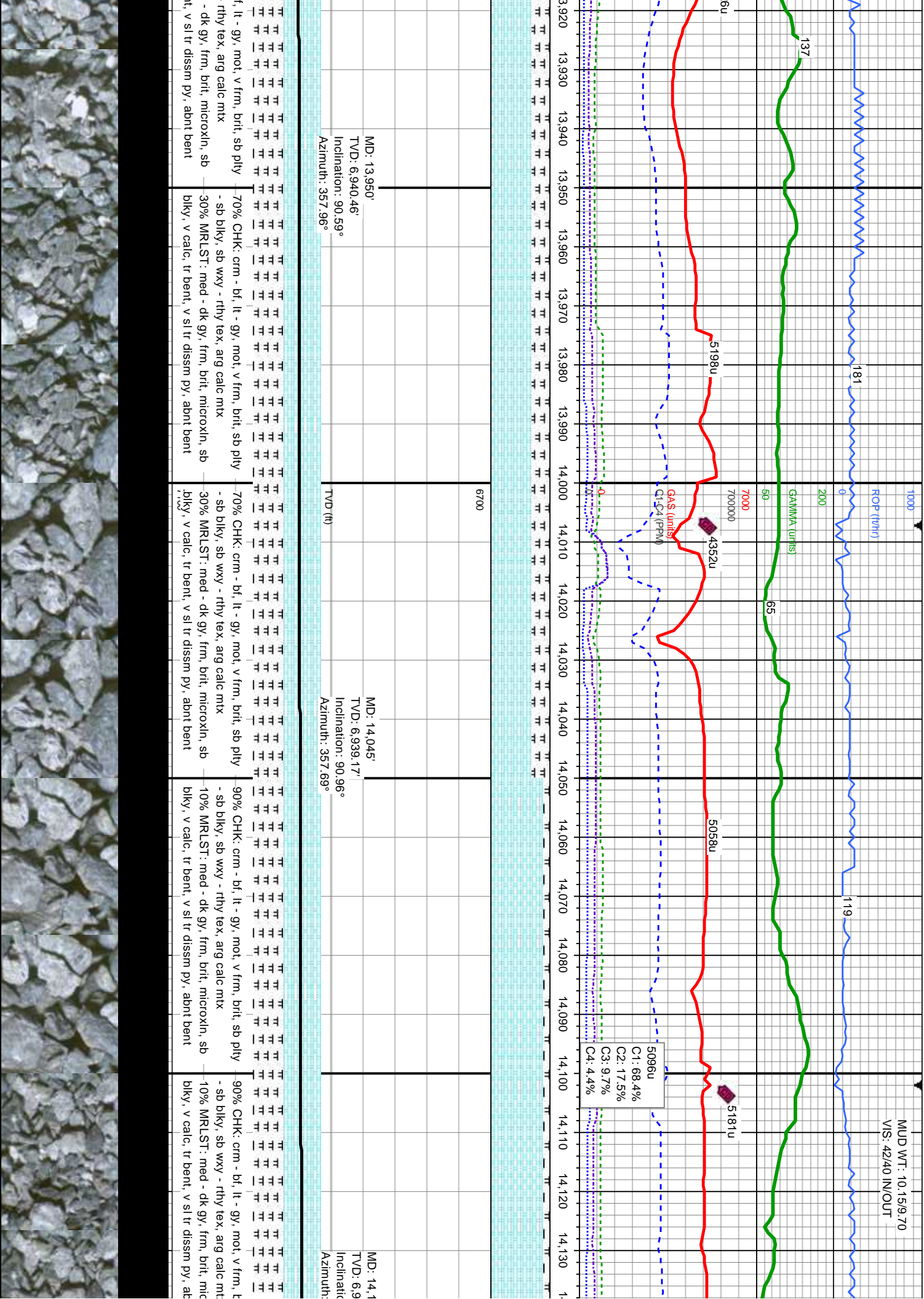
mot, v frm, brit, sb ply	mot, v frm, brit, sb ply	40% CHK: crm - bf, lt - gy, mot, v frm, brit, sb ply	40% CHK: crm - bf, lt - gy, mot, v frm, brit, sb ply	30% CHK: crm - bf, lt - gy, mot, v frm, brit, sb ply	30% CHK: crm - bf, lt - gy, mot, v frm, brit, sb ply
arg calc mtx	arg calc mtx	- sb blk, sb wxy - rthy tex, arg calc mtx	- sb blk, sb wxy - rthy tex, arg calc mtx, tr wh	ply - sb blk, sb wxy - rthy tex, arg calc mtx	ply - sb blk, sb wxy - rthy tex, arg calc mtx
brit, microxh, sb	brit, microxh, sb	60% MRLST: med - dk gy, frm, brit, microxh, sb	60% MRLST: med - dk gy, frm, brit, microxh, sb	70% MRLST: med - dk gy, frm, brit, microxh, sb	70% MRLST: med - dk gy, frm, brit, microxh, sb
		blk, v calc, abnt bent	blk, v calc, sme bent	sb blk, v calc, tr bent, v sl tr dissim pyr, tr	calcite

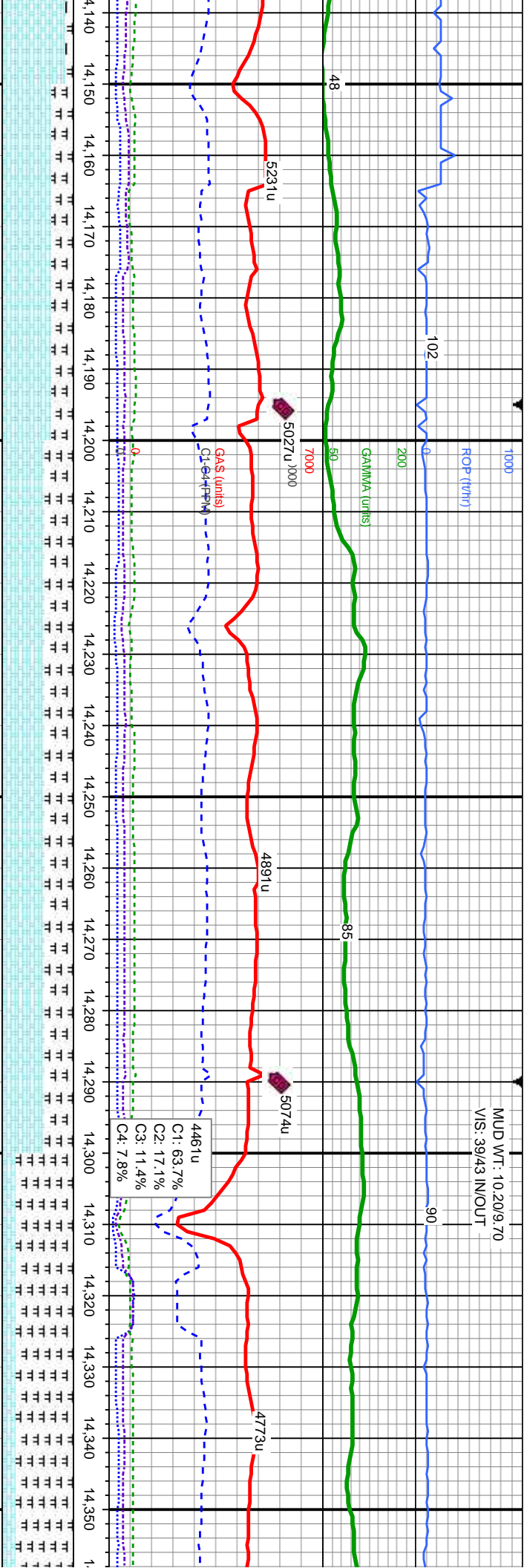




40% CHK: crm - bf, lt - gy, mot, v frm, brit, sb ply - sb blk, sb wxy - rthy tex, arg calc mtx 60% MRLST: med - dk gy, frm, brit, microxh, sb blk, v calc, tr bent, v sl tr dissn py, sme bent	40% CHK: crm - bf, lt - gy, mot, v frm, brit, sb ply - sb blk, sb wxy - rthy tex, arg calc mtx 60% MRLST: med - dk gy, frm, brit, microxh, sb blk, v calc, tr bent, v sl tr dissn py, sme bent	50% CHK: crm - bf, lt - gy, mot, v frm, brit, sb ply - sb blk, sb wxy - rthy tex, arg calc mtx 50% MRLST: med - dk gy, frm, brit, microxh, sb blk, v calc, tr bent, v sl tr dissn py, sme bent	50% CHK: crm - bf, lt - gy, mot, v frm, brit, sb ply - sb blk, sb wxy - rthy tex, arg calc mtx 50% MRLST: med - dk gy, frm, brit, microxh, sb blk, v calc, tr bent, v sl tr dissn py, sme bent	70% CHK: crm - b - sb blk, sb wxy - 30% MRLST: med blk, v calc, tr bent
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39	MD: 14.234'
37.22'	TVD: 6,934.15'
37.22'	Inclination: 92.28°
357.71°	Azimuth: 357.42°
	TVD (ft)

70% CHK: crm - bf, lt - gy, mot, v frm, brit, sb ply	60% CHK: crm - bf, lt - gy, mot, v frm, brit, sb ply	60% CHK: crm - bf, lt - gy, mot, v frm, brit, sb ply	20% CHK: crm - bf, lt - gy, mot, v frm, brit, sb ply	20% CHK: crm - bf, lt - gy, mot, v frm, brit, sb ply
- sb blkly, sb wxy - rthy tex, arg calc mtx	- sb blkly, sb wxy - rthy tex, arg calc mtx	- sb blkly, sb wxy - rthy tex, arg calc mtx	sb blkly, sb wxy - rthy tex, arg calc mtx	sb blkly, sb wxy - rthy tex, arg calc mtx
30% MRLST: med - dk gy, frm, brit, microxln, sb	40% MRLST: med - dk gy, frm, brit, microxln, sb	40% MRLST: med - dk gy, frm, brit, microxln, sb	80% MRLST: med - dk gy, frm, brit, microxln, sb	80% MRLST: med - dk gy, frm, brit, microxln, sb
blkly, v calc, tr bent, v sl tr dissim py, abnt bent	blkly, v calc, tr bent, v sl tr dissim py, abnt bent	blkly, v calc, tr bent, v sl tr dissim py, abnt bent	blkly, v calc, tr bent, v sl tr dissim py, abnt bent	blkly, v calc, tr bent, v sl tr dissim py, abnt bent



