



Scale: 5" / 100'
Measured Depth Log

Well Name Brook LC28-75-1BHNC HORZ

Location SWSE SEC 28 T9N R59W

State COLORADO

Country USA

API Number 05-123-38845-0000

Region DJ BASIN

Spud Date 7/13/2014

Surface Coordinates 340' FSL; 1960' FEL

County WELD

Rig Number H&P 273

Field WILDCAT

Drilling Completed 7/19/2014

Ground Elevation 4,843'

K.B. Elevation 4,867'

Logged Interval 628' To 10,435'

Total Depth 10,435'

Formation NIOBRARA

Type of Drilling Fluid LSND

Company NOBLE ENERGY INC
Address 1625 Broadway Suite 100
 Denver, CO 80202

Name SARAH COMPTON
Company NOBLE ENERGY INC
Address 1625 Broadway Suite 100
 Denver, CO 80202

Wellsite Geologist [Name]
Wellsite Geologist [Name]
Wellsite Geological Services Provider [Name]

Oil
Gas
Note
Error

Zone
C
G
V

Operator

NC.

2200

Geologist

NC.

2200

Other

in Donahue Columbine Logging Inc.

Tim Bright Columbine Logging Inc.

Geologist #1 Kevin Donahue

Geologist #2 Tim Bright

provided By Columbine Logging Inc.

Zone Color Coding

condensate













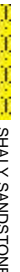













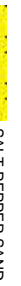






Gas

Pressure

























































Seal

Water

Rock Types


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

Accessories

	F FOSSIL		ARGILLACEOUS		GLAUCONITE		TUFFACEOUS
	GASTROPOD		ARGILLITE GRAIN		GYPSIFEROUS		
	ALGAE		B BENTONITE		HEAVY MINERAL		
	AMPHIPORA		BITUMENOUS SUBSTANCE		INOCERAMUS		
	BELEMNITE		BRECCIA FRAGMENTS		KAOLIN		ANHYDRITE STRINGER
	BIOLASTIC		PELECYPOD		CALCAREOUS		BENTONITE STRINGER
	BRACHIOPOD		PISOLITE		CARBONACEOUS FLAKES		COAL STRINGER
	BRYOZOA		PLANT REMAINS		CHERT		DOLOMITE STRINGER
	CEPHALOPOD		PLANT SPORES		NODULES		GYPSUM STRINGER
	CORAL		SCAPHOPOD		PHOSPHATE PELLETS		LIMESTONE STRINGER
	CRINOID		STROMATOPOROID		COAL - THIN BEDS		MARLSTONE (CALC) STRG
	ECHINOID		DOLOMITIC		SALT CAST		MARLSTONE (DOL) STRG
	FISH		FELDSPAR		SANDY		SANDSTONE STRINGER
	FORAMINIFERA		FERRUGINOUS PELLET		SILICEOUS		SHALE STRINGER
			FERRUGINOUS		SILTY		SILTSTONE STRINGER

Other Symbols









Oil Show

	MOLDIC		FAULT		WIRELINE TESTED - LEFT		E EARTHY
	ORGANIC		FORMATION TOP		WIRELINE TESTED - RT		FINELYXLN
	DEAD		PINPOINT		GAS SHOW		GRAINSTONE
	EVEN		VUGGY		MINDEPTH MN DEPTH		L LITHOGRAPHIC

Rounding

	QUESTIONABLE		NORMAL FAULT		ANGULAR		MICROXLN
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Engineering

	SPOTTED STAINING		OIL SHOW		ROUNDED		MUDSTONE
	BIT		OVERTURNED STRATA		SUBANG		PACKSTONE

Porosity

	CONNECTION (LEFT)		REVERSE FAULT		SUBRND		WACKESTONE
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
	E EARTHY		CONNECTION (RIGHT)		SIDEWALL CORE (LEFT)		
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
Textures

	FENESTRAL		CONNECTION GAS		SIDEWALL CORE (RIGHT)		
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Sorting

	F FRACTURE		CORE - LOST		SLIDE		BOUNDSTONE		MODERATE
---	------------	---	-------------	---	-------	---	------------	---	----------

	INTERCRYSTALLINE		CORE - RECOVERED		SURVEY		CHALKY		POOR
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	INTEROOLITIC		DST INTERVAL		TRIP GAS		CRYPTOXLN		WELL
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Slide/Rotate

BEGAN DRILLING CURVE

ROF @ 02:22 AM 07/15/2014

Total Gas & Chromatograph

- GAS
- C1
- C2
- C3
- C4

50' Sample Interval

BHA BIT:
SMITH 8.75" MMD55M
Serial #: 12443970
Jets: 5X15

6000
6000000

93
C
C
C
C

Depth Labels

% Lith

Gamma

GAMMA

Well Bore
TVD

Acetone was used as the cutting agent with the dimple filled to the rim

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: gy-dk gy, sb blk-ly-sb ply, sl fr, med sft, silty tex, arg cmt

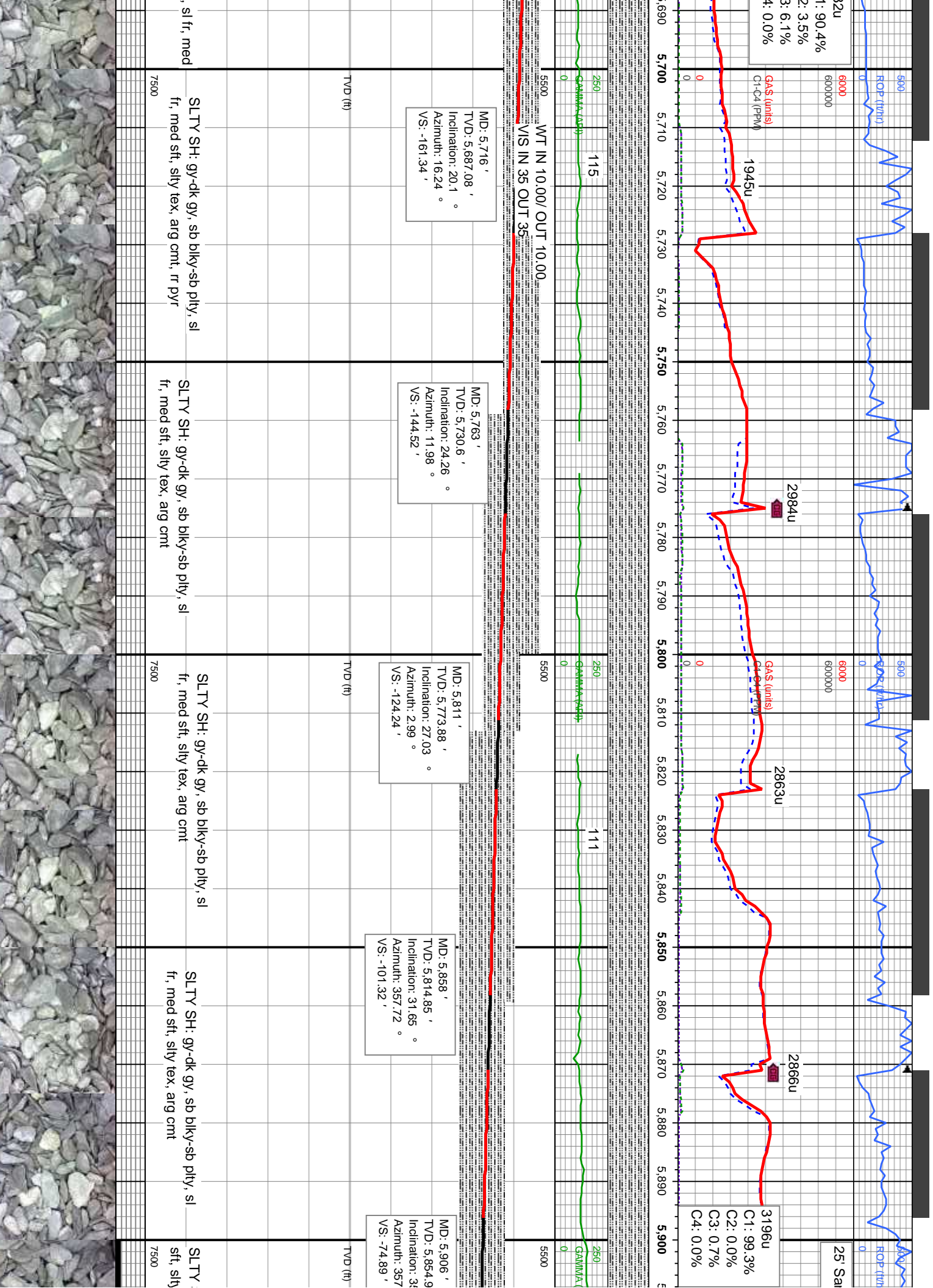
SLTY SH: gy-dk gy, sb blk-ly-sb ply, sl fr, med sft, silty tex, arg cmt

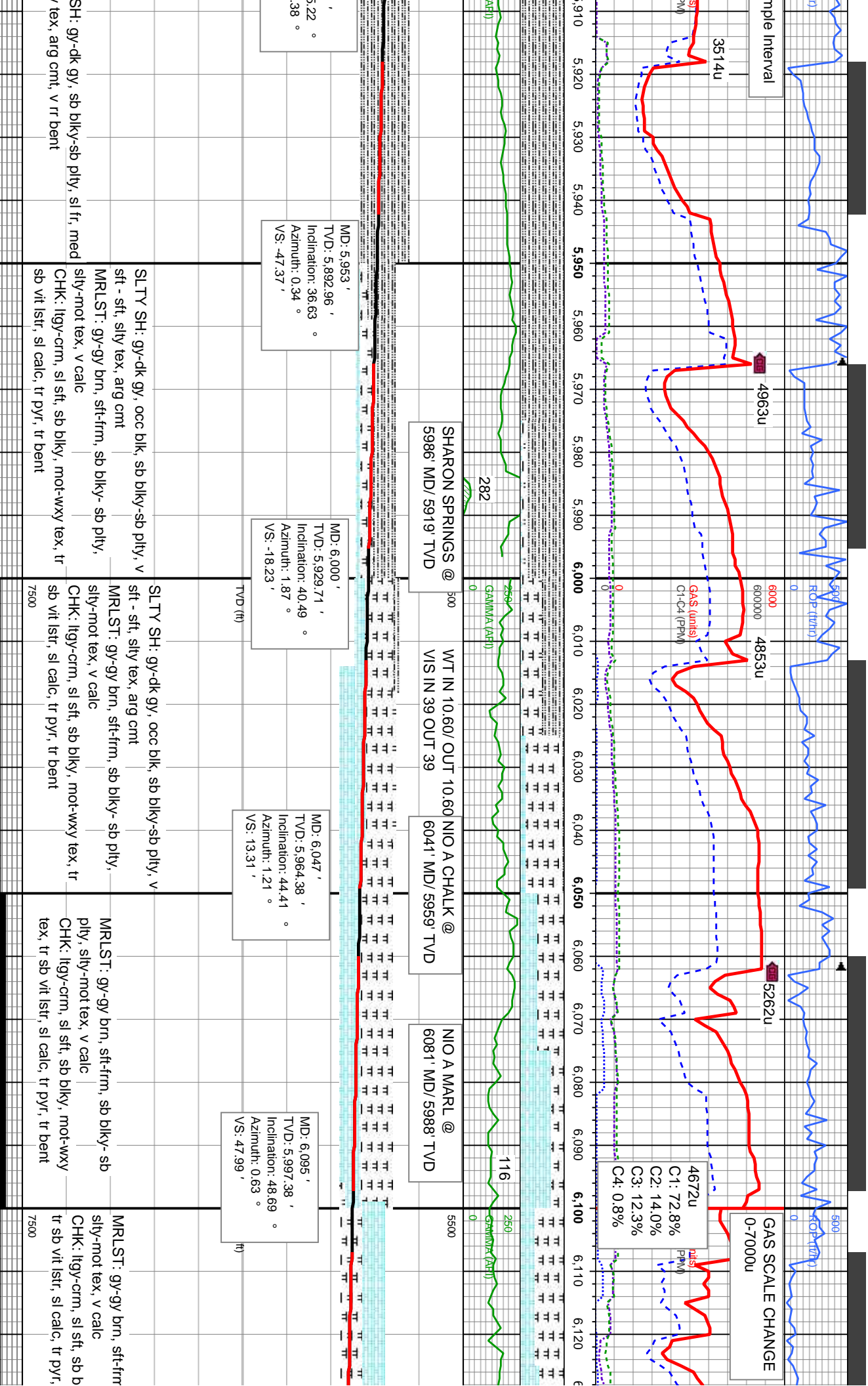
SLTY SH: gy-dk gy, sb blk-ly-sb ply sft, silty tex, arg cmt, rr pyr

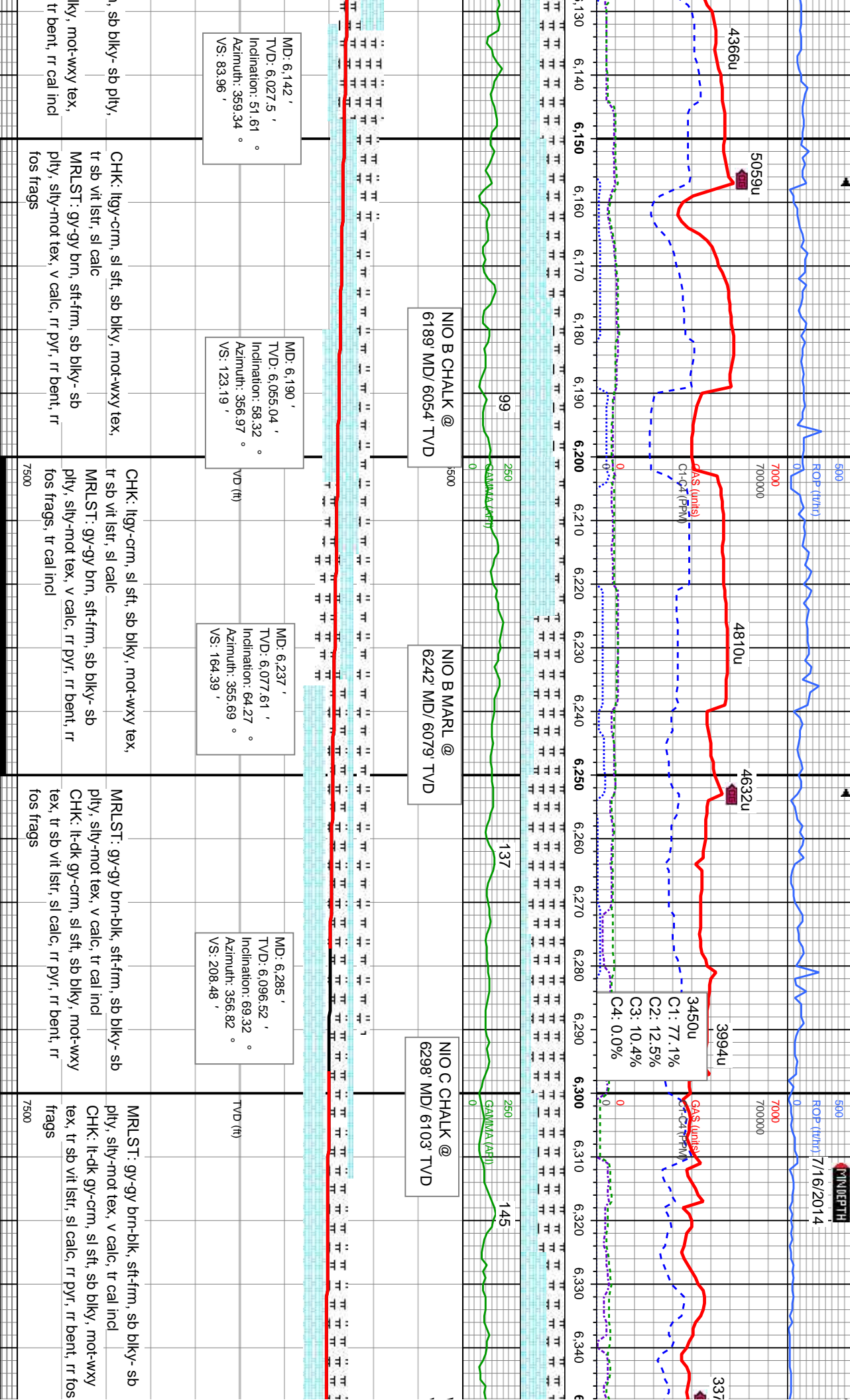
Oil Show

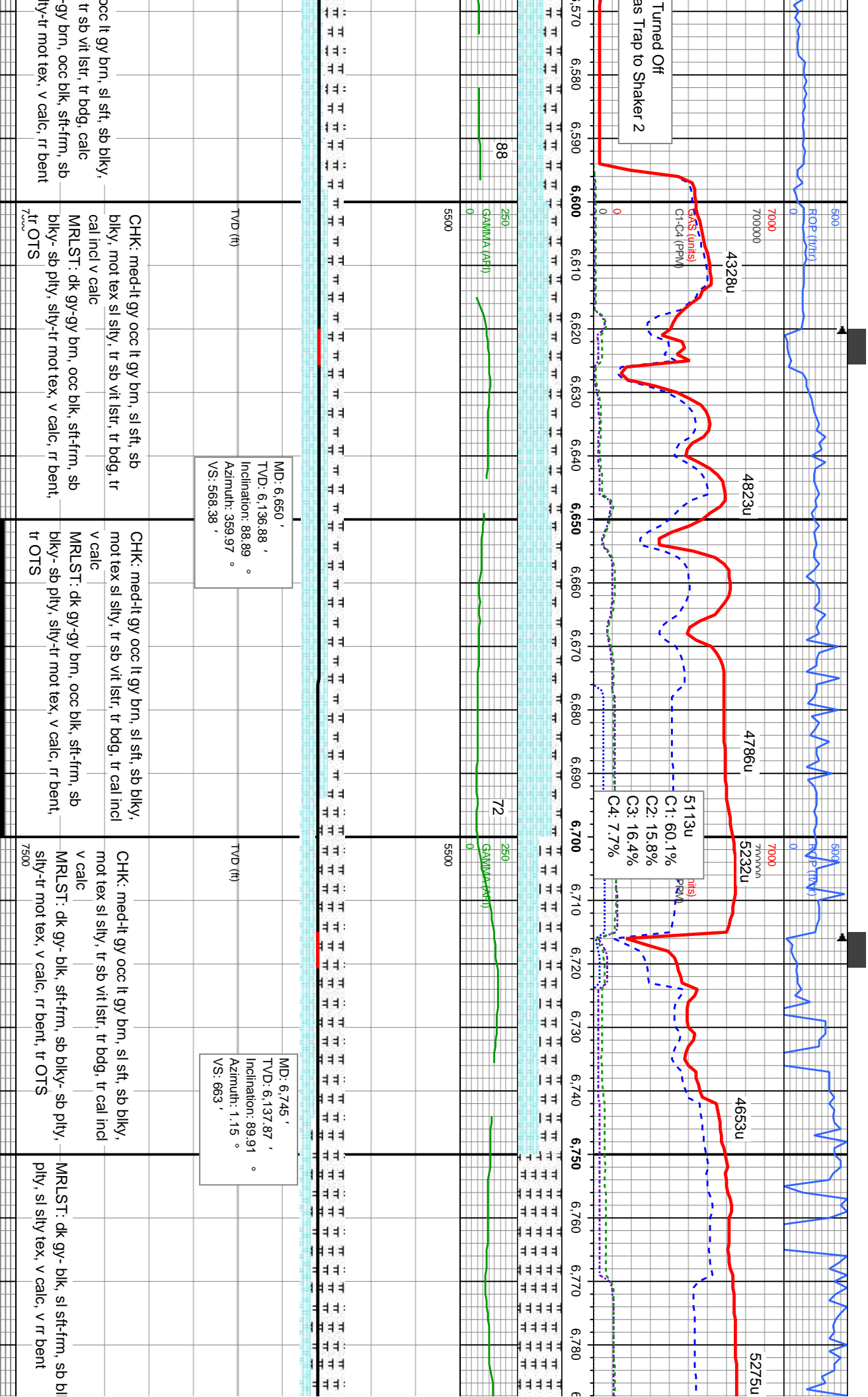
Images

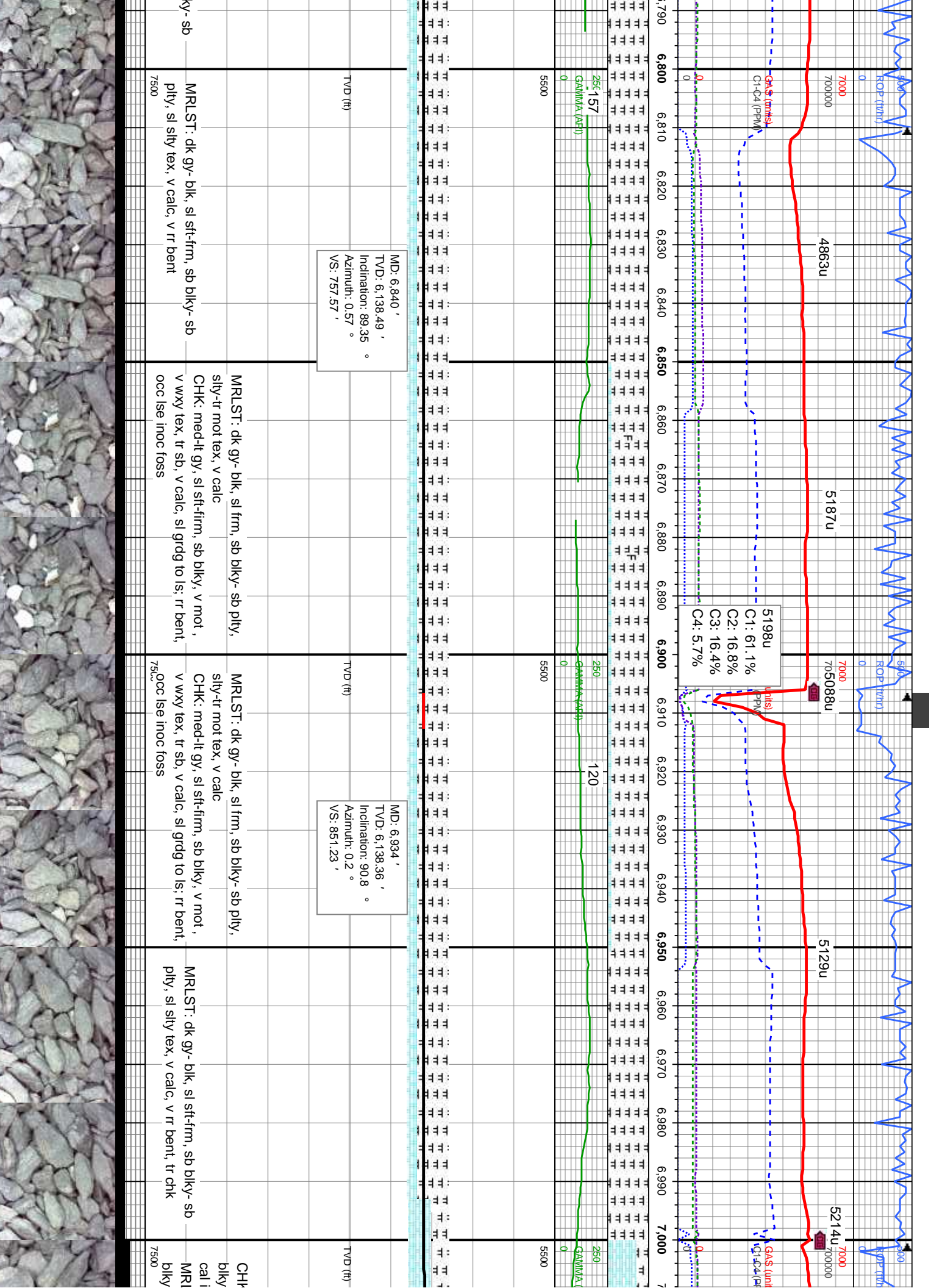


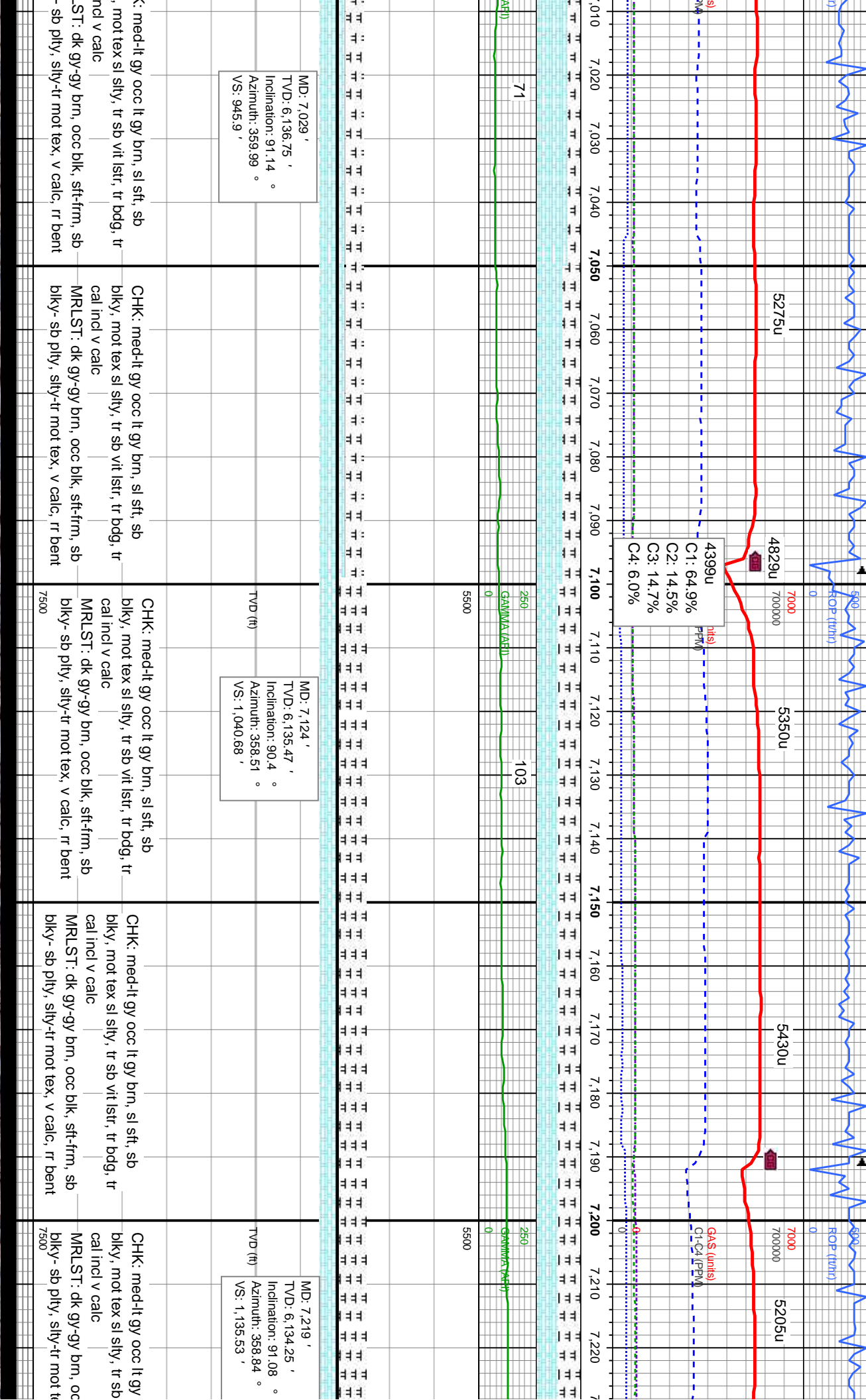












MD: 7,029 '
TVD: 6,136.75 '
Inclination: 91.14 °
Azimuth: 359.99 °
VS: 945.9 '

MD: 7,124 '
TVD: 6,135.47 '
Inclination: 90.4 °
Azimuth: 358.51 °
VS: 1,040.68 '

MD: 7,219 '
TVD: 6,134.25 '
Inclination: 91.08 °
Azimuth: 358.84 °
VS: 1,135.53 '

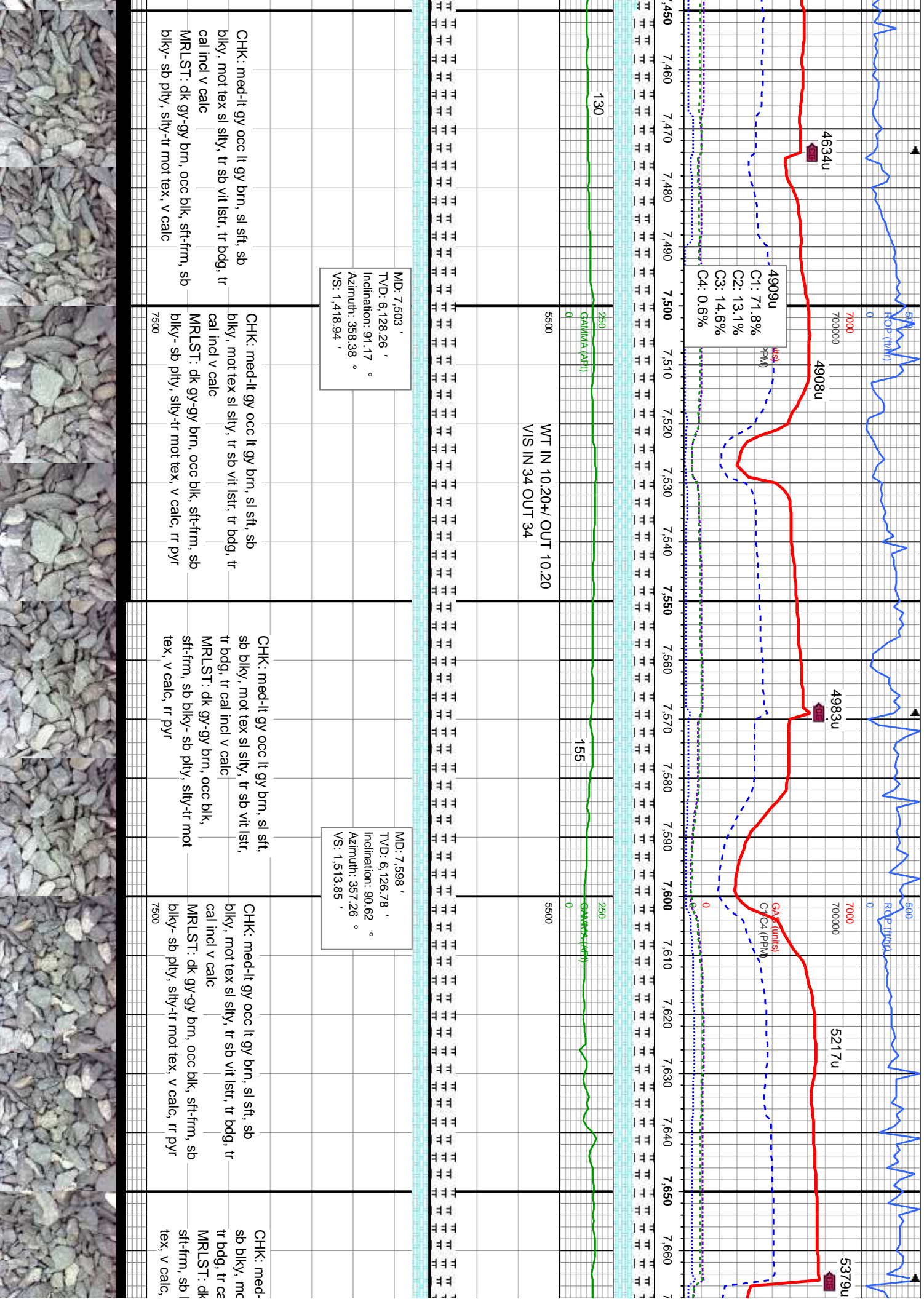
CHK: med-lt gy occ lt gy brn, sl sft, sb
blky, mot tex sl silty, tr sb vit lstr, tr bdg, tr
cal incl v calc
MRLST: dk gy-gy brn, occ blk, sft-frn, sb
blky- sb plty, silty-tr mot tex, v calc, rr bent

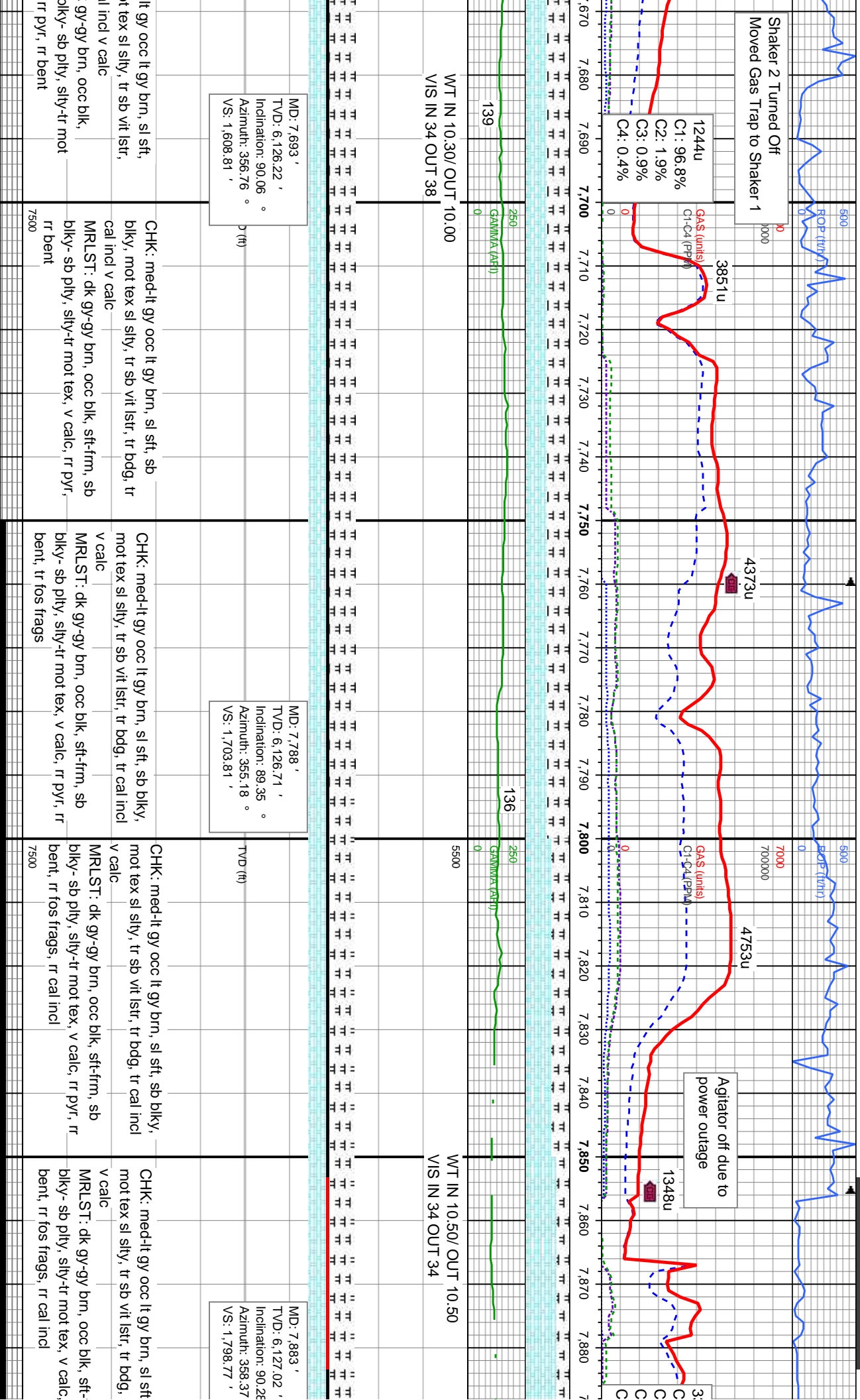
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blky, mot tex sl silty, tr sb vit lstr, tr bdg, tr
cal incl v calc
MRLST: dk gy-gy brn, occ blk, sft-frn, sb
blky- sb plty, silty-tr mot tex, v calc, rr bent

CHK: med-lt gy occ lt gy brn, sl sft, sb
blky, mot tex sl silty, tr sb vit lstr, tr bdg, tr
cal incl v calc
MRLST: dk gy-gy brn, occ blk, sft-frn, sb
blky- sb plty, silty-tr mot tex, v calc, rr bent

CHK: med-lt gy occ lt gy
blky, mot tex sl silty, tr sb
cal incl v calc
MRLST: dk gy-gy brn, occ
blky- sb plty, silty-tr mot t







Shaker 2 Turned Off
Moved Gas Trap to Shaker 1

1244u
C1: 96.8%
C2: 1.9%
C3: 0.9%
C4: 0.4%

3851u

4373u

4753u

Agitator off due to
power outage

1348u

WT IN 10.30/ OUT 10.00
VIS IN 34 OUT 38

WT IN 10.50/ OUT 10.50
VIS IN 34 OUT 34

MD: 7,693 '
TVD: 6,126.22 '
Inclination: 90.06 °
Azimuth: 356.76 °
VS: 1,608.81 '

MD: 7,788 '
TVD: 6,126.71 '
Inclination: 89.35 °
Azimuth: 355.18 °
VS: 1,703.81 '

MD: 7,883 '
TVD: 6,127.02 '
Inclination: 90.26 °
Azimuth: 358.37 °
VS: 1,798.77 '

lt gy occ lt gy brn, sl sft,
tr sb vit istr,
incl v calc
gy-gy brn, occ blk,
blkly- sb ply, silty-tr mot
rr pyr, rr bent

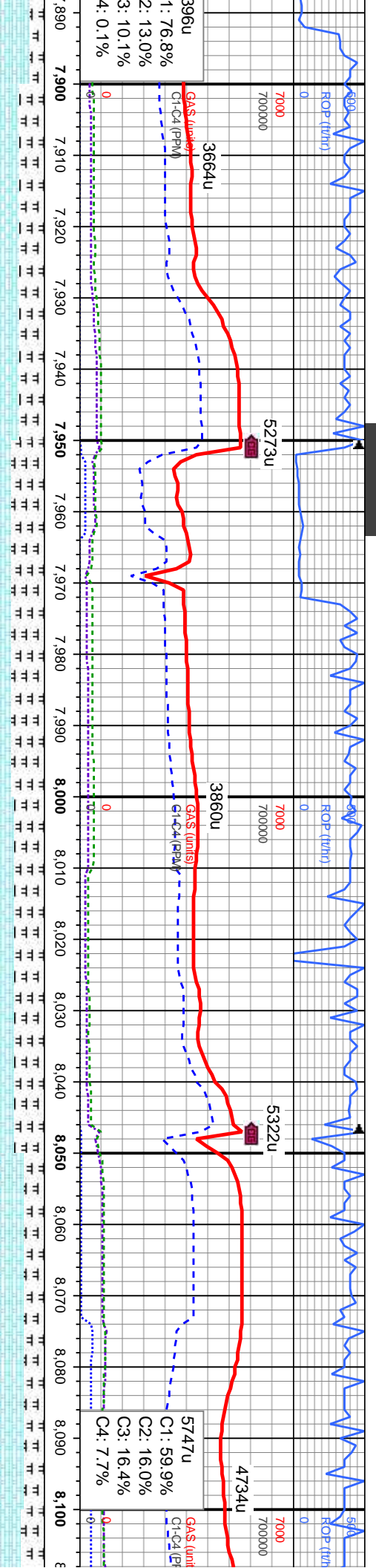
CHK: med-lt gy occ lt gy brn, sl sft, sb
blkly, mot tex sl silty, tr sb vit istr, tr bdg, tr
cal incl v calc
MRLST: dk gy-gy brn, occ blk, sft-frm, sb
blkly- sb ply, silty-tr mot tex, v calc, rr pyr,
rr bent

CHK: med-lt gy occ lt gy brn, sl sft, sb blkly,
mot tex sl silty, tr sb vit istr, tr bdg, tr cal incl
v calc
MRLST: dk gy-gy brn, occ blk, sft-frm, sb
blkly- sb ply, silty-tr mot tex, v calc, rr pyr, rr
bent, tr fos frags

CHK: med-lt gy occ lt gy brn, sl sft, sb blkly,
mot tex sl silty, tr sb vit istr, tr bdg, tr cal incl
v calc
MRLST: dk gy-gy brn, occ blk, sft-frm, sb
blkly- sb ply, silty-tr mot tex, v calc, rr pyr, rr
bent, tr fos frags, rr cal incl

CHK: med-lt gy occ lt gy brn, sl sft
mot tex sl silty, tr sb vit istr, tr bdg,
v calc
MRLST: dk gy-gy brn, occ blk, sft-
blkly- sb ply, silty-tr mot tex, v calc,
bent, rr fos frags, rr cal incl



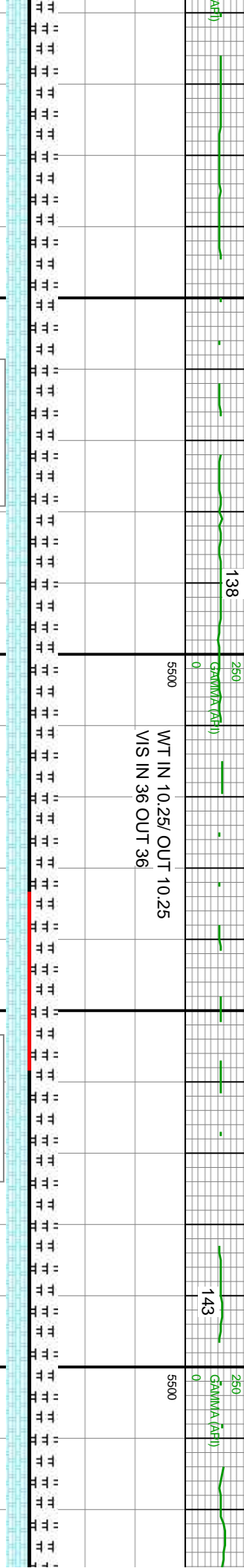
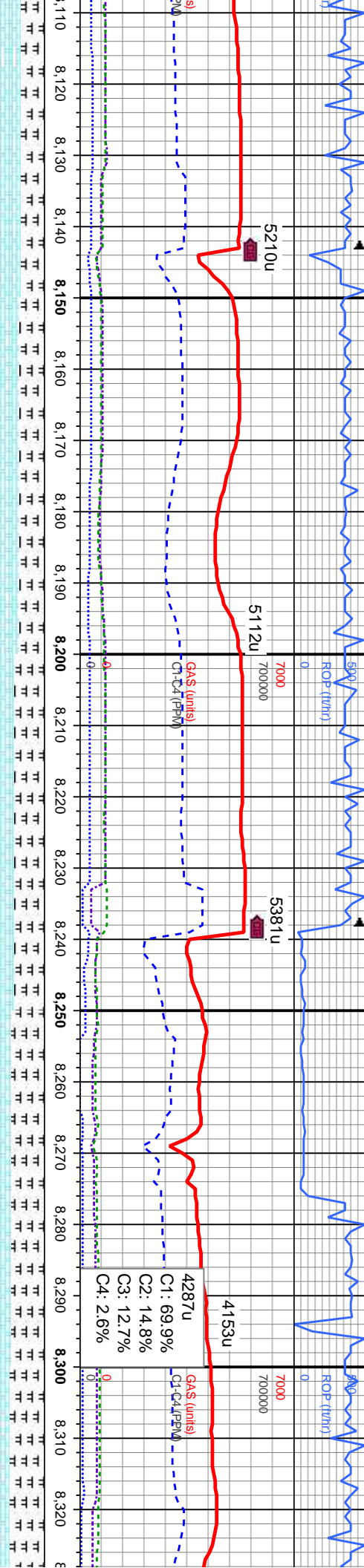


124	250	143	250	134	250
0	GAMMA (API)	0	GAMMA (API)	0	GAMMA (API)
5500		5500		5500	
WT IN 10.35/ OUT 10.35 VIS IN 37 OUT 37					

°					
TVD (ft)					
MD: 7.978 ' TVD: 6.126.15 ' Inclination: 90.77 ° Azimuth: 0.97 ° VS: 1.893.5 '					
°					
TVD (ft)					
MD: 8.073 ' TVD: 6.125.1 ' Inclination: 90.49 ° Azimuth: 1.07 ° VS: 1.988.05 '					
°					
TVD (ft)					

sb blkly, tr cal incl	CHK: med-It gy occ It gy brn, sl sft, sb blkly, mot tex sl silty, tr sb vit lstr, tr bdg, tr cal incl v calc	MRLST: dk gy-gy brn, occ blk, sft-firm, sb blkly- sb plty, silty-tr mot tex, v calc, rr pyr, rr bent, rr fos frags, tr cal incl	7500
firm, sb blkly- sb plty, silty-tr mot tex, v calc, rr pyr, rr bent, rr fos frags, tr cal incl	MRLST: dk gy-gy brn, occ blk, sft-firm, sb blkly- sb plty, silty-tr mot tex, v calc	CHK: med-It gy occ It gy brn, sl sft, sb blkly, mot tex sl silty, tr sb vit lstr, tr bdg, tr cal incl v calc, rr pyr, rr bent, rr fos frags, tr cal incl	7500



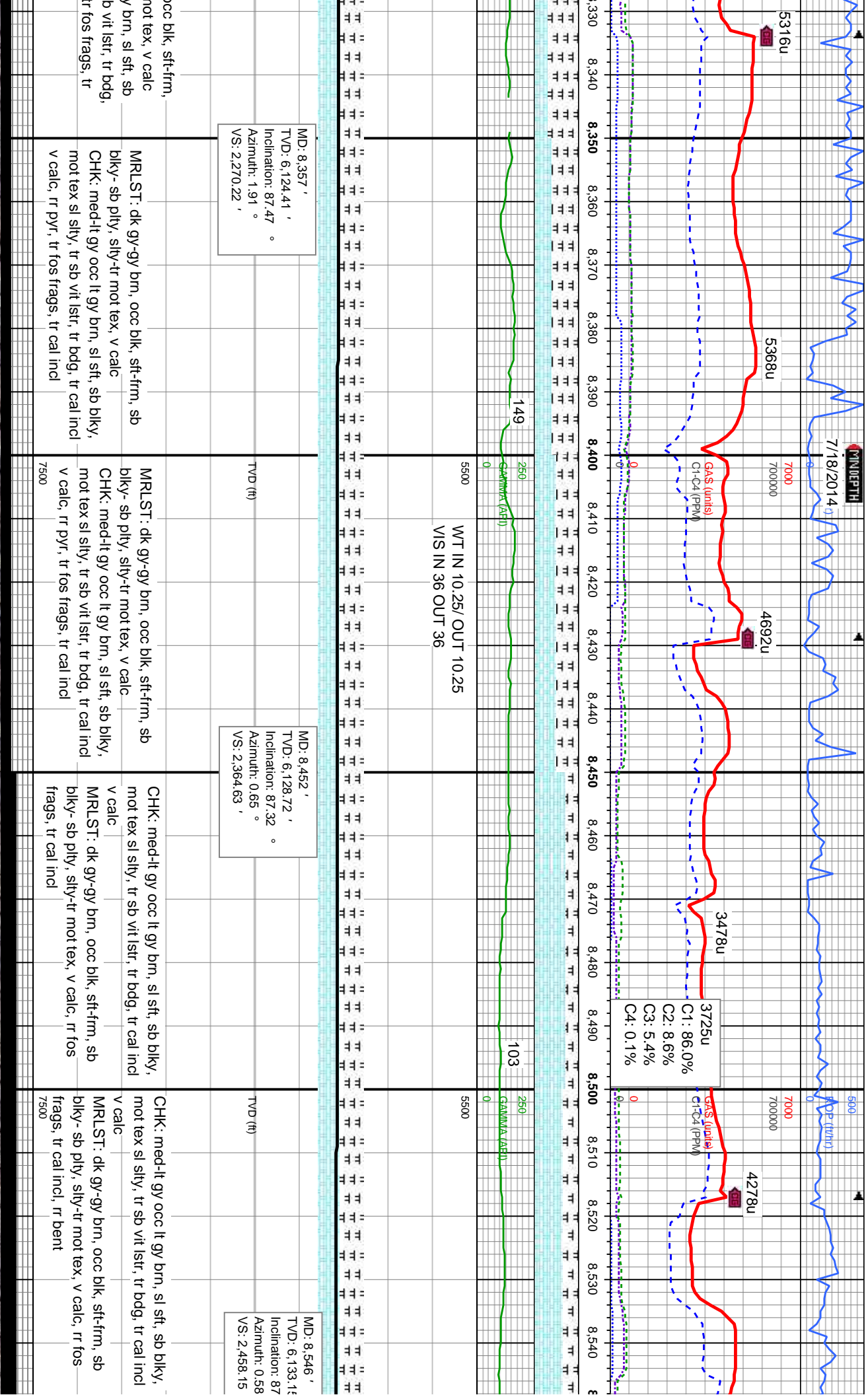


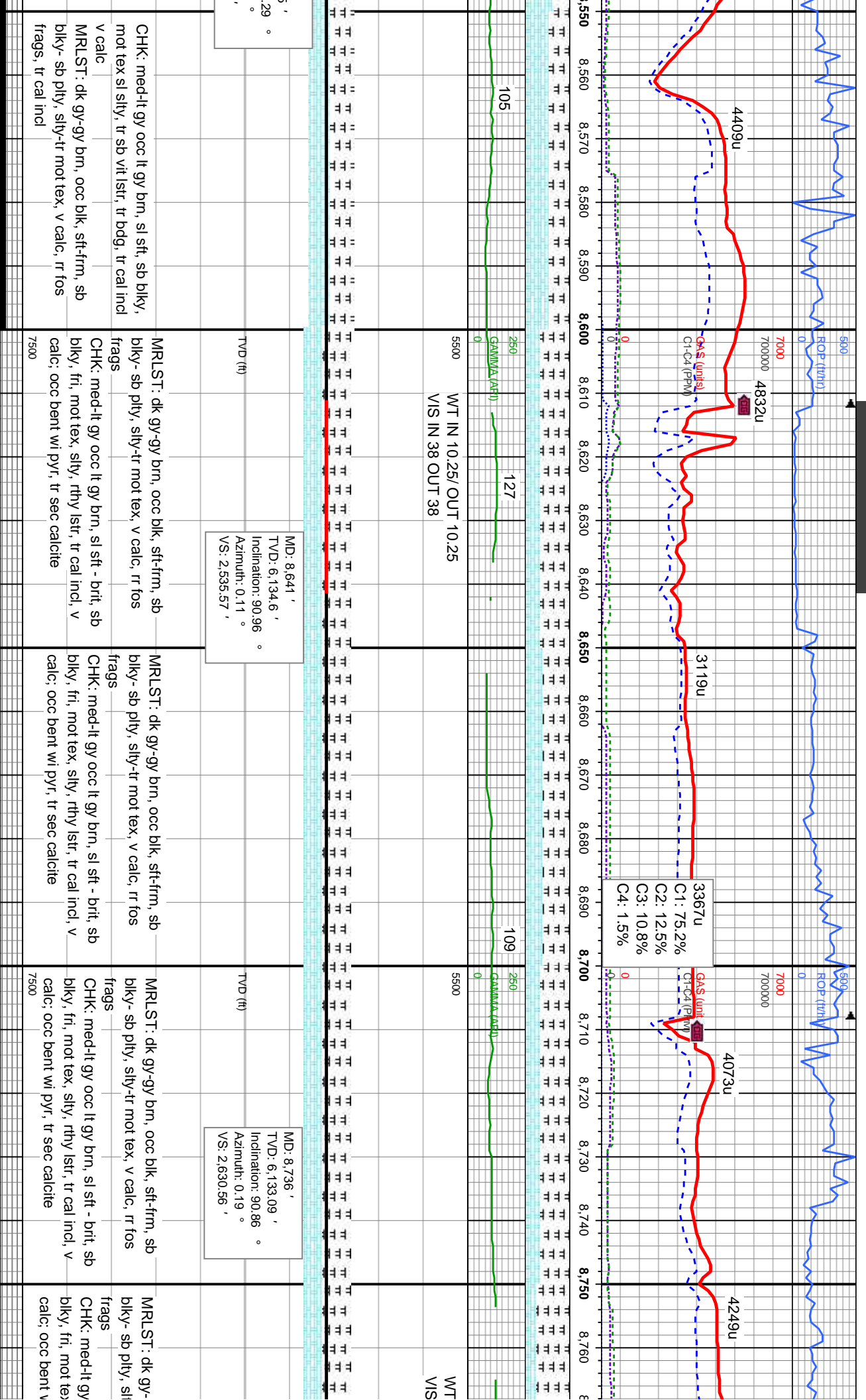
MD: 8,168 '
TVD: 6,123.08 '
Inclination: 91.94 °
Azimuth: 1.82 °
VS: 2,082.51 '

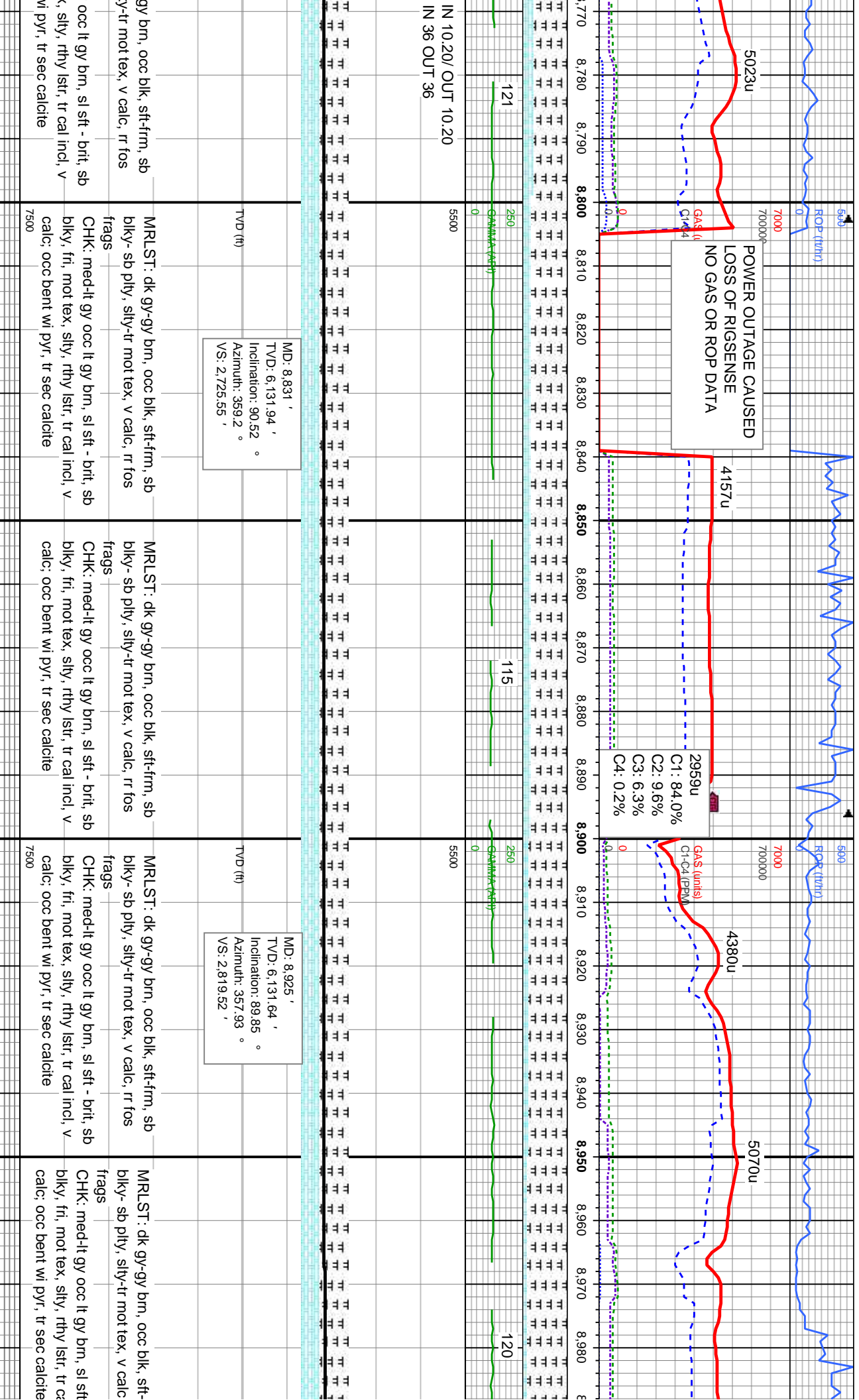
MD: 8,263 '
TVD: 6,121.9 '
Inclination: 89.48 °
Azimuth: 2.17 °
VS: 2,176.88 '

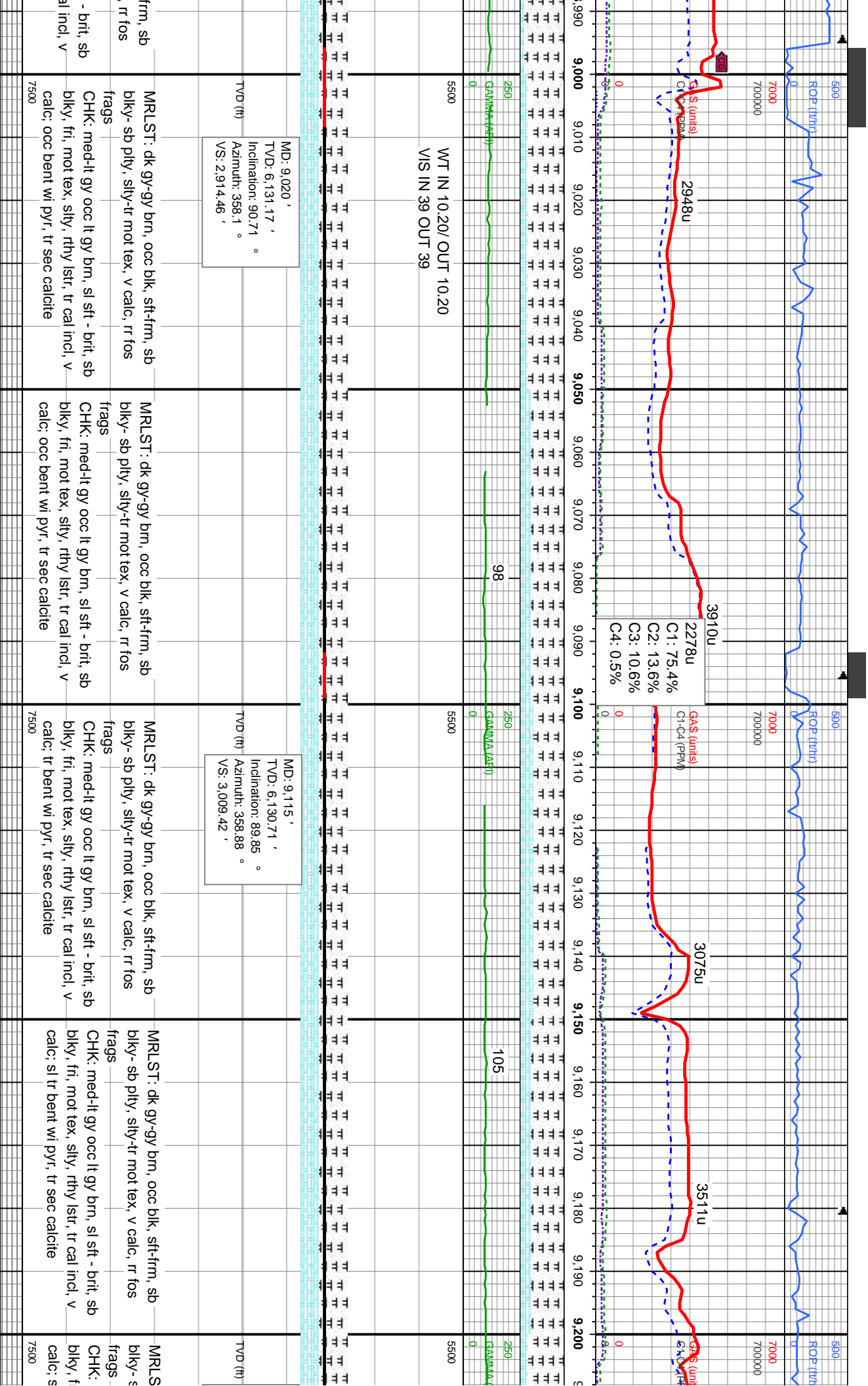
med-lt gy occ lt gy brn, sl sft, sb blk, x sl sily, tr sb vit lsfr, tr bdg, tr cal incl	CHK: med-lt gy occ lt gy brn, sl sft, sb blk, mot tex sl sily, tr sb vit lsfr, tr bdg, tr cal incl v calc	MRSLT: dk gy-gy brn, occ blk, sft-frm, sb blk, v calc	MRSLT: dk gy-gy brn, occ blk, sft-frm, sb blk, mot tex sl sily, tr sb vit lsfr, tr bdg, tr cal incl v calc, rr pyr, rr bent, tr fos frags, tr cal incl	7500
med-lt gy occ lt gy brn, sl sft, sb blk, x sl sily, tr sb vit lsfr, tr bdg, tr cal incl	CHK: med-lt gy occ lt gy brn, sl sft, sb blk, mot tex sl sily, tr sb vit lsfr, tr bdg, tr cal incl v calc	MRSLT: dk gy-gy brn, occ blk, sft-frm, sb blk, v calc	MRSLT: dk gy-gy brn, occ blk, sft-frm, sb blk, mot tex sl sily, tr sb vit lsfr, tr bdg, tr cal incl v calc, rr pyr, rr bent, tr fos frags, tr cal incl	7500
med-lt gy occ lt gy brn, sl sft, sb blk, x sl sily, tr sb vit lsfr, tr bdg, tr cal incl	CHK: med-lt gy occ lt gy brn, sl sft, sb blk, mot tex sl sily, tr sb vit lsfr, tr bdg, tr cal incl v calc	MRSLT: dk gy-gy brn, occ blk, sft-frm, sb blk, v calc	MRSLT: dk gy-gy brn, occ blk, sft-frm, sb blk, mot tex sl sily, tr sb vit lsfr, tr bdg, tr cal incl v calc, rr pyr, rr bent, tr fos frags, tr cal incl	7500

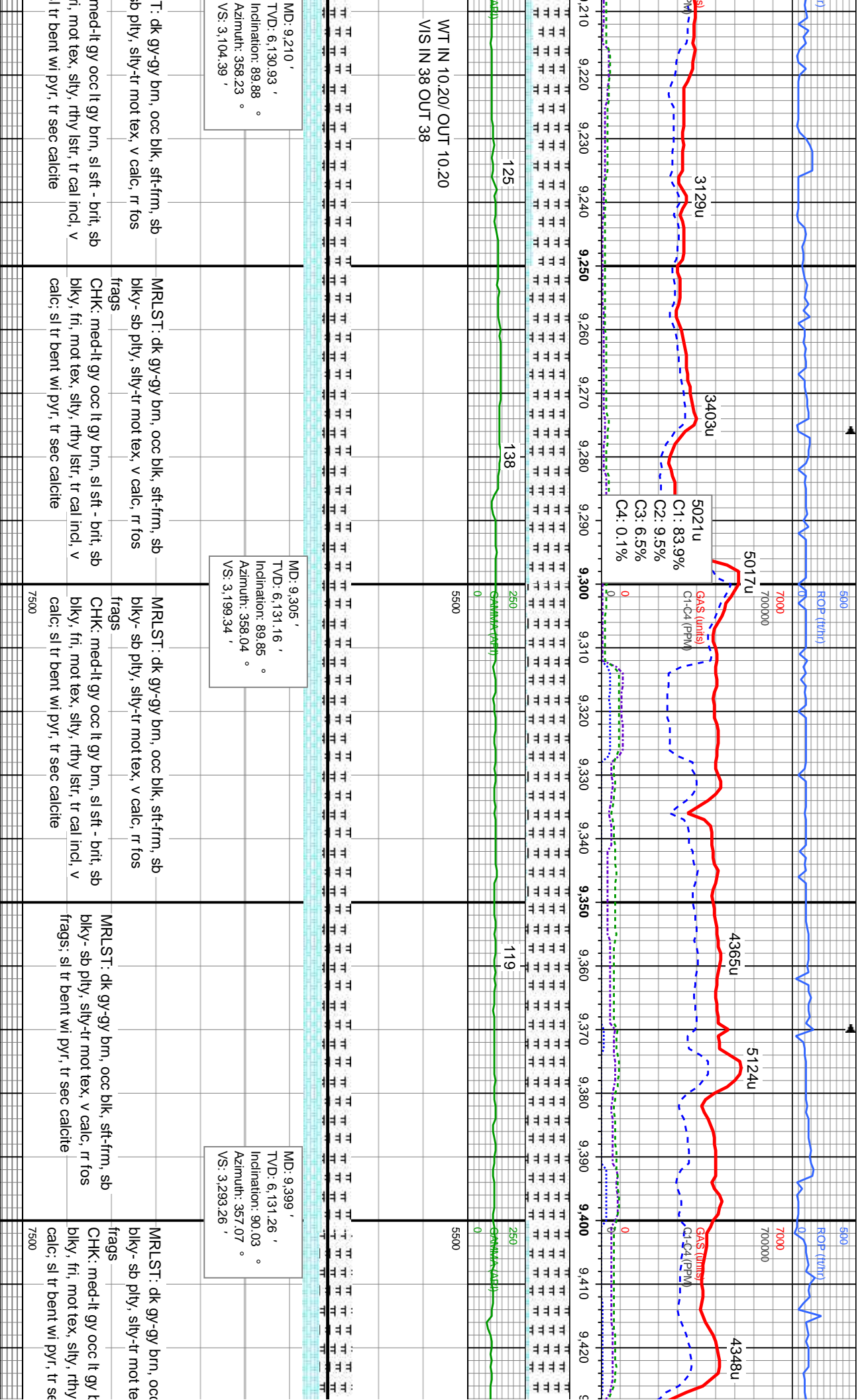


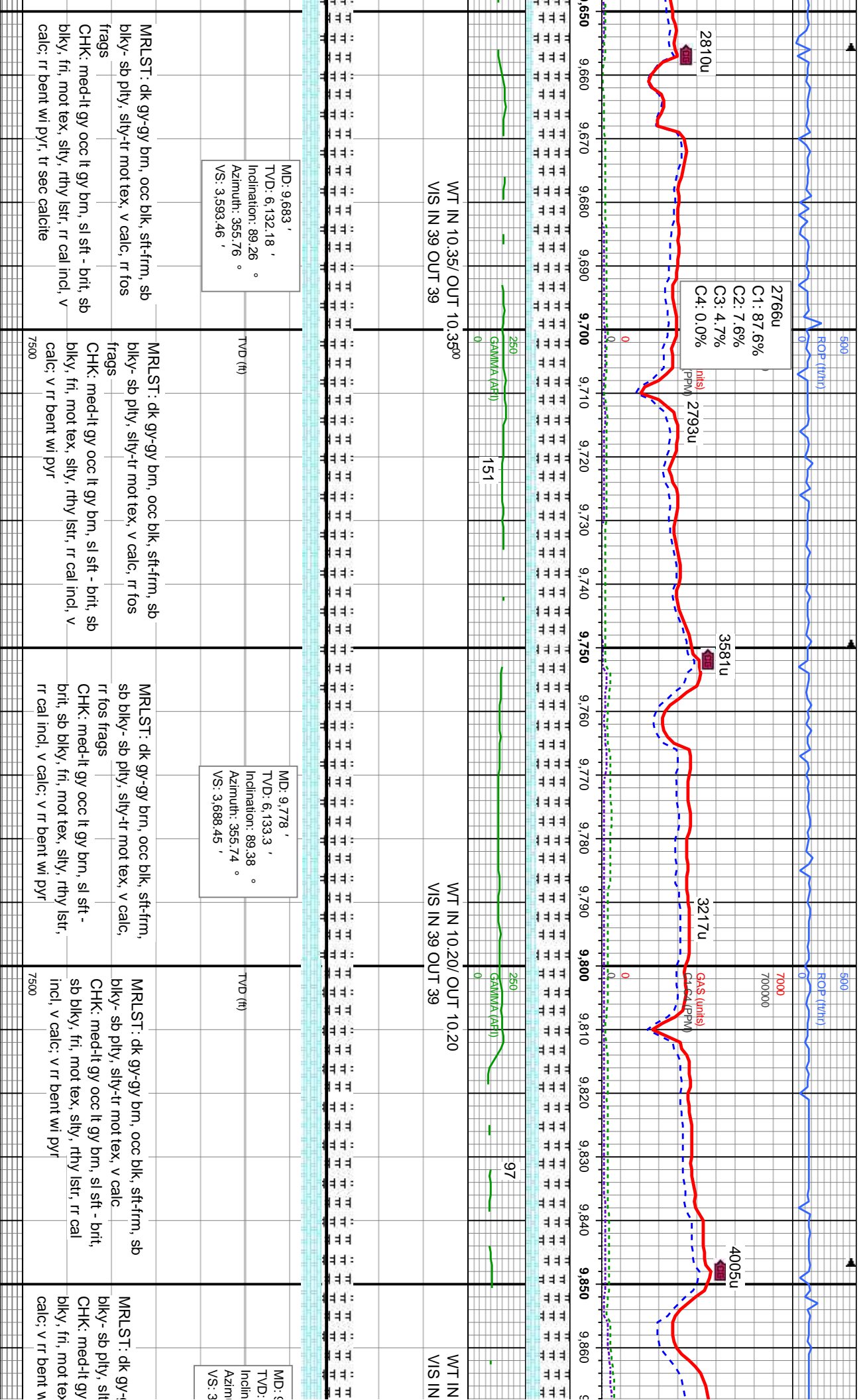


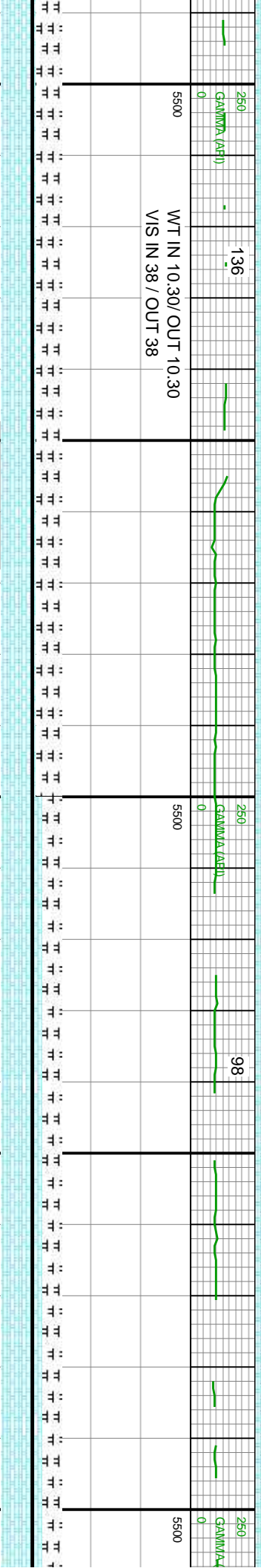
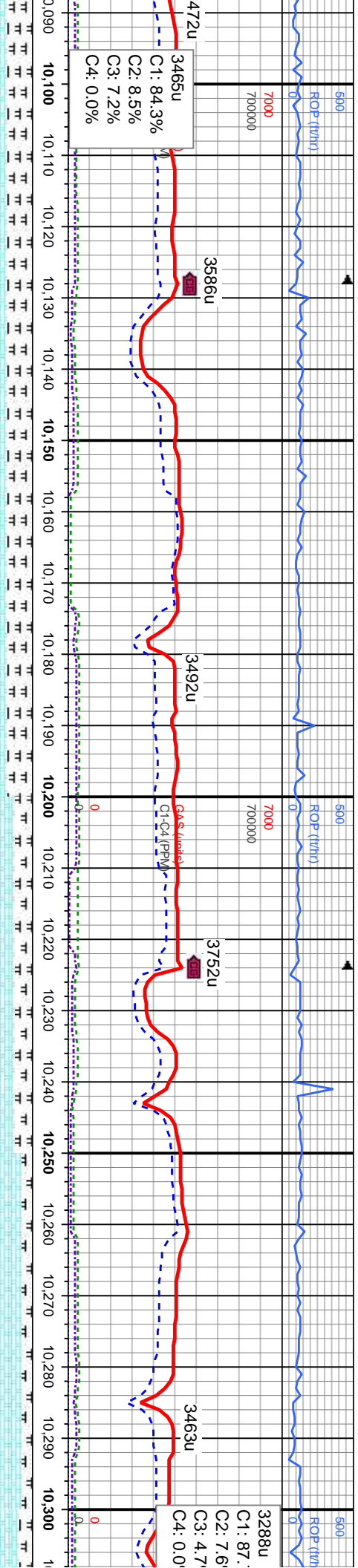








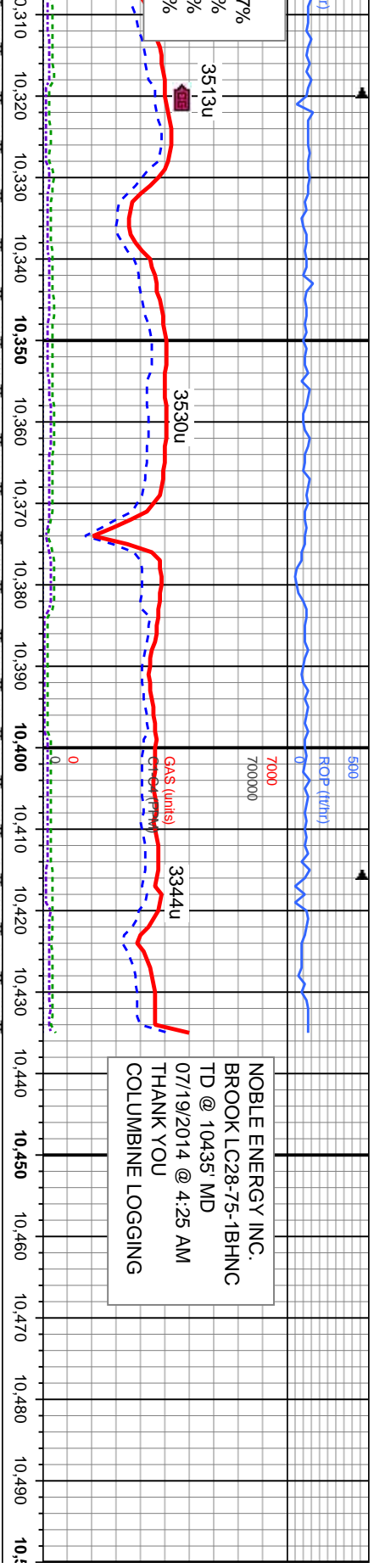




m, sb	CHK: med-lt gy occ lt gy brn, sl sft, sb blk, mot tex sl silty, tr sb vit lstr, tr bdg, tr cal incl v calc	MRLST: dk gy-gy brn, occ blk, sft-fm, sb blk- sb pily, silty-tr mot tex, v calcv tr bent	7500	TVD (ft)	MD: 10.157 ' TVD: 6.136.69 ' Inclination: 89.78 ° Azimuth: 355.48 ° VS: 4.067.43 '	CHK: med-lt gy occ lt gy brn, sl sft, sb blk, mot tex sl silty, tr sb vit lstr, tr bdg, tr cal incl v calc	MRLST: dk gy-gy brn, occ blk, sft-fm, sb blk- sb pily, silty-tr mot tex, v calc	7500	TVD (ft)	MD: 10.252 ' TVD: 6.136.82 ' Inclination: 90.06 ° Azimuth: 355.12 ° VS: 4.162.43 '	CHK: med-lt gy occ lt gy brn, sl sft, sb blk, mot tex sl silty, tr sb vit lstr, tr bdg, tr cal incl v calc	MRLST: dk gy-gy brn, occ blk, sft-fm, sb blk- sb pily, silty-tr mot tex, v calc	7500	TVD (ft)



NOBLE ENERGY INC.
BROOK LC28-75-1BHNC
TD @ 10435' MD
07/19/2014 @ 4:25 AM
THANK YOU
COLUMBINE LOGGING



128	115	250	0	5500
WT IN 10.30/ OUT 10.30		GAMMA (API)		
VIS IN 38 / OUT 38				

MD: 10,370 '
TVD: 6,136.59 '
Inclination: 90.15 °
Azimuth: 354.02 °
VS: 4,261.36 '

PROJECTED
MD: 10,435 '
TVD: 6,136.42 '
Inclination: 90.15 °
Azimuth: 354.02 °
VS: 4,326 '

: med-lt gy occ lt gy brn, sl sft, sb
mot tex sl slty, tr sb vit lstr, tr bdg,
incl v calc
ST: dk gy-gy brn, occ blk, sft-frm,
ky- sb plty, slty-tr mot tex, v calc

CHK: med-lt gy occ lt gy brn, sl sft, sb
blkly, mot tex sl slty, tr sb vit lstr, tr bdg,
tr cal incl v calc
MRLST: dk gy-gy brn, occ blk, sft-frm,
sb blkly- sb plty, slty-tr mot tex, v calc

CHK: med-lt gy occ lt gy brn, sl sft, sb
blkly, mot tex sl slty, tr sb vit lstr, tr bdg,
tr cal incl v calc
MRLST: dk gy-gy brn, occ blk, sft-frm,
sb blkly- sb plty, slty-tr mot tex, v calc

