

Scale: 5" / 100'
Measured Depth Log

Well Name Latham T-P-2HNB2

Location SWSE SEC 2 T4N R63W

State CO

County WELD

Country USA

Rig Number CADE 26

API Number 05-123-38788-00

AFE # 14151

Region DJ BASIN

Field WATTENBERG

Spud Date 6/24/2014

Drilling Completed 7/2/2014

Surface Coordinates 370' FSL x 2238' FEL (LAT: 40.33536, -104.40377)

Bottom Hole Coordinates 470' FNL x 1290' FEL (LAT: 40.34761, -104.40059) PROJECTED

Ground Elevation 4520'

K.B. Elevation 4537'

Logged Interval 6000' To 10702'

Total Depth 10702'

Formation NIOBRARA, B- CHALK

Type of Drilling Fluid H2O, LSND

Zone Color Code

- Oil
- Condensate
- Note
- Core
- Error
- Water

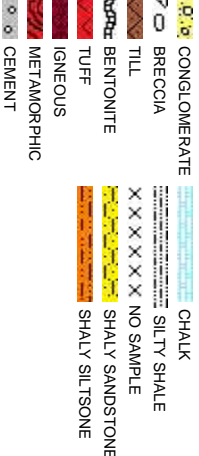
Rock Types

- UNKNOWN
- ANHYDRITE
- GYPSUM
- SALT
- SIDERITE or LIMONITE
- LIMESTONE
- DOLOMITE
- CHERT
- COAL
- MARLSTONE
- CLAYSTONE
- SHALE
- SHALE GRAY
- SHALE COLORED
- SILTSTONE
- SANDSTONE

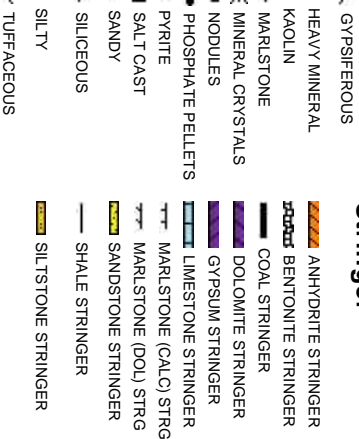
Accessories

- F FOSSIL
- GASTROPOD
- ARGILLACEOUS
- ARGILLITE GRAIN
- BENTONITE
- BITUMENOUS SUBSTANCE
- BRECCIA FRAGMENTS
- CALCAREOUS
- CARBONACEOUS FLAKES
- CHTDK
- COAL - THIN BEDS
- DOLOMITIC
- FELDSPAR
- FERRUGINOUS PELLET
- FERRUGINOUS
- ALGAE
- AMPHIPORA
- BELEMNITE
- BIOCLASTIC
- BRACHIOPOD
- PISOLITE
- PLANT REMAINS
- CEPHALOPOD
- CORAL
- CRINOID
- ECHINOID
- FISH
- FORAMINIFERA
- ANHYDRITIC

ding



Stringer



Other Symbols

Oil Show

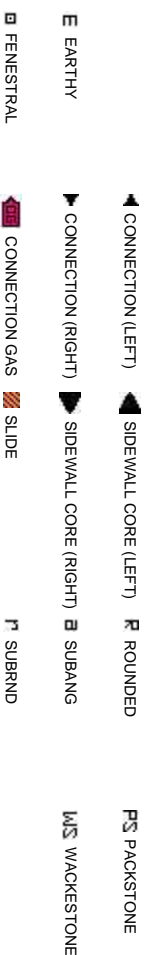


Engineering



Rounding

Porosity



Sorting

Textures



Slide/Rotate

ROP
ROP
GAMMA

Bit Data
Bit #: 3
Type: HE04JMRSV
Size: 8.75
Depth In: 5,866'
Jets: 3 x 20
S/N: 1387672

VIS 51 WT 9.4

VIS 43 WT 9.3

Total Gas & Chromatograph

GAS
C1
C2
C3
C4
CO2

Depth Labels

% Lith

COLUMBINE LOGGING RIGGED UP ON
6/27/2014 MANNED 2-PERSON LOGGING
WITH BLOODHOUND GAS
CHROMATOGRAPH UNIT #0696 BEGAN
ON 6/27/2014, 23:13 MST at 5900' MD

MD: 5,956'
Inclination: 12.44 °
Azimuth: 359.19°
TVD: 5,801.58'
VS: 864.25'

MD: 6,002'
Inclination: 16.11 °
Azimuth: 1.77°
TVD: 5,846.16'
VS: 864.38'

MD: 6,050'
Inclination: 20.24 °
Azimuth: 2.95°
TVD: 5,891.75'
VS: 865.01'

Well Bore
TVD

TVD (ft)

100% SLTY SH: lt-med gy, occ dk gr, mod
stf - sl firm, sb blkly - blkly, occ pily, rthy - gt,
mtx: sily, sl calc, uphole contaminants of
cmt

100% SLTY SH: lt-med gy, occ dk gr, mod stf - sl
firm, sb blkly - blkly, occ pily, rthy - gt, mtx: sily, sl calc,
uphole contaminants of cmt

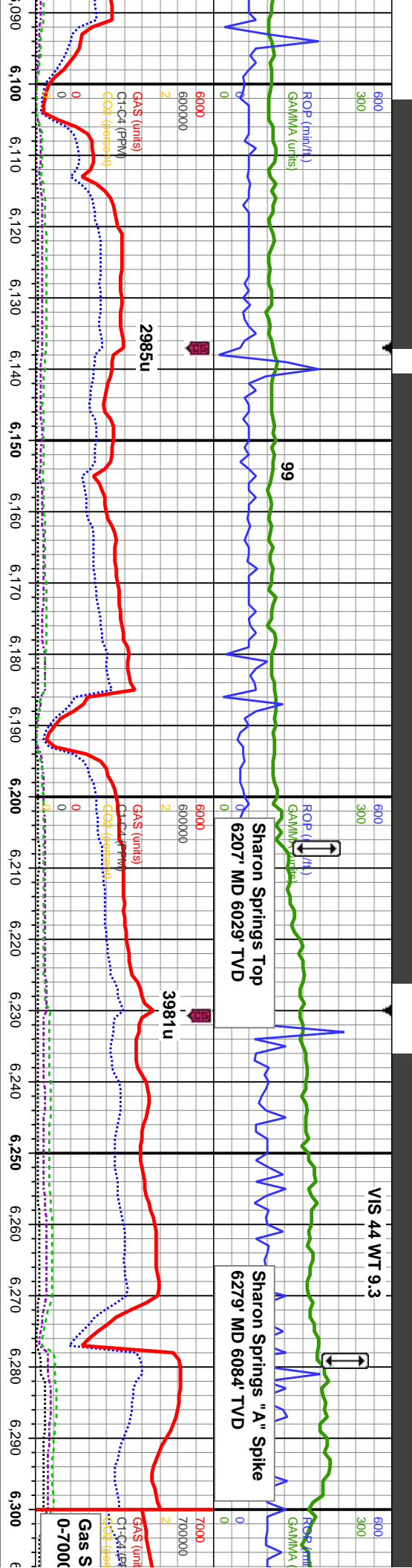
100% SLTY SH: lt-med gy
firm, sb blkly - blkly, occ pl
uphole contaminants of c

Oil Show

E
G
M
F
T
ST

Images





MD: 6.096'
Inclination: 24.59 °
Azimuth: 1.99 °
VD: 5.934.27'
VS: 865.75'

MD: 6.144'
Inclination: 30.05 °
Azimuth: 1.14 °
TVD: 5.976.9'
VS: -73.78'

MD: 6.189'
Inclination: 35.03 °
Azimuth: 359.58 °
TVD: 6.014.82'
VS: -50.02'

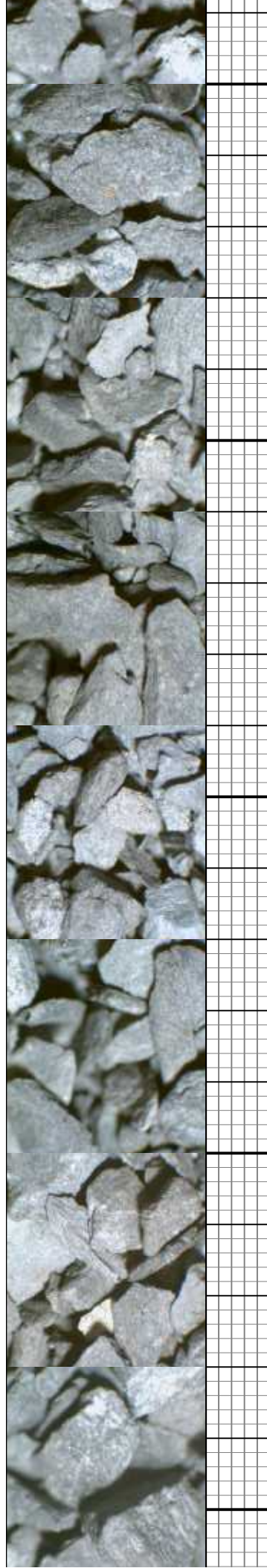
MD: 6.237'
Inclination: 39.67 °
Azimuth: 0.16 °
TVD: 6.052.97'
VS: -21.47'

MD: 6.281'
Inclination: 45 °
Azimuth: 0.18 °
TVD: 6.085.48'
VS: 7.6'

100% SLTY SH: lt-med gy, occ dk gr, mod sft - sl
firm, sb blkly - blkly, occ ply, rthy - gt, mtx; silty, sl calc, tr uphole contaminants of cnt

100% SLTY SH: med-dk gy, occ lt gr, mod sft - sl
firm, sb blkly - blkly, occ ply, rthy - gt, mtx; silty, sl calc

100% SLTY SH: dk gy-blk, occ med gr, mod sft - sl
firm, sb blkly - blkly, occ ply, rthy - gt, mtx; silty, sl calc



VIS 45 WT 9.2

Niobrara B Chalk Top
6630' MD, 6248' TVD

VIS 37 WT 9.1

Tangent Section started @ 6603' MD

ROP (min/f)

GAMA (min/f)

GAS (min/f)

G1-G4 (PPM)

det. (ppm)

4336u

5082u

6/29/14

6/28/14

6/30/14

6/29/14

6/30/2014 @ 14:45 MST

Drilling Resumed
6/30/2014 @ 08:15 MST

TD for Build @ 6715' MD

6/28/2014 @ 14:45 MST

6/28/2014

6/29/14

6/30/14

6/29/14

6/30/2014 @ 14:45 MST

Drilling Resumed
6/30/2014 @ 08:15 MST

TD for Build @ 6715' MD

6/28/2014 @ 14:45 MST

6/28/2014

6/29/14

6/30/14

6/29/14

6/30/2014 @ 14:45 MST

Drilling Resumed
6/30/2014 @ 08:15 MST

TD for Build @ 6715' MD

6/28/2014 @ 14:45 MST

6/28/2014

6/29/14

6/30/14

6/29/14

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Drilling Resumed
6/30/2014 @ 08:15 MST

TD for Build @ 6715' MD

6/28/2014 @ 14:45 MST

6/28/2014

6/29/14

6/30/14

6/29/14

6/30/2014 @ 14:45 MST

Drilling Resumed
6/30/2014 @ 08:15 MST

136

68

76

163

MD: 6.562'

Inclination: 68.43 °

Azimuth: 358.51 °

TVD: 6.227.38'

VS: 243.62'

MD: 6.609'

Inclination: 73.06 °

Azimuth: 358.82 °

TVD: 6.242.88'

VS: 286.91'

MD: 6.657'

Inclination: 81.13 °

Azimuth: 0.72 °

TVD: 6.253.59'

VS: 332.73'

MD: 6.674'

Inclination: 84.29 °

Azimuth: 1.1 °

TVD: 6.255.74'

VS: 349.32'

PROJECTION TO BIT
DEPTH 6715.00
INC 88.97
AZM 1.10
TVD 6258.11
VS 389.37'

95-100%: MRLST: med-dk gy, tr blk, sb pty-blky, sl
frm-mod hd, arg-sily tex, mtx: calc 5-0% CHK: lt gy,
, tr pyr, tr
crm, mot, sb pty-blky, sft-sl frm, rthy-sb wxy, tr pyr, tr
h bl, uphole contaminants, fr od, slow string dull wh bl,
even mod yel-amb ring, tr yel brn stn

95-65%: MRLST: med-dk gy, tr blk, sb pty-blky, sl
frm-mod hd, arg-sily tex, mtx: calc 5-35% CHK: lt gy,
crm, mot, sb pty-blky, sft-sl frm, rthy-sb wxy, tr imbd
pyr, some uphole contaminants of sily sh, fr od,
slow-mod string wh bl, even mod yel-amb ring, thn
yel brn stn

55% CHK: lt-med gry, brn, mot, sb blk, mod
sft-sl frm, rthy, v calc, some imbd & lse cal,
45% MRLST: dk gy, blk, sb pty-blky, sl frm-mod
hd, arg-sily tex, tr pyr, some uphole con, mod
od, fast-mod string bri wh bl, even mod thk mod
yel-wh ring, thn yel brn stn

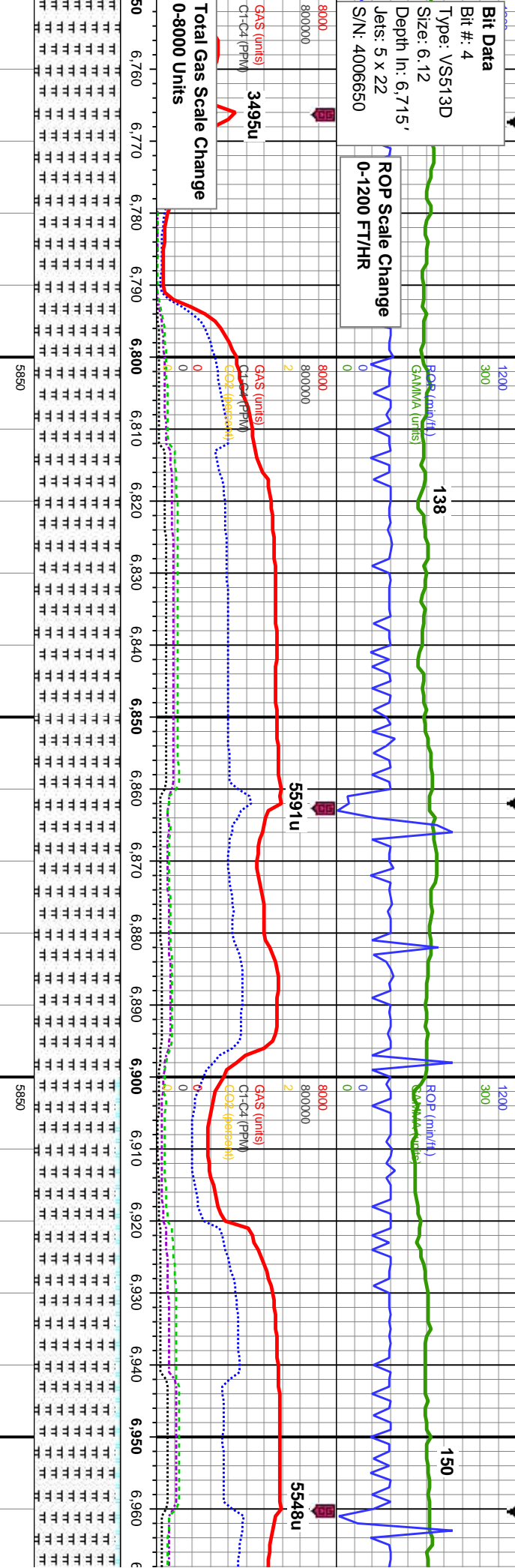
85-0% CMT: 15-100% MRLS
hd, arg-sily tex, mtx: calc, sto
brn stn



Bit Data
Bit #: 4
Type: VS513D
Size: 6.12
Depth In: 6.715'
Jets: 5 x 22
S/N: 4006650

ROP Scale Change
0-1200 FT/HR

Total Gas Scale Change
0-8000 Units



MD: 6,805'
Inclination: 89.23 °
Azimuth: 1.28 °
TVD: 6,263.15'
VS: 478.07'

MD: 6,900'
Inclination: 89.75 °
Azimuth: 358.74 °
TVD: 6,263.99'
VS: 571.24'

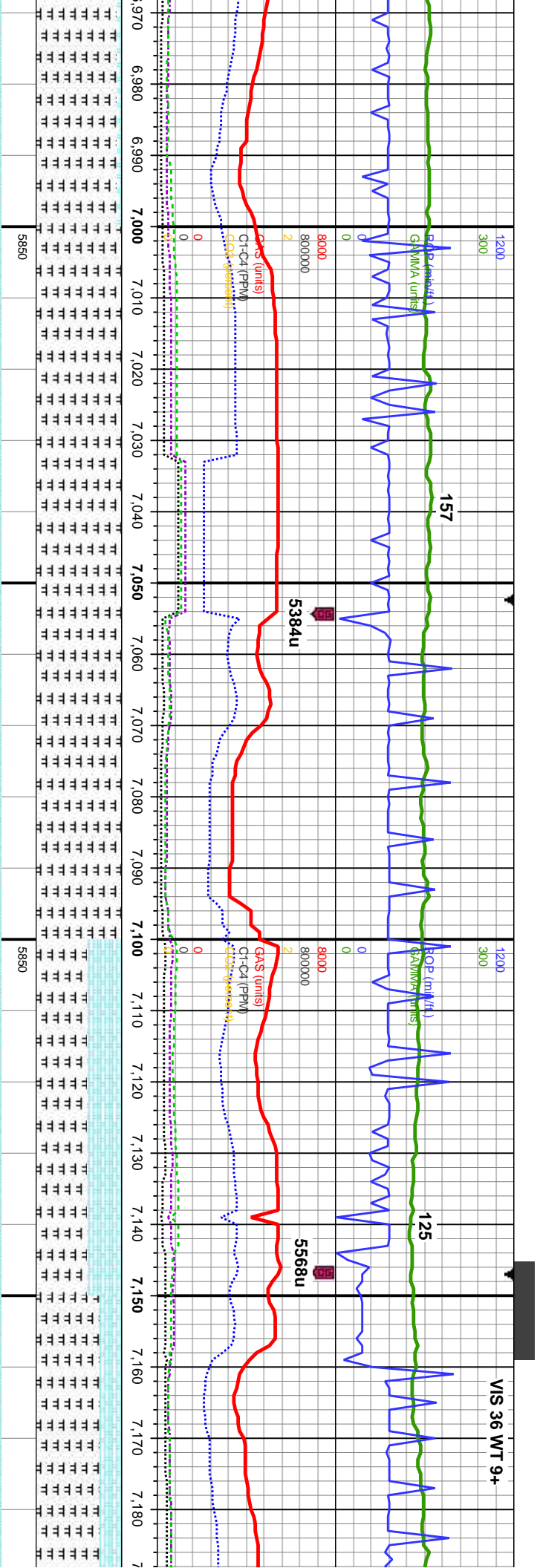
100% MRLST: med-dk gy, tr blk, sb
ply-blky, sl frm-mod hd, arg-sily tex, mtx;
calc, tr chk, tr uphole contaminants of cnt
fr od, slow-mod stmg wh bl, even mod
yel-amb ring, thn yel brn stn

100% MRLST: med-dk gy, tr blk, sb
ply-blky, sl frm-mod hd, arg-sily tex, mtx;
calc, tr chk, tr uphole contaminants of cnt fr
od, slow-mod stmg wh bl, even mod
yel-amb ring, thn yel brn stn

95%: MRLST: med-dk gy, tr blk, sb ply-blky,
sl frm-mod hd, arg-sily tex, mtx; calc 5%
CHK: lt gy, crm, mot, sb ply-blky, sft-sl frm,
rthy-sb wxy, tr bent, tr uphole contaminants
of cnt, fr od, slow-mod stmg wh bl, even
mod yel-amb ring, thn yel brn stn

95%: MRLST: n
sl frm-mod hd, a
CHK: lt gy, crm,
rthy-sb wxy, tr b
of cnt, fr od, slo
mod yel-amb ri





MD: 6,995'
Inclination: 90.18 °
Azimuth: 359.27 °
TVD: 6,264.05'
VS: 664.09'

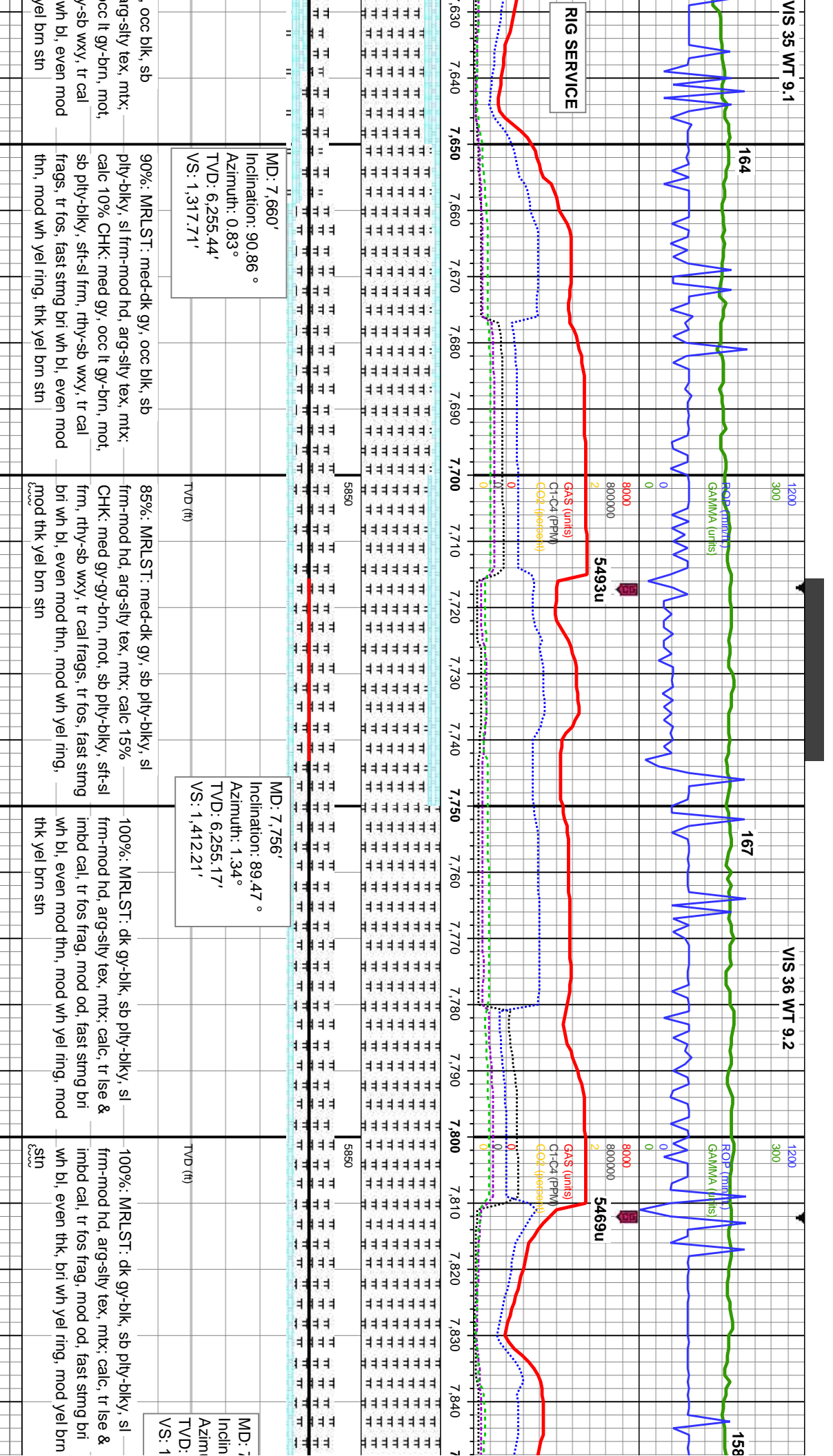
med-dk gy, tr blk, sb pty-blky, arg-sily tex, mtx; calc 5% mot, sb pty-blky, sft-sl frm, tr uphole contaminants w-mod stmg wh bl, even g, thn yel brn stn	100% MRLST: med-dk gy, tr blk, sb pty-blky, sl frm-mod hd, arg-sily tex, mtx; calc, tr chk, tr imbd pyr, fr od, slow-mod stmg wh bl, even mod yel-amb ring, thn yel brn stn	100% MRLST: med-dk gy, tr blk, sb pty-blky, sl frm-mod hd, arg-sily tex, mtx; calc, tr chk, tr imbd pyr, fr od, slow-mod stmg wh bl, even mod yel-amb ring, thn yel brn stn	
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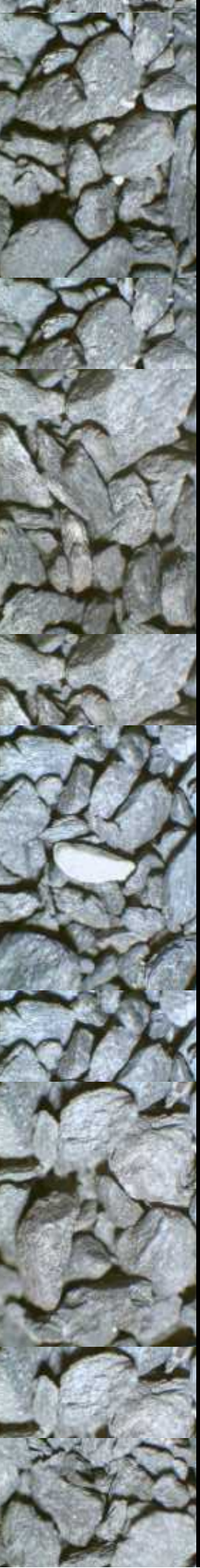
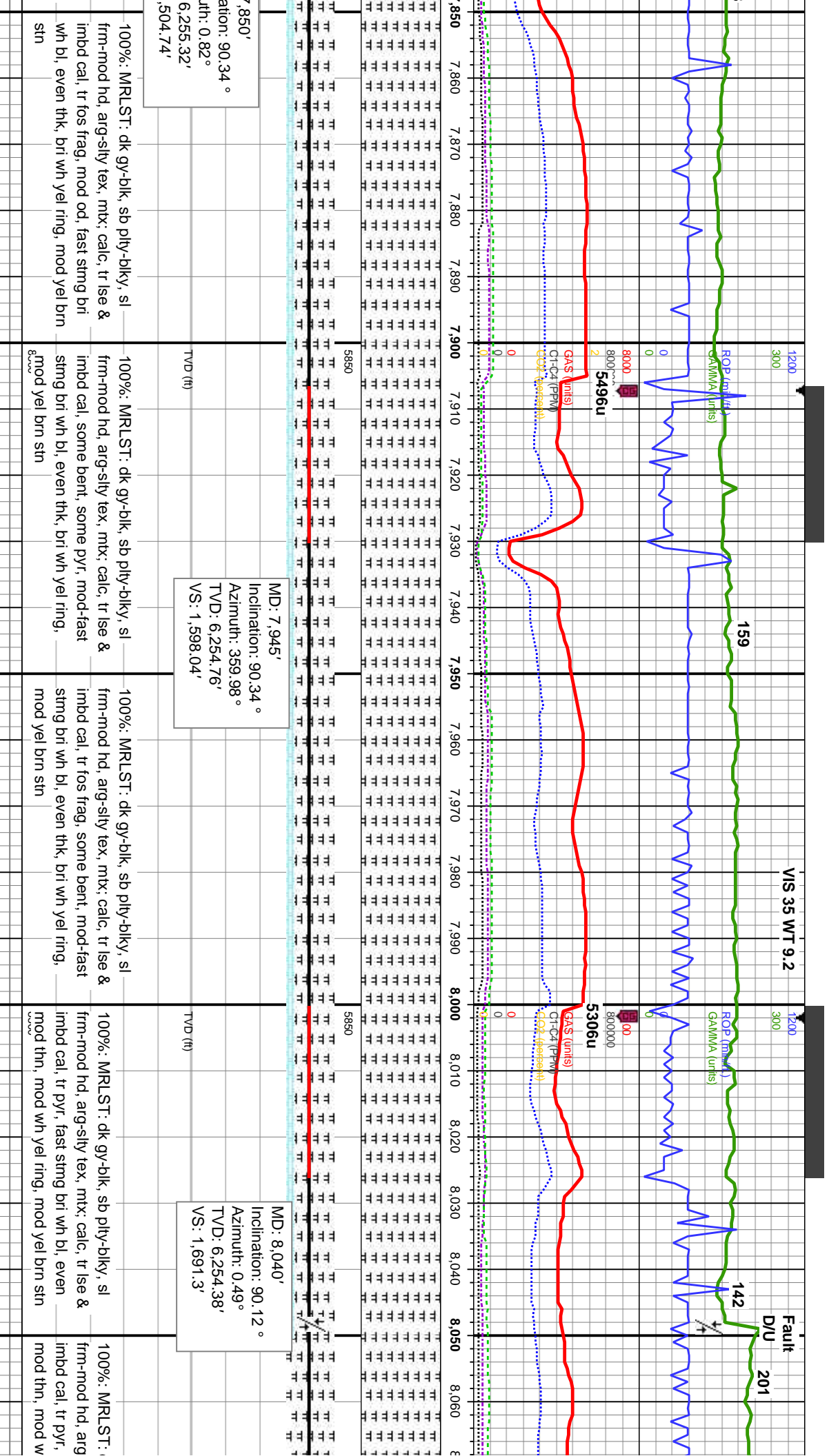
MD: 7,090'
Inclination: 90.8 °
Azimuth: 359.72 °
TVD: 6,263.24'
VS: 757.1'

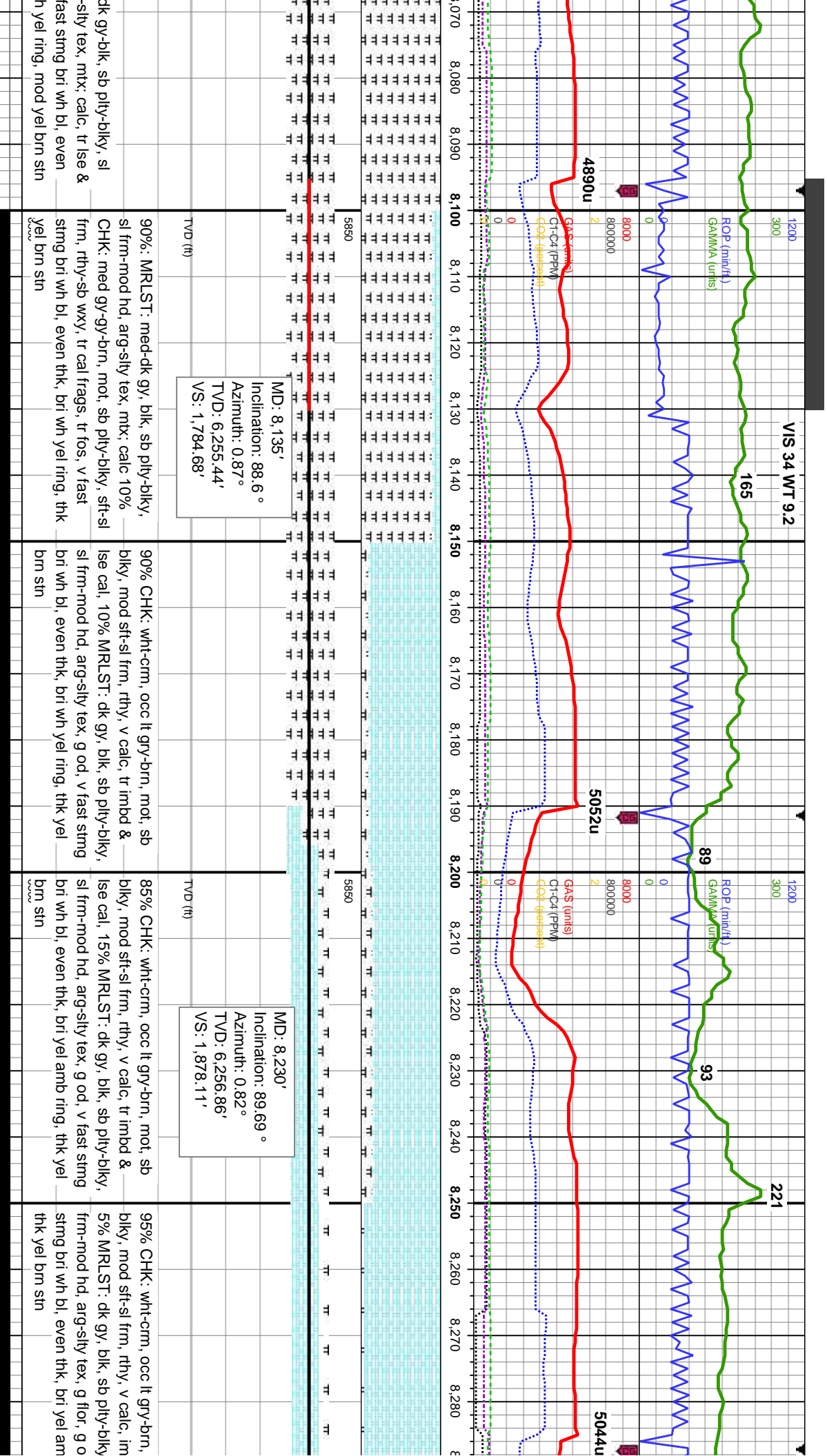
med-dk gy, tr blk, sb pty-blky, arg-sily tex, mtx; calc 5% mot, sb pty-blky, sft-sl frm, tr uphole contaminants w-mod stmg wh bl, even g, thn yel brn stn	60%: MRLST: med-dk gy, tr blk, sb pty-blky, sl frm-mod hd, arg-sily tex, mtx; calc, 40% CHK: med gy, occ lt gr or crm, mot, sb pty-blky, sft-sl frm, rthy-sb wxy, tr bent, tr pyr, g od, fast stmg bri wh bl, even mod thk mod yel-wh ring, thn yel brn stn	75%: MRLST: med-dk gy, tr blk, sb pty-blky, sl frm-mod hd, arg-sily tex, mtx; calc, 25% CHK: med gy, occ lt gr or crm, mot, sb pty-blky, sft-sl frm, rthy-sb wxy, tr bent, tr pyr, g od, fast stmg bri wh bl, even mod thk mod yel-wh ring, thn yel brn stn	
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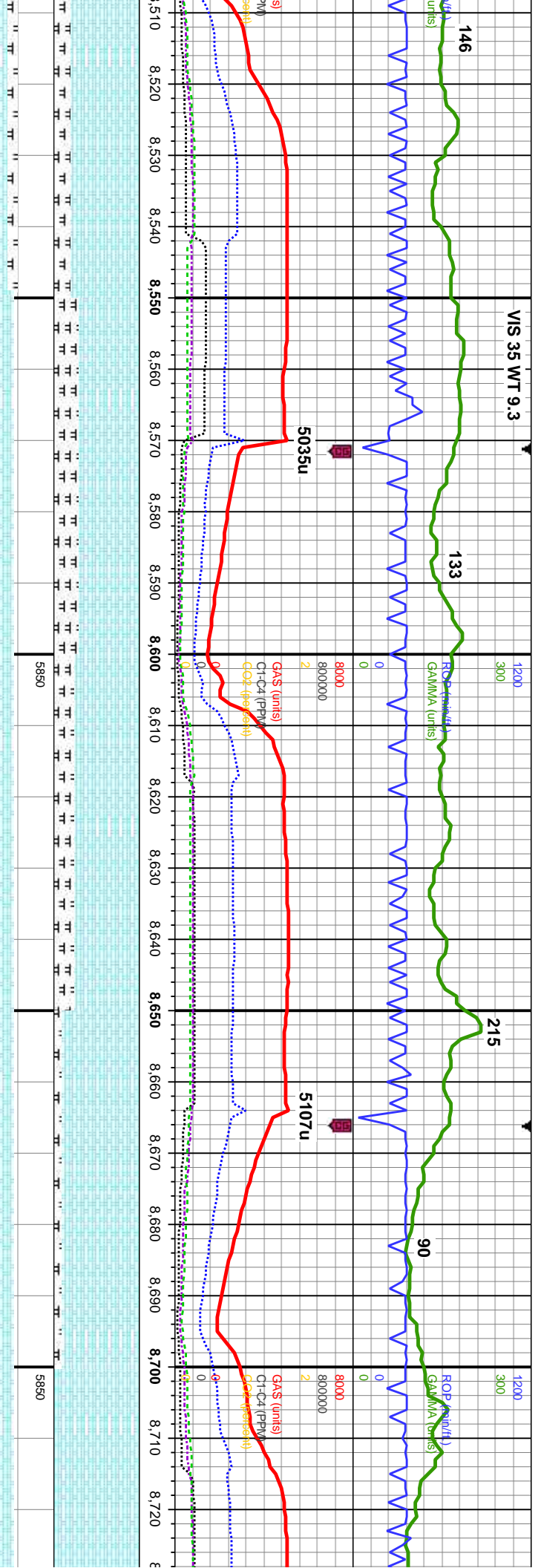
MD: 7,185'
Inclination: 90.18 °
Azimuth: 359.27 °
TVD: 6,261.1'
VS: 850.44'





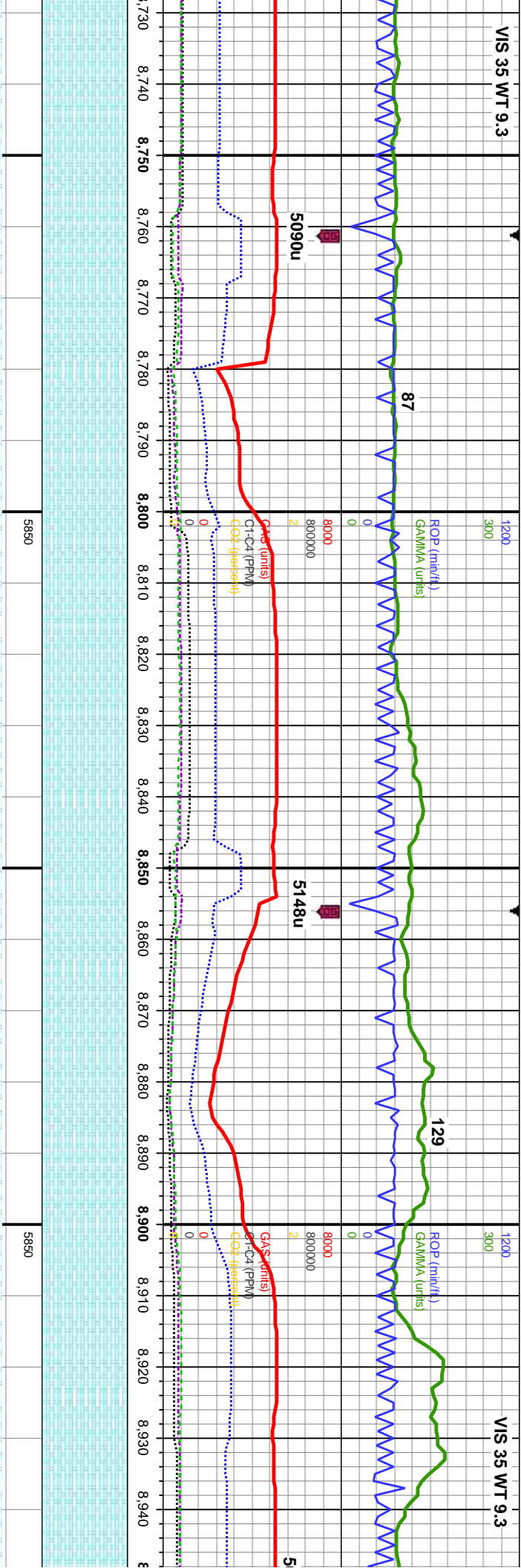






<p>D: 8,515'</p> <p>Inclination: 89.08 °</p> <p>Azimuth: 359.53 °</p> <p>TVD: 6,258.74'</p> <p>VS: 2,157.53'</p>	<p>70% CHK: wht-crm, lt gry, mot, sb blk, mod sft-sl frm, rthy, v calc, occ imbd cal, 30% MRLST: dk gy, blk, sb pty-blky, sl frm-mod hd, arg-sly tex, fr od, fast stmg bri wh bl, even thk, bri yel amb ring, thk yel brn stn</p>	<p>MD: 8,610'</p> <p>Inclination: 89.57 °</p> <p>Azimuth: 0.34 °</p> <p>TVD: 6,259.86'</p> <p>VS: 2,250.68'</p>	<p>90% CHK: wht-crm, lt gry, mot, sb blk, mod sft-sl frm, rthy, v calc, occ imbd cal, 10% MRLST: dk gy, blk, sb pty-blky, sl frm-mod hd, arg-sly tex, g flor, g od, fast stmg bri wh bl, even mod thk, bri wh yel ring, mod yel brn stn</p>	<p>MD: 8,704'</p> <p>Inclination: 90.25 °</p> <p>Azimuth: 359.56 °</p> <p>TVD: 6,260.01'</p> <p>VS: 2,342.87'</p>
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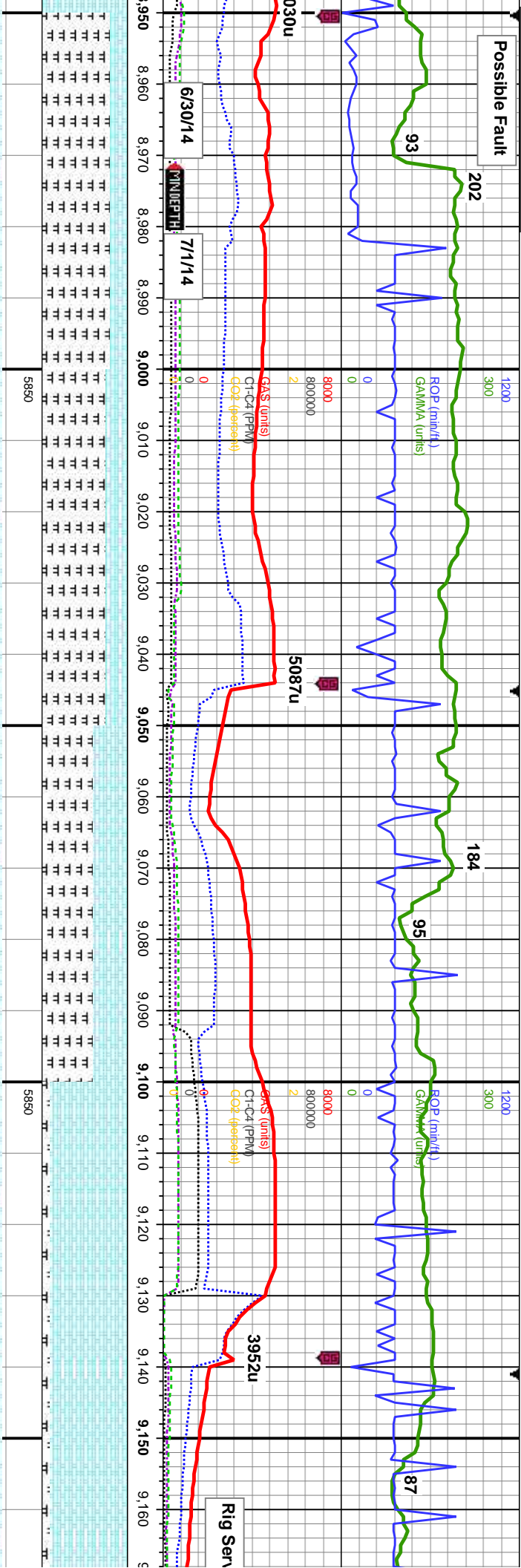
MD: 8,799'
Inclination: 90.43 °
Azimuth: 359.34 °
TVD: 6,259.44'
VS: 2,435.86'

MD: 8,894'
Inclination: 90.96 °
Azimuth: 359.33 °
TVD: 6,258.29'
VS: 2,528.82'

Y, mot, sb blk, 2, occ imbd cal, g n bl, even mod thk, m str	100% CHK: wht-crm, lt gry, mot, sb blk, mod sft-sl frm, rthy, v calc, occ imbd cal, g flor, g od, fast stmg bri wh bl, even mod thk, bri wh yel ring, mod yel brn str	100% CHK: wht-crm, lt gry-brn, mot, sb blk, mod sft-sl frm, rthy, v calc, occ imbd cal, g flor, g od, fast stmg bri wh bl, even mod thk, mod wh yel ring, mod yel brn str	100% CHK: wht-crm, lt gry-brn, mot, sb blk, mod sft-sl frm, rthy, v calc, occ imbd cal, tr marl, mod flor, fr od, mod-fast stmg bri wh bl, even thn, mod wh yel ring, thin yel brn str
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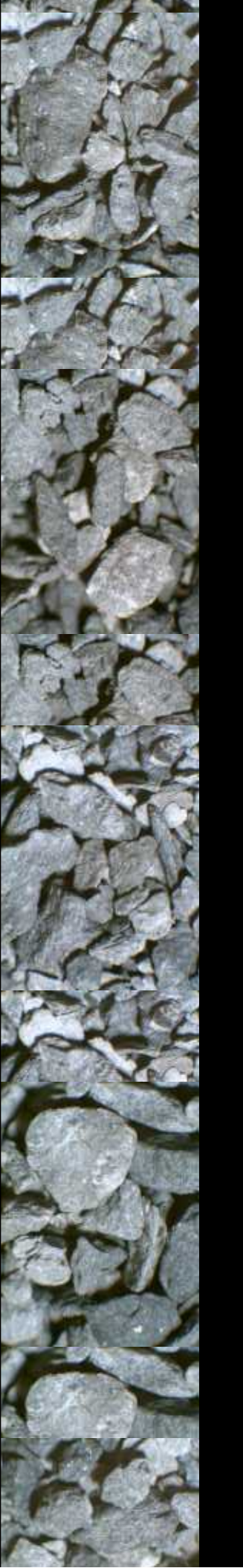
Possible Fault

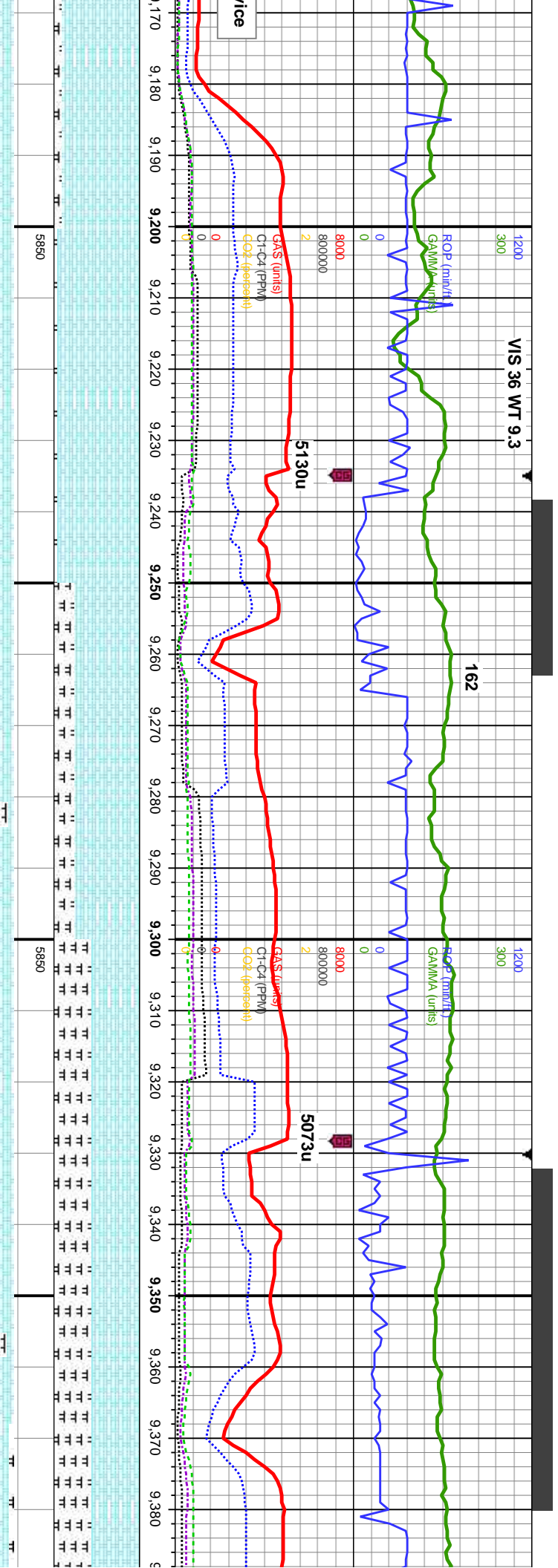


MD: 8,989'
Inclination: 89.13°
Azimuth: 359.16°
TVD: 6,258.22'
VS: 2,621.74'

MD: 9,084'
Inclination: 90.09°
Azimuth: 358.83°
TVD: 6,258.86'
VS: 2,714.58'

80%: MRLST: med-dk gy, blk, sb pty-blky, sl frm-mod hd, arg-sily tex, mtx: calc 20% CHK: med gy-gy-brn, mot, sb pty-blky, sft-sl frm, rthy-sb wxy, tr imbd cal, tr pyr, mod-fast stmg bri wh bl, even thn, mod wh yel ring, thn yel brn stn	75%: MRLST: med-dk gy, blk, sb pty-blky, sl frm-mod hd, arg-sily tex, mtx: calc 25% CHK: med gy-gy-brn, mot, sb pty-blky, sft-sl frm, rthy-sb wxy, tr imbd cal, tr pyr, mod-fast stmg bri wh bl, even thn, mod wh yel ring, mod yel brn stn	60%: MRLST: med-dk gy, blk, sb pty-blky, sl frm-mod hd, arg-sily tex, mtx: calc 40% CHK: med gy-gy-brn, mot, sb pty-blky, sft-sl frm, rthy-sb wxy, tr bent, tr pyr, mod-fast stmg bri wh bl, even thn, mod wh yel ring, mod yel brn stn	90%: CHK: lt-med gry, occ crm or brn, mot, sb blk, mod sft-sl frm, rthy, v calc, tr imbd cal, 10% MRLST: dk gy, blk, sb pty-blky, sl frm-mod hd, arg-sily tex, scatt cal frags, tr imbd cal, tr pyr, g od, mod stmg mod wh bl, even mod thk, mod wh yel ring, thk yel brn stn	90%: CHK: lt-med gry, occ crm or brn, mot, sb blk, mod sft-sl frm, rthy, v calc, tr imbd cal, 10% MRLST: dk gy, blk, sb pty-blky, sl frm-mod hd, arg-sily tex, scatt cal frags, tr imbd cal, tr pyr, g od, mod stmg mod wh bl, even mod thk, mod wh yel ring, thk yel brn stn
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MD: 9,179' Inclination: 91.02 ° Azimuth: 358.75 ° TVD: 6,257.94' VS: 2,807.35'		95% CHK: lt-med gry, occ crm or brn , mot, sb blk, mod sft-sl frm, rthy, v calc, 5% MRLST: dk gy, blk, sb pty-blky, sl frm-mod hd, arg-sly tex, tr bent, fr od, slow-mod stmg bri wh bl, even mod thk, mod wh yel ring, thk yel brn stn	MD: 9,273' Inclination: 92.43 ° Azimuth: 359.97 ° TVD: 6,256.11' VS: 2,899.29'		75% CHK: lt-med gry, occ crm or brn , mot, sb blk, mod sft-sl frm, rthy, v calc, 25% MRLST: dk gy, blk, sb pty-blky, sl frm-mod hd, arg-sly tex, tr bent, fr od, slow-mod stmg bri wh bl, even mod thk, mod wh yel ring, thk yel brn stn	MD: 9,368' Inclination: 90.93 ° Azimuth: 0.75 ° TVD: 6,252.33' VS: 2,992.54'		55% CHK: lt-med gry, occ crm or brn , mot, sb blk, mod sft-sl frm, rthy, v calc, 45% MRLST: dk gy, blk, sb pty-blky, sl frm-mod hd, arg-sly tex, tr imbd cal, tr pyr, fr od, mky bri wh bl, even mod thk, mod wh yel ring, mod yel brn stn
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