

Décollement Consulting Inc.



Scale: 5" / 100'
Measured Depth Log

Well Name Land Fed 13S-32HZ

Location N1/2 NW1/4 Section 32, T2N - R66W

State Colorado

Country USA

API Number 05123423910000

AFE # 2122948

County Weld

Rig Number Precision Drilling #461

Geographic Region DJ Basin

Field Wattenberg

Spud Date 6/15/2016

Drilling Completed 6/18/2016

Surface Coordinates 153' FNL, 166' FWL

Bottom Hole Coordinates N1/2 NW1/4 Section 5, T1N-R66W
299' FNL, 1,174' FWL (proposed)

Ground Elevation 4,837'

K.B. Elevation 4,850'

Logged Interval 4,050' To 9,594'

Total Depth 9,594'

Formation Sussex Sandstone

Type of Drilling Fluid Diesel oil-based mud

Operator

Company Anadarko Petroleum Corporation

Address 1099 18TH Street Suite 1800
Denver, Colorado 80202-1918

Geologist

Name Dick Brunner & Issac Smith

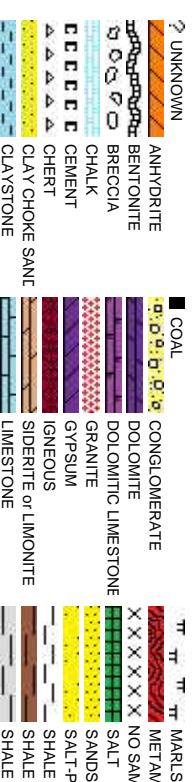
Company Decollement Consulting, Inc.

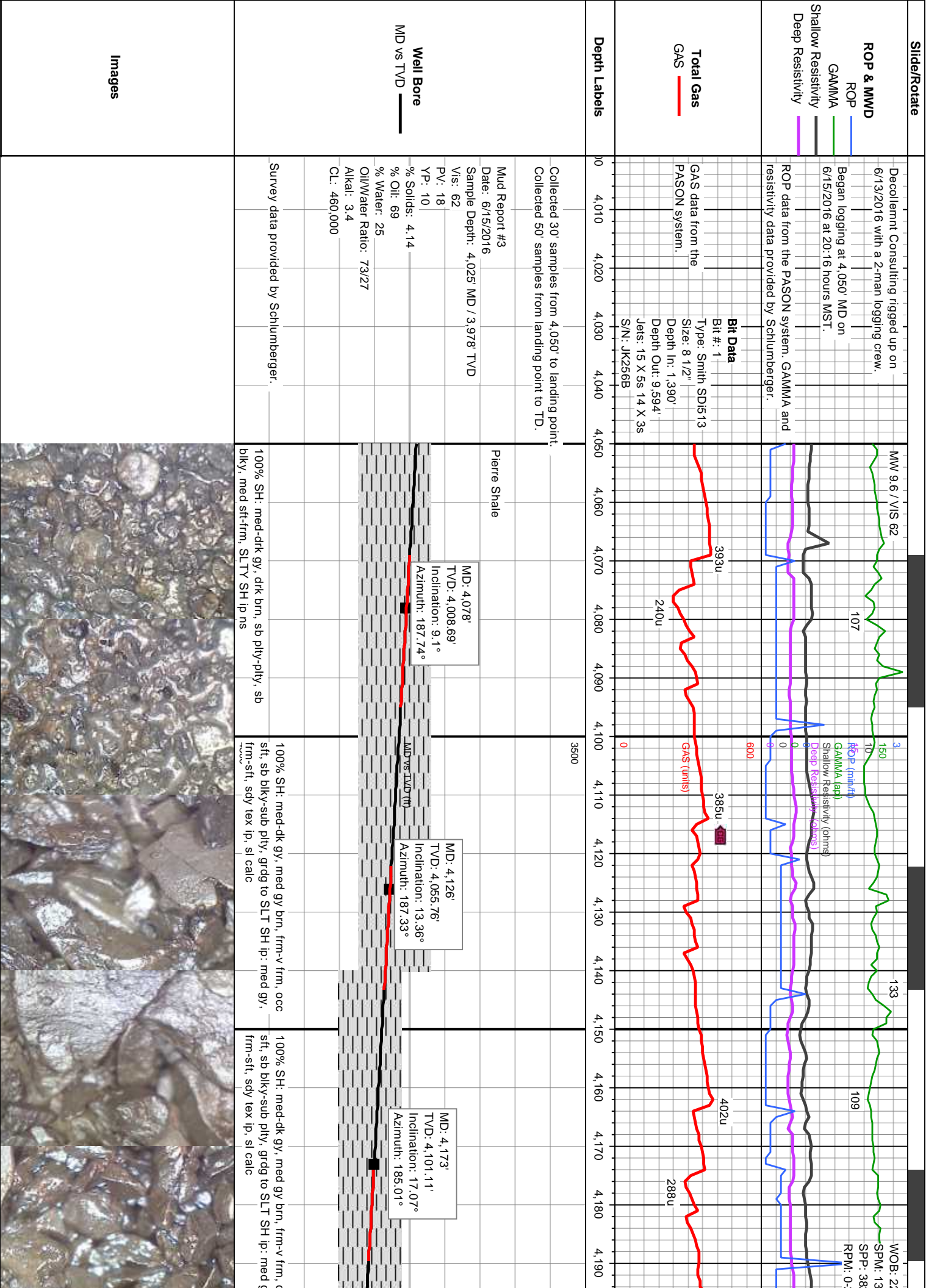
Address 13300 Braun Road
Golden, Colorado 80401

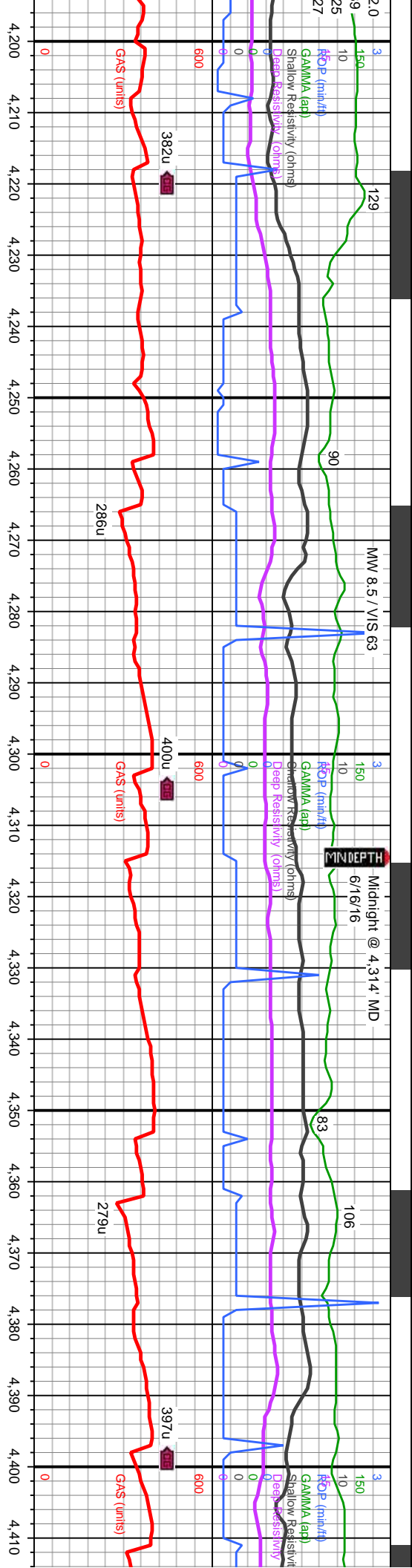
Zone Color Coding



Rock Types

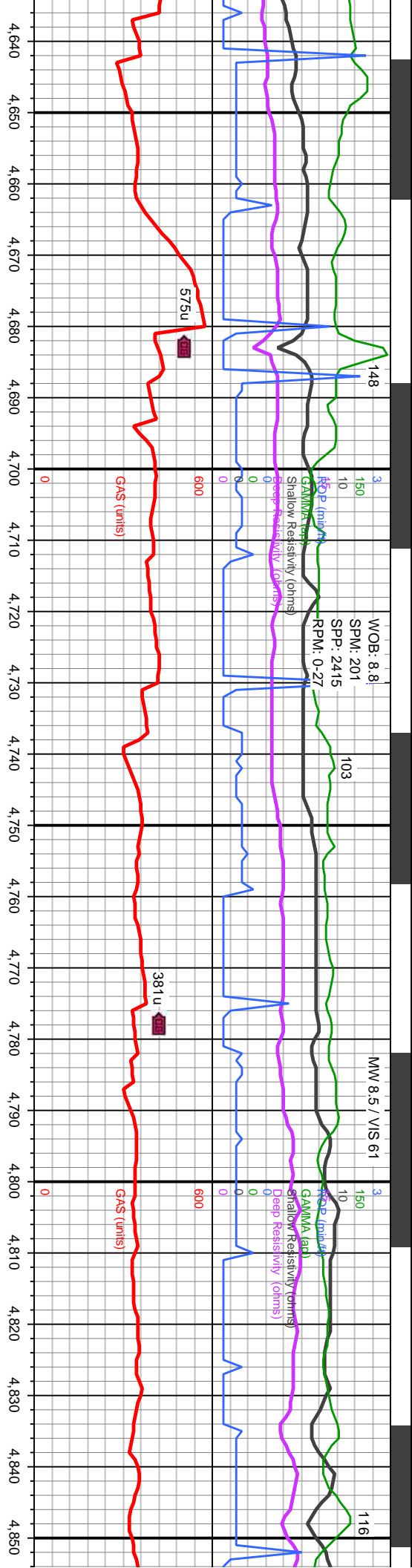






Parkman Fm. Top MD: 4,227' TVD: 4,150'	85% SH: med-dk gy, med gy brn, frm-v frm, occ sft, sb blk-y-sub pily, grdg to SLT SH ip: med gy, frm-sft, sdy tex ip, sl calc 15% SS: lbm-crm-bf, frm, brit, sb-blk-y-sl pily, mod cmt'd, f-med grnd	MD: 4,219' TVD: 4,144.69' Inclination: 20.2° Azimuth: 184.9°	MD vs TVD (MD: 4,266' TVD: 4,188.19' Inclination: 24.24° Azimuth: 187.56°	MD: 4,314' TVD: 4,231.36' Inclination: 27.6° Azimuth: 188.2°	MD: 4,361' TVD: 4,272.33' Inclination: 31.01° Azimuth: 188.49°	Parkman Fm. Base MD: 4,403' TVD: 4,306'
85% SH: med-dk gy, med gy brn, frm-v frm, occ sft, sb blk-y-sub pily, grdg to SLT SH ip: med gy, frm-sft, sdy tex ip, sl calc 15% SS: lbm-crm-bf, frm, brit, sb-blk-y-sl pily, mod cmt'd, f-med grnd	80% SH: med-sft, sb blk-y-sub pily, grdg to SLT SH ip: med gy, frm-sft, sdy tex ip, sl calc 20% SS: lbm-crm-bf, frm, brit, sb-blk-y-sl pily, mod cmt'd, f-med grnd	MD: 4,410' TVD: 4,313. Inclination: 18	MD vs TVD (MD: 4,410' TVD: 4,313. Inclination: 18	MD: 4,410' TVD: 4,313. Inclination: 18	MD: 4,410' TVD: 4,313. Inclination: 18	MD: 4,410' TVD: 4,313. Inclination: 18





Sussex Top
MD: 4,649'
TVD: 4,490'

Sussex "X"
MD: 4,850'
TVD: 4,592'

MD: 4,645'
TVD: 4,489.43'
Inclination: 49.73°
Azimuth: 179.8°

MD: 4,693'
TVD: 4,519.22'
Inclination: 53.55°
Azimuth: 176.97°

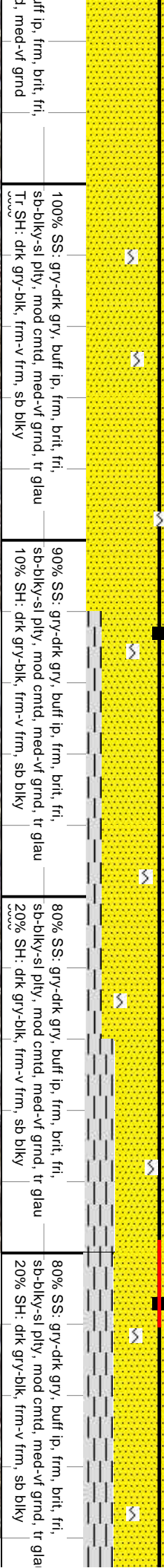
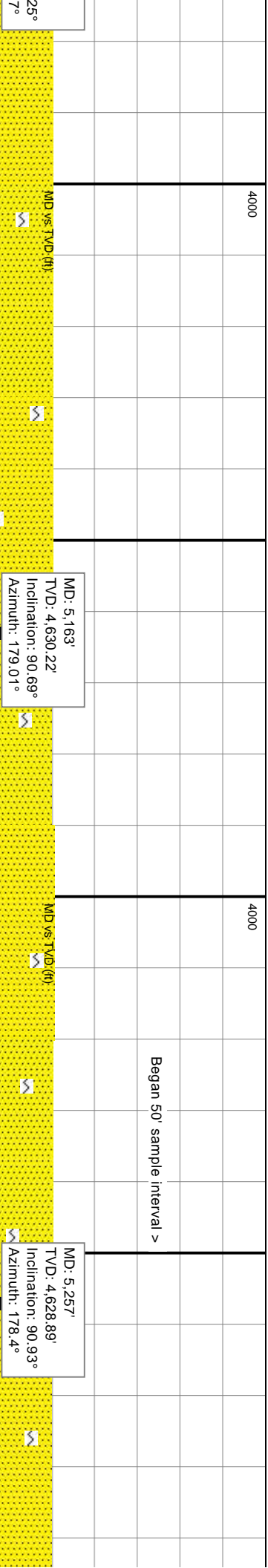
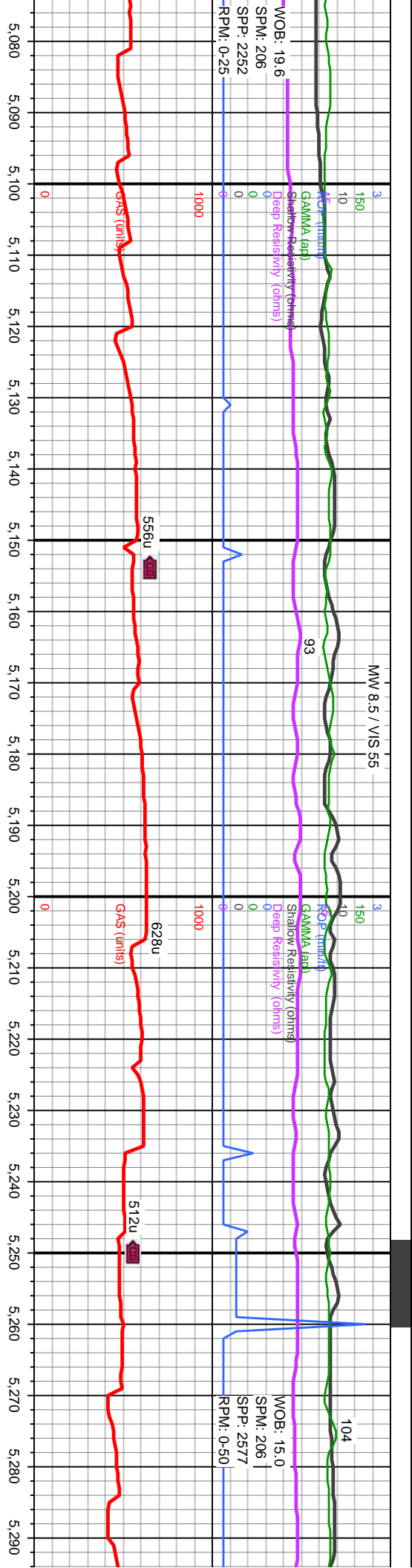
MD: 4,740'
TVD: 4,545.48'
Inclination: 58.5°
Azimuth: 177.43°

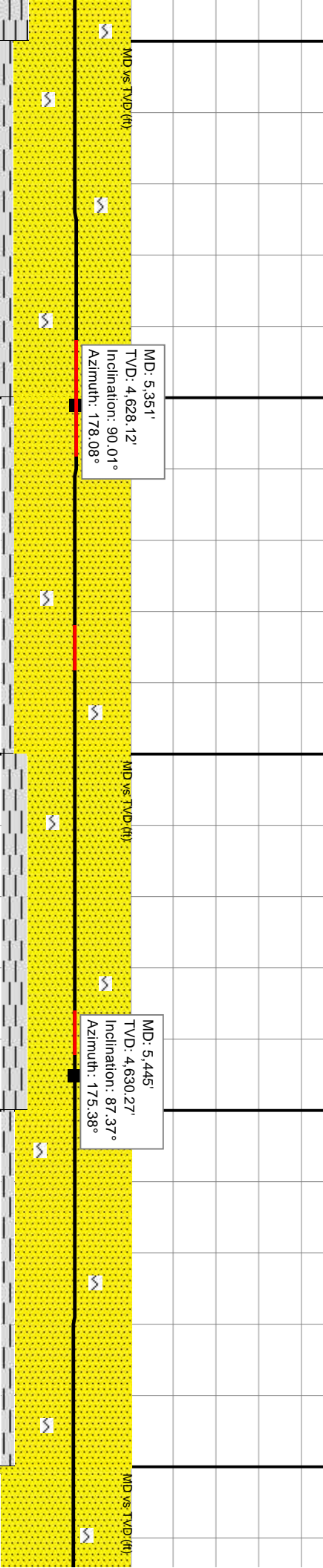
MD: 4,787'
TVD: 4,568.58'
Inclination: 62.59°
Azimuth: 178.18°

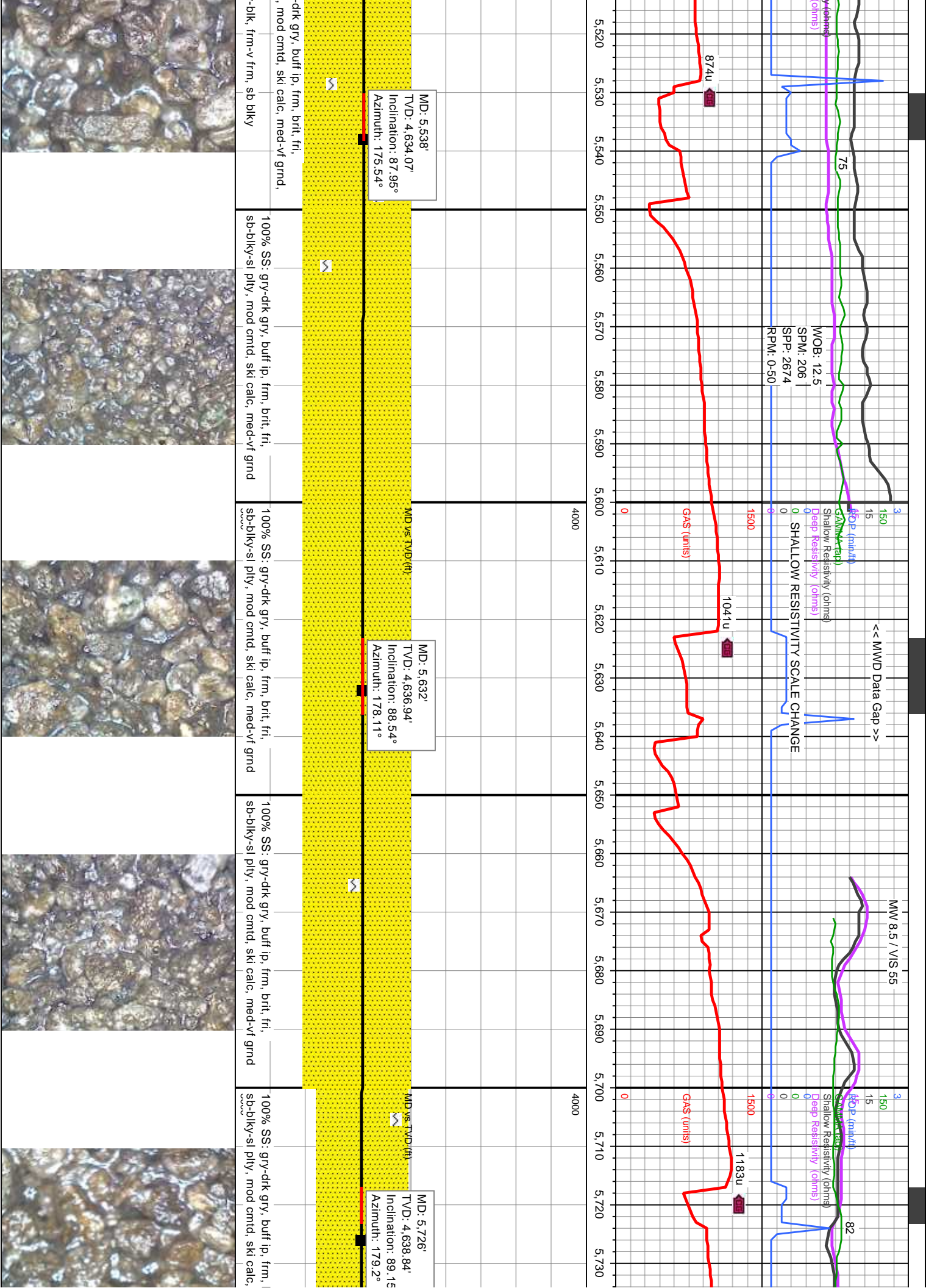
MD: 4,834'
TVD: 4,588.18'
Inclination: 68.1°
Azimuth: 177.05°

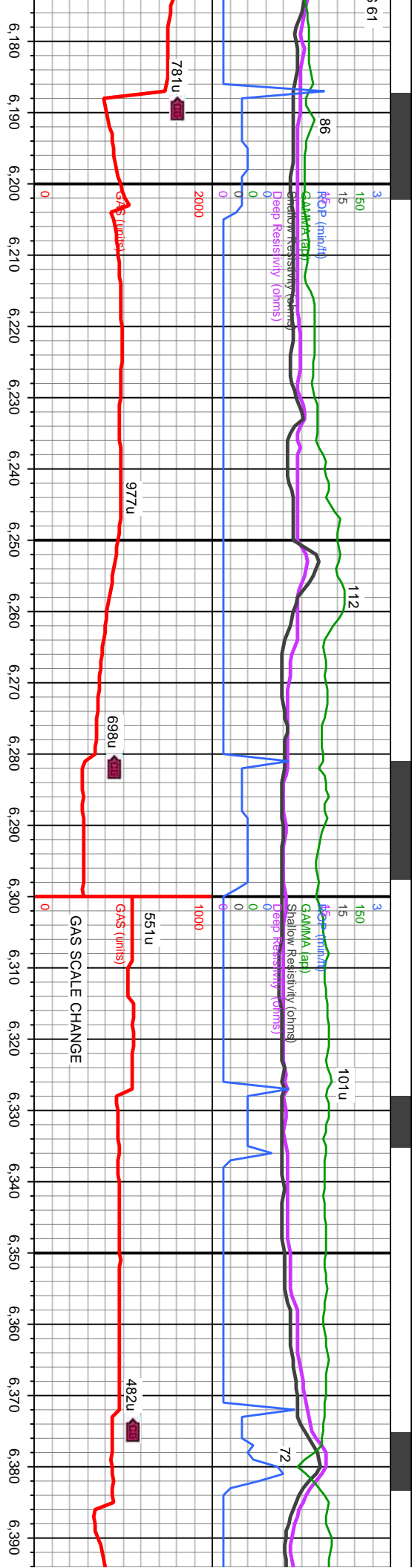
70% SS; wh-crm-bt, frm, brit, sb-biky-sl pily, mod cmtid, f-med grnd	70% SS; wh-crm-bt, frm, brit, sb-biky-sl pily, mod cmtid, f-med grnd	60% SS; wh-crm-bt, frm, brit, fri, sb-biky-sl pily, mod cmtid, f-vf grnd	90% SS; wh-crm-bt, frm, brit, fri, sb-biky-sl pily, mod cmtid, med-vf grnd
30% SH; med-dk gy, med gy brn, frm-v frm, occ sft, sb biky-sb-pily	30% SH; med-dk gy, med gy brn, frm-v frm, occ sft, sb biky-sb-pily	40% SH; med-dk gy, med gy brn, frm-v frm, occ sft, sb biky-sb-pily	10% SH; med-dk gy, med gy brn, frm-v frm, occ sft, sb biky-sb-pily





The image consists of four vertical panels, each showing a close-up of a dark, textured surface, likely a rock or mineral specimen. The texture is highly irregular, with many small, rounded, and elongated features. The colors are predominantly dark brown, black, and grey, with some lighter, yellowish-brown areas. The lighting is somewhat uneven, creating highlights and shadows that emphasize the rough, crystalline nature of the material. The panels are separated by thin white lines, and the overall composition is a vertical stack of these four images.



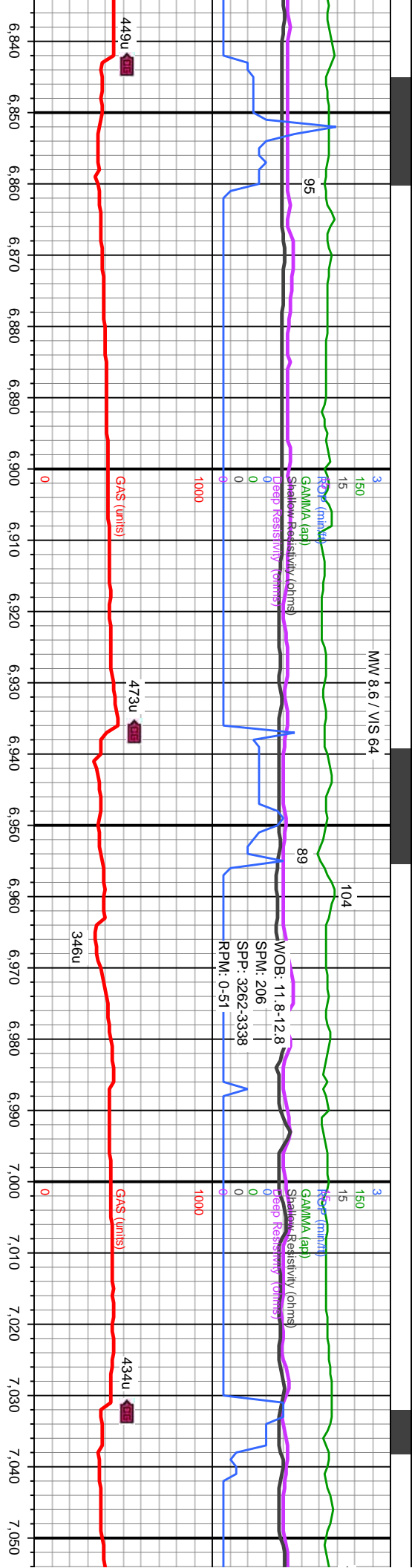


MD: 6,196'
TVD: 4,633.85'
Inclination: 93.2°
Azimuth: 178.33°

MD: 6,290'
TVD: 4,629.39'
Inclination: 92.23°
Azimuth: 178.6°

MD: 6,384'
TVD: 4,627.69'
Inclination: 89.84°
Azimuth: 175.06°

gnshgy, scat lthn-crm ip, vfr-med grnd, mod-w sug appnc, tr scat glau.		100% SS: gry-dk gry-sl gnshgy, scat lthn-crm ip, frm, fri, sb-biky, mod cmtd, vfr-med grnd, mod-w srt, sb-rnd grns, lse ip, sl sug appnc, tr scat glau.		100% SS: gry-dk gry-sl gnshgy, scat lthn-crm ip, frm, fri, sb-biky, mod cmtd, vfr-med grnd, mod-w srt, sb-rnd grns, lse ip, sl sug appnc, tr scat glau.		100% SS: gry-dk gry-sl gnshgy, scat lthn-crm ip, frm, fri, sb-biky, mod cmtd, vfr-med grnd, mod-w srt, sb-rnd grns, lse ip, sl sug appnc, tr scat glau.		100% SS: gry-dk gry-sl gnshgy, scat lthn-crm ip, frm, fri, sb-biky, mod cmtd, vfr-med grnd, mod-w srt, sb-rnd grns, lse ip, sl sug appnc, tr scat glau.	



MD: 6,854'
TVD: 4,631.86'
Inclination: 89°
Azimuth: 176.23°

MD vs TVD (ft)

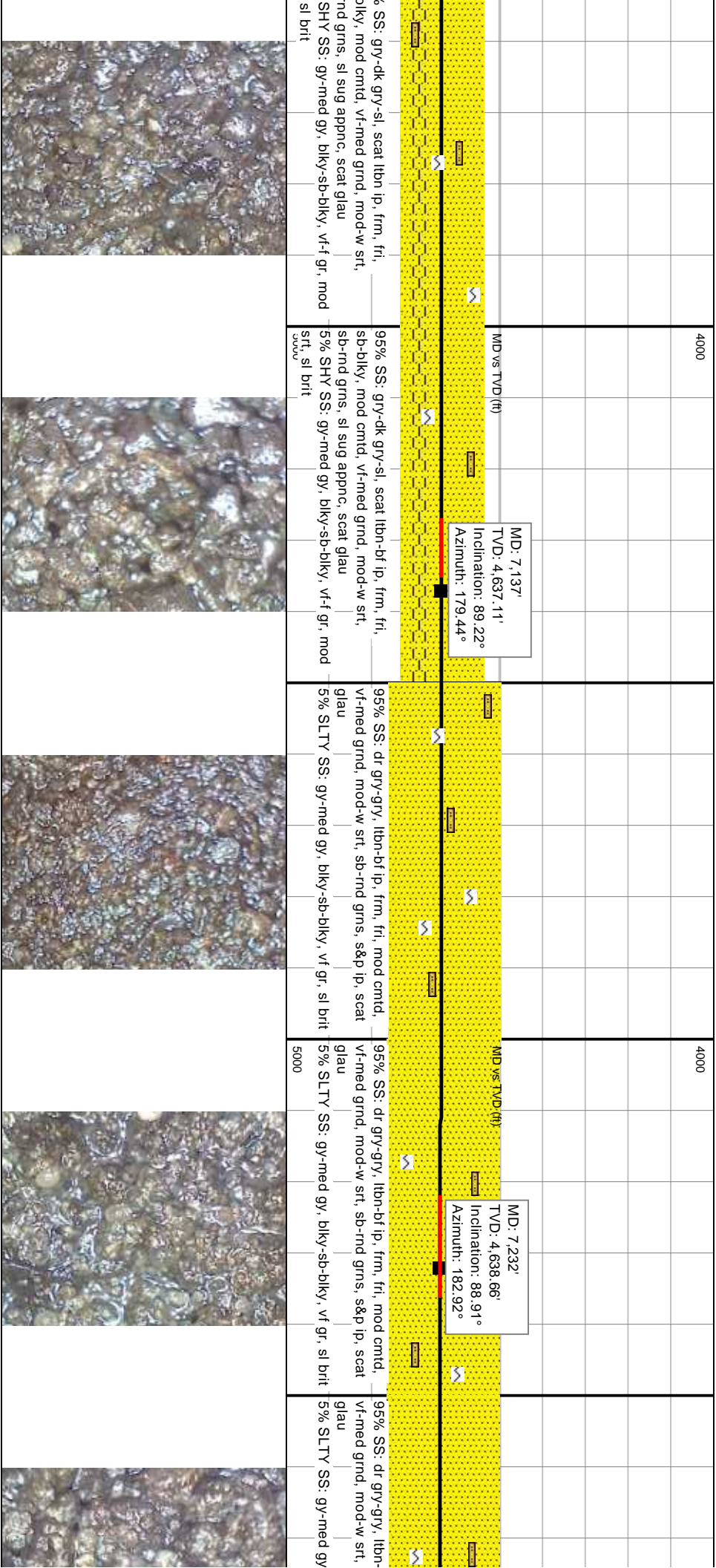
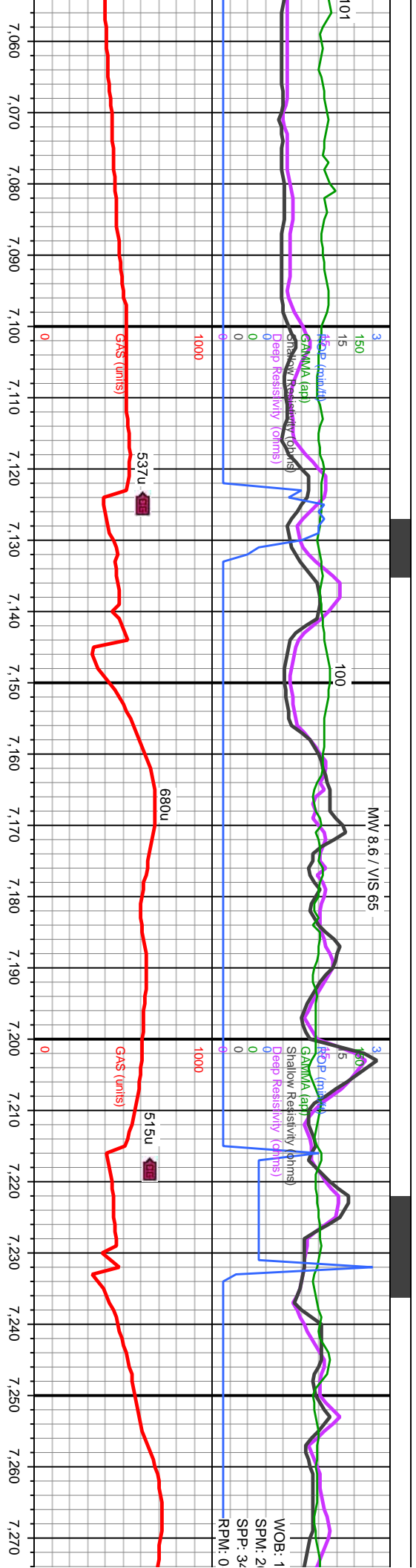
MD: 6,947'
TVD: 4,633.52'
Inclination: 88.96°
Azimuth: 180.41°

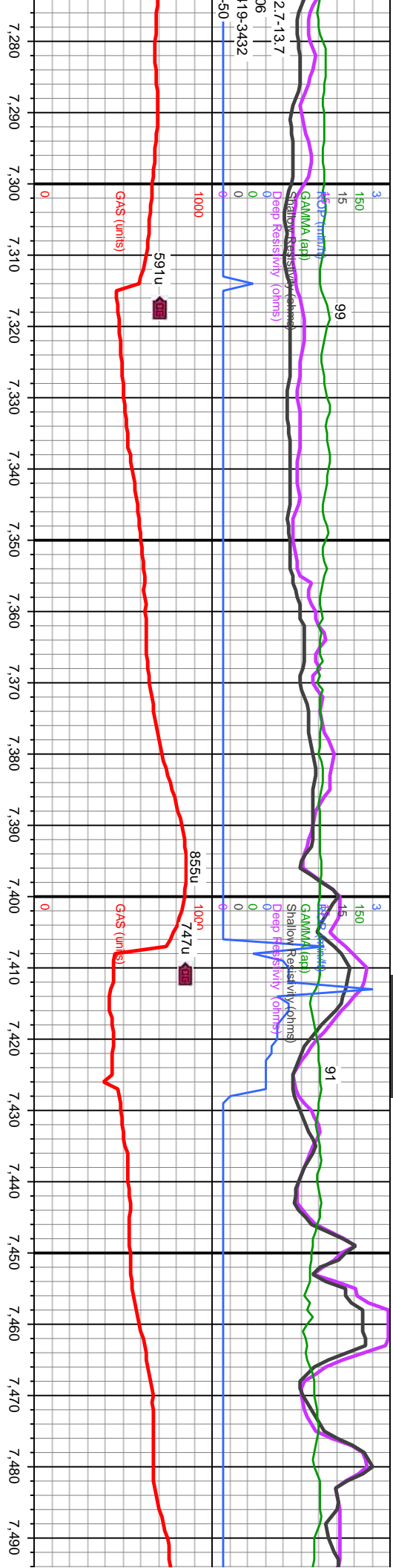
MD vs TVD (ft)

MD: 7,042'
TVD: 4,635.42'
Inclination: 88.74°
Azimuth: 180.08°

90% SS: gry-dk gry-si, scat lbn-crm ip, frm, fri, sb-biky, mod cmtd, vf-med grnd, mod-w srt, sb-rnd grns, lse ip, sl sug appnc, scat glau	90% SS: gry-dk gry-si, scat lbn ip, frm, fri, sb-biky, mod cmtd, vf-med grnd, mod-w srt, sb-rnd grns, sl sug appnc, scat glau	90% SS: gry-dk gry-si, scat lbn ip, frm, fri, sb-biky, mod cmtd, vf-med grnd, mod-w srt, sb-rnd grns, sl sug appnc, scat glau	95% SS: gry-dk gry-si, scat lbn ip, frm, fri, sb-biky, mod cmtd, vf-med grnd, mod-w srt, sb-rnd grns, sl sug appnc, scat glau	95% SS: gry-dk gry-si, scat lbn ip, frm, fri, sb-biky, mod cmtd, vf-med grnd, mod-w srt, sb-rnd grns, sl sug appnc, scat glau
10% SHY SS: gy-med gy, biky-sb-biky, vf-f gr, mod srt, sl brit	10% SHY SS: gy-med gy, biky-sb-biky, vf-f gr, mod srt, sl brit	10% SHY SS: gy-med gy, biky-sb-biky, vf-f gr, mod srt, sl brit	5% SHY SS: gy-med gy, biky-sb-biky, vf-f gr, mod srt, sl brit	5% SHY SS: gy-med gy, biky-sb-biky, vf-f gr, mod srt, sl brit



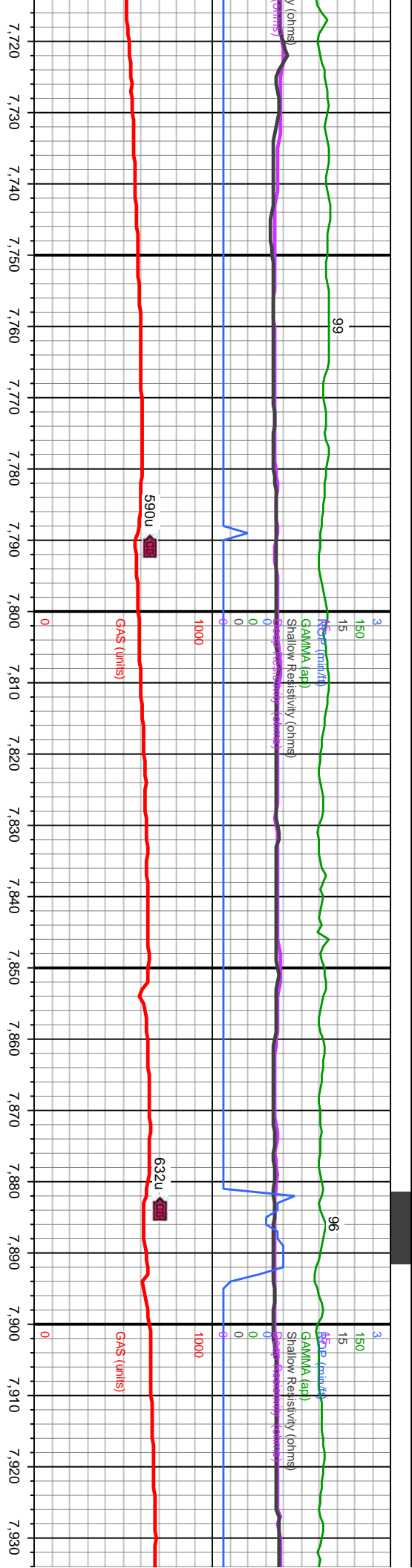




MD: 7,326'
TVD: 4,638.92'
Inclination: 90.78°
Azimuth: 182.33°

MD: 7,421'
TVD: 4,637.43'
Inclination: 91.02°
Azimuth: 183.56°

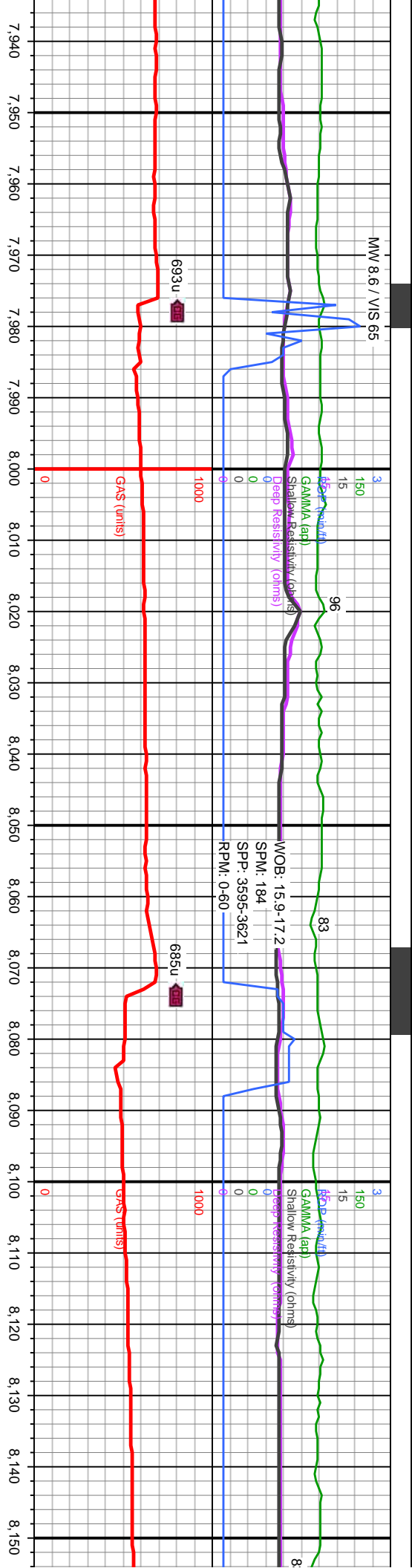
blky-sb-blky, vl gr, sl brit	100% SS: dr gry-gry, lbn-bf ip, frm, fri, mod cmt, glau	100% SS: dr gry-gry, lbn-bf ip, frm, fri, mod cmt, glau	100% SS: dr gry-gry, lbn-bf ip, frm, fri, mod cmt, glau	100% SS: dr gry-gry, lbn-bf ip, frm, fri, mod cmt, glau	100% SS: dr gry-gry, lbn-bf ip, frm, fri, mod cmt, glau
blky-sb-blky, vl gr, sl brit	100% SS: dr gry-gry, lbn-bf ip, frm, fri, mod cmt, glau	100% SS: dr gry-gry, lbn-bf ip, frm, fri, mod cmt, glau	100% SS: dr gry-gry, lbn-bf ip, frm, fri, mod cmt, glau	100% SS: dr gry-gry, lbn-bf ip, frm, fri, mod cmt, glau	100% SS: dr gry-gry, lbn-bf ip, frm, fri, mod cmt, glau
blky-sb-blky, vl gr, sl brit	100% SS: dr gry-gry, lbn-bf ip, frm, fri, mod cmt, glau	100% SS: dr gry-gry, lbn-bf ip, frm, fri, mod cmt, glau	100% SS: dr gry-gry, lbn-bf ip, frm, fri, mod cmt, glau	100% SS: dr gry-gry, lbn-bf ip, frm, fri, mod cmt, glau	100% SS: dr gry-gry, lbn-bf ip, frm, fri, mod cmt, glau
blky-sb-blky, vl gr, sl brit	100% SS: dr gry-gry, lbn-bf ip, frm, fri, mod cmt, glau	100% SS: dr gry-gry, lbn-bf ip, frm, fri, mod cmt, glau	100% SS: dr gry-gry, lbn-bf ip, frm, fri, mod cmt, glau	100% SS: dr gry-gry, lbn-bf ip, frm, fri, mod cmt, glau	100% SS: dr gry-gry, lbn-bf ip, frm, fri, mod cmt, glau
blky-sb-blky, vl gr, sl brit	100% SS: dr gry-gry, lbn-bf ip, frm, fri, mod cmt, glau	100% SS: dr gry-gry, lbn-bf ip, frm, fri, mod cmt, glau	100% SS: dr gry-gry, lbn-bf ip, frm, fri, mod cmt, glau	100% SS: dr gry-gry, lbn-bf ip, frm, fri, mod cmt, glau	100% SS: dr gry-gry, lbn-bf ip, frm, fri, mod cmt, glau
blky-sb-blky, vl gr, sl brit	100% SS: dr gry-gry, lbn-bf ip, frm, fri, mod cmt, glau	100% SS: dr gry-gry, lbn-bf ip, frm, fri, mod cmt, glau	100% SS: dr gry-gry, lbn-bf ip, frm, fri, mod cmt, glau	100% SS: dr gry-gry, lbn-bf ip, frm, fri, mod cmt, glau	100% SS: dr gry-gry, lbn-bf ip, frm, fri, mod cmt, glau



MD: 7,796'
TVD: 4,639.68'
Inclination: 89.64°
Azimuth: 179.78°







MD: 7,889'
TVD: 4,639.96'
Inclination: 90.01°
Azimuth: 181.9°

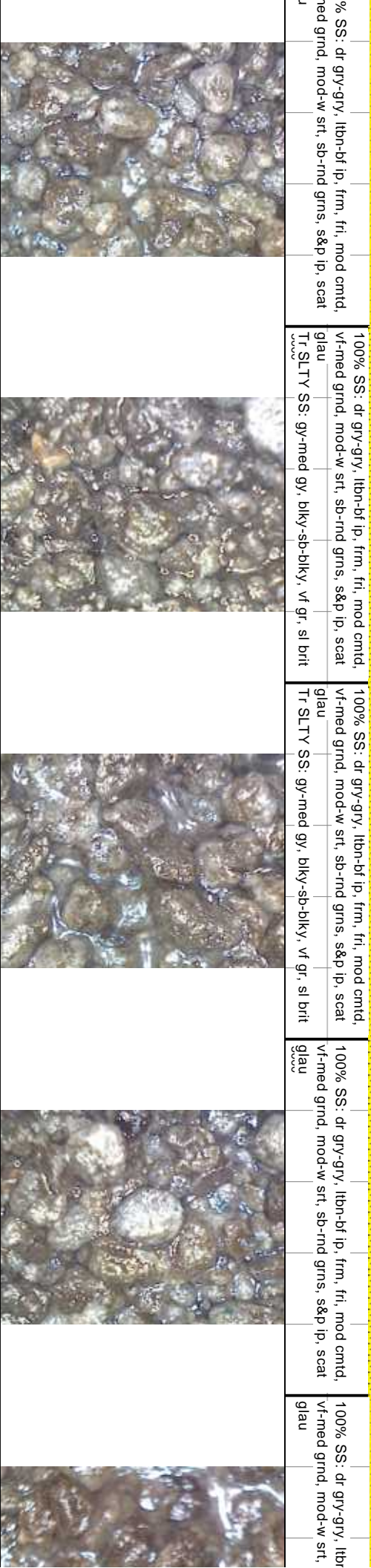
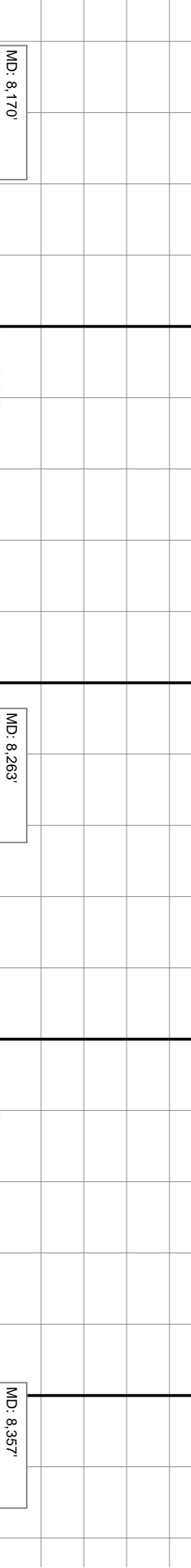
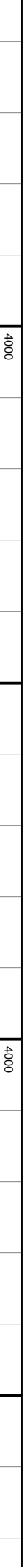
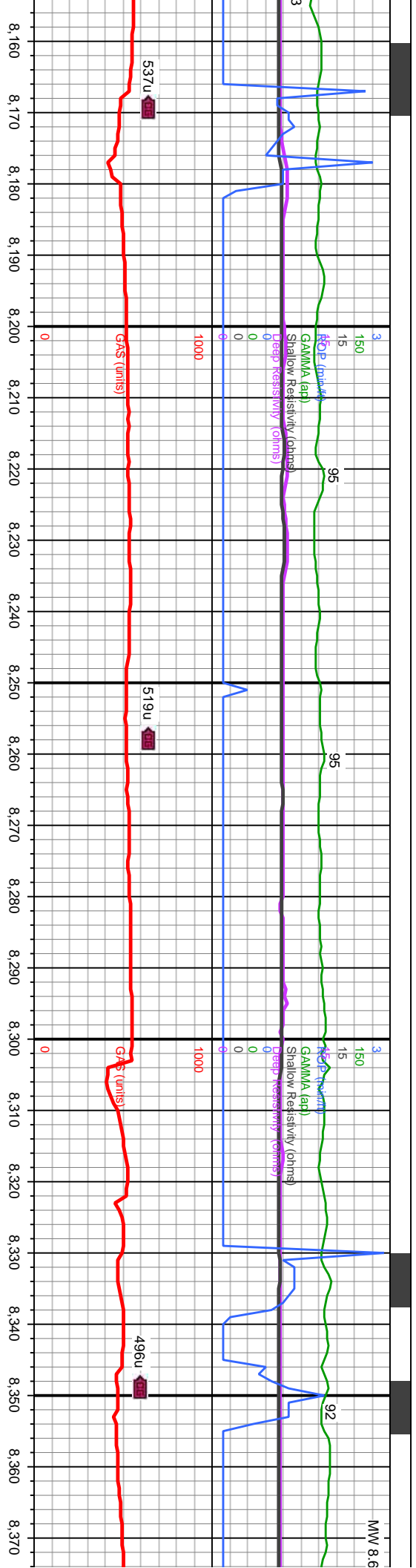
ry-gry, lbn-bf ip, frm, fri, mod cmid, mod-w srt, sb-rnd grns, s&p ip, scat			100% SS: dr gry-gry, lbn-bf ip, frm, fri, mod cmid, vt-med grnd, mod-w srt, sb-rnd grns, s&p ip, scat glau				100% SS: dr gry-gry, lbn-bf ip, frm, fri, mod cmid, vt-med grnd, mod-w srt, sb-rnd grns, s&p ip, scat glau				100% SS: dr gry-gry, lbn-bf ip, frm, fri, mod cmid, vt-med grnd, mod-w srt, sb-rnd grns, s&p ip, scat glau				100% SS: dr gry-gry, lbn-bf ip, frm, fri, mod cmid, vt-med grnd, mod-w srt, sb-rnd grns, s&p ip, scat glau		
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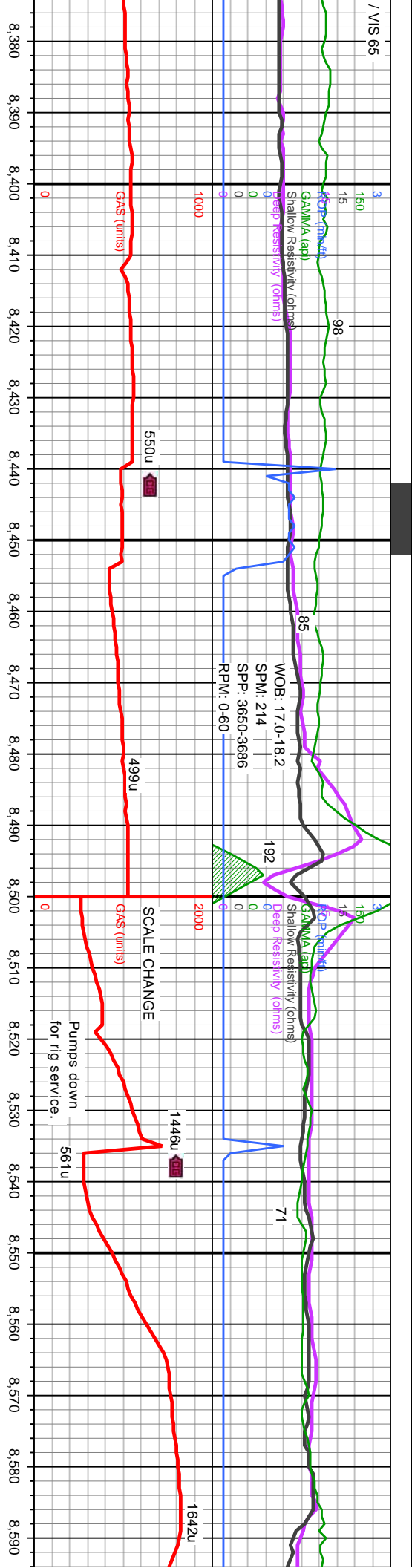


MD: 7,982'
TVD: 4,639.45'
Inclination: 90.63°
Azimuth: 181.25°

MD: 8,075'
TVD: 4,638.89'
Inclination: 90.05°
Azimuth: 182.86°

fri, mod cmtd, s, s&p ip, scat	100% SS: dr gry-gry, lbn-bf ip, frm, fri, mod cmtd, vf-med grnd, mod-w srl, sb-rnd grns, s&p ip, scat glau	100% SS: dr gry-gry, lbn-bf ip, frm, fri, mod cmtd, vf-med grnd, mod-w srl, sb-rnd grns, s&p ip, scat glau	100% SS: dr gry-gry, lbn-bf ip, frm, fri, mod cmtd, vf-med grnd, mod-w srl, sb-rnd grns, s&p ip, scat glau	100% SS: dr gry-gry, lbn-bf ip, frm, fri, mod cmtd, vf-med grnd, mod-w srl, sb-rnd grns, s&p ip, scat glau	100% SS: dr gry-gry, lbn-bf ip, frm, fri, mod cmtd, vf-med grnd, mod-w srl, sb-rnd grns, s&p ip, scat glau	100% SS: dr gry-gry, lbn-bf ip, frm, fri, mod cmtd, vf-med grnd, mod-w srl, sb-rnd grns, s&p ip, scat glau
						










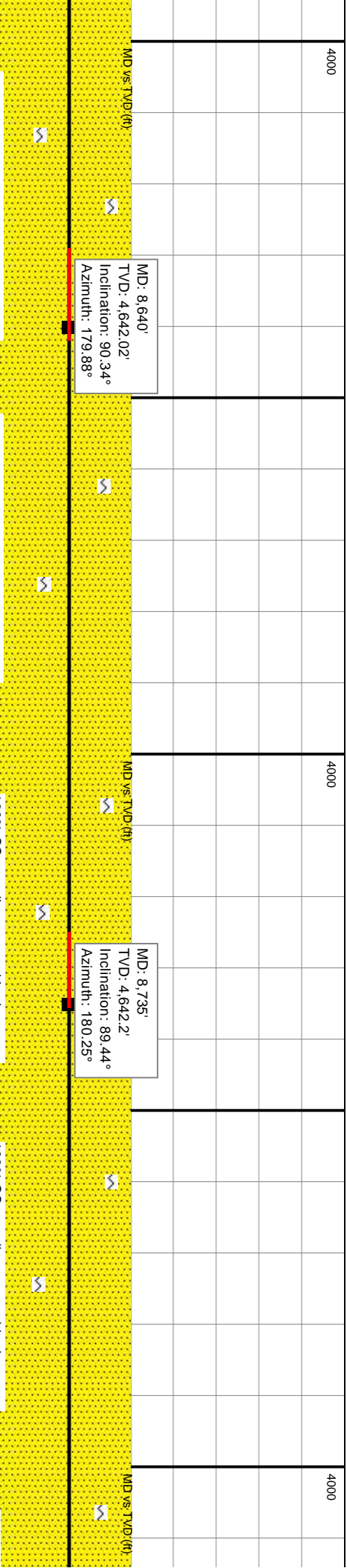
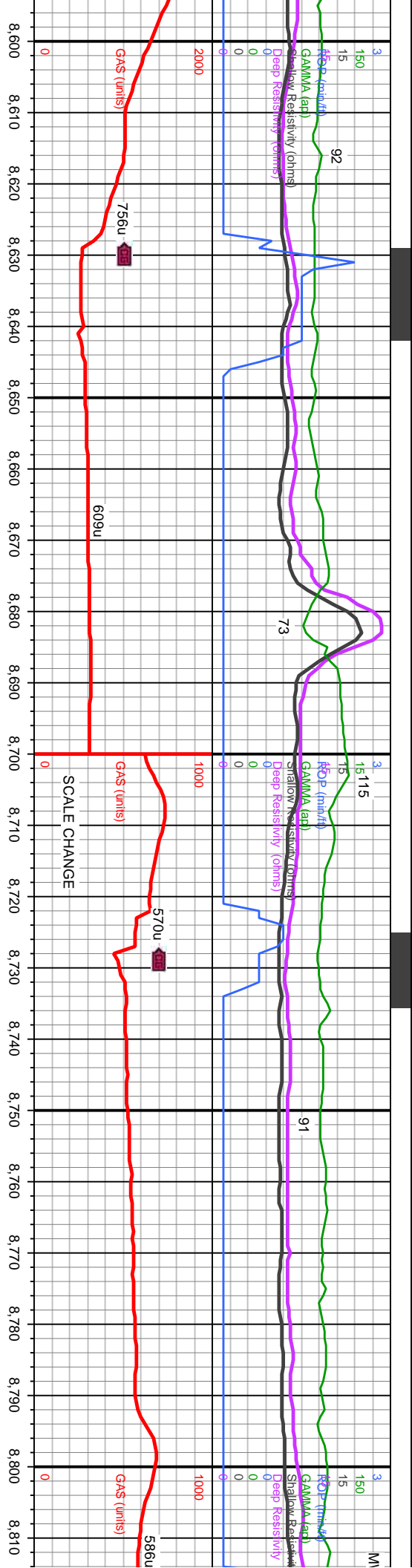
MD vs TVD (ft)

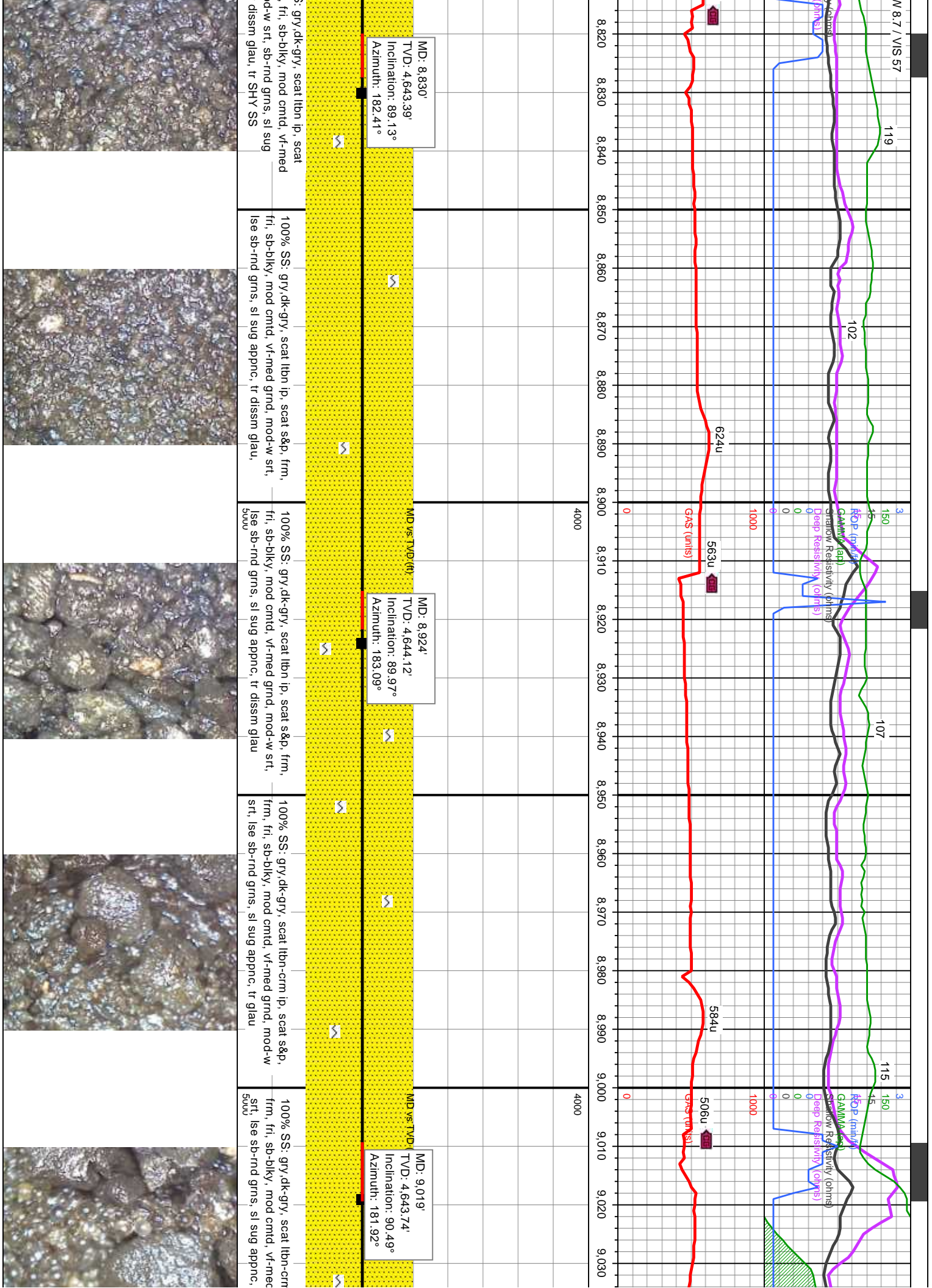
MD: 8,450'
TVD: 4,639.95'
Inclination: 88.52°
Azimuth: 181.14°

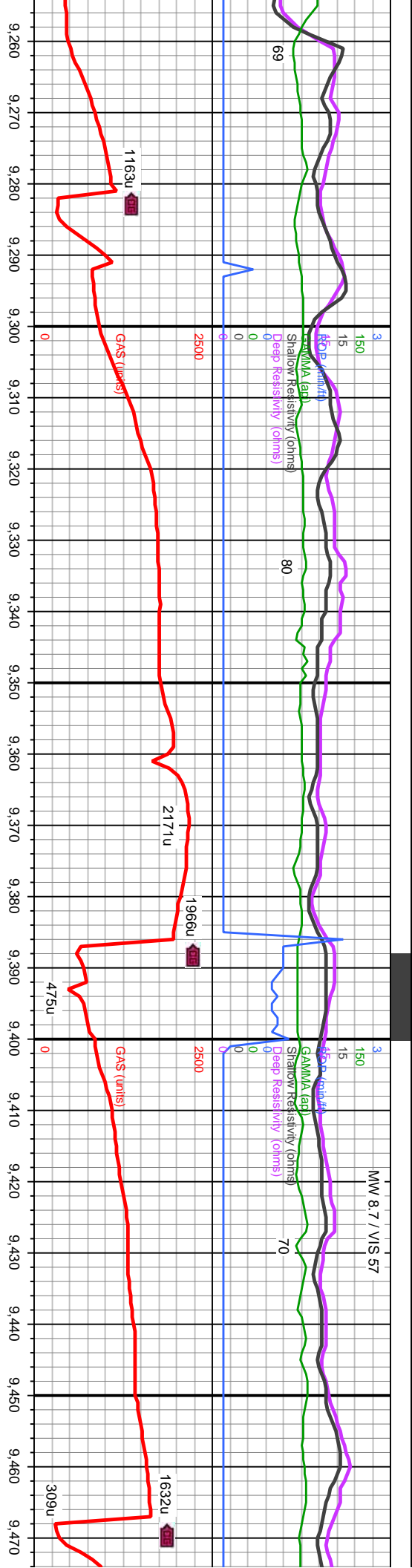
MD vs TVD (ft)

MD: 8,544'
TVD: 4,641.73'
Inclination: 89.31°
Azimuth: 178.8°

sb-bf ip, frm, fri, mod cmtd, sb-rnd grns, s&p ip, scat	100% SS: dr gry-gry, lbn-bf ip, frm, fri, mod cmtd, vf-med grnd, mod-w srl, sb-rnd grns, s&p ip, scat glau	100% SS: dr gry-gry, lbn-bf ip, frm, fri, mod cmtd, vf-med grnd, mod-w srl, sb-rnd grns, s&p ip, scat glau	100% SS: gry/dk-gry, scat lbn ip, scat s&p, frm, fri, sb-biky, mod cmtd, vf-med grnd, mod-w srl, sb-rnd grns, sl sug appnc, tr dissn glau	100% SS: gry/dk-gry, scat lbn ip, scat s&p, frm, fri, sb-biky, mod cmtd, vf-med grnd, mod-w srl, sb-rnd grns, sl sug appnc, tr dissn glau
				








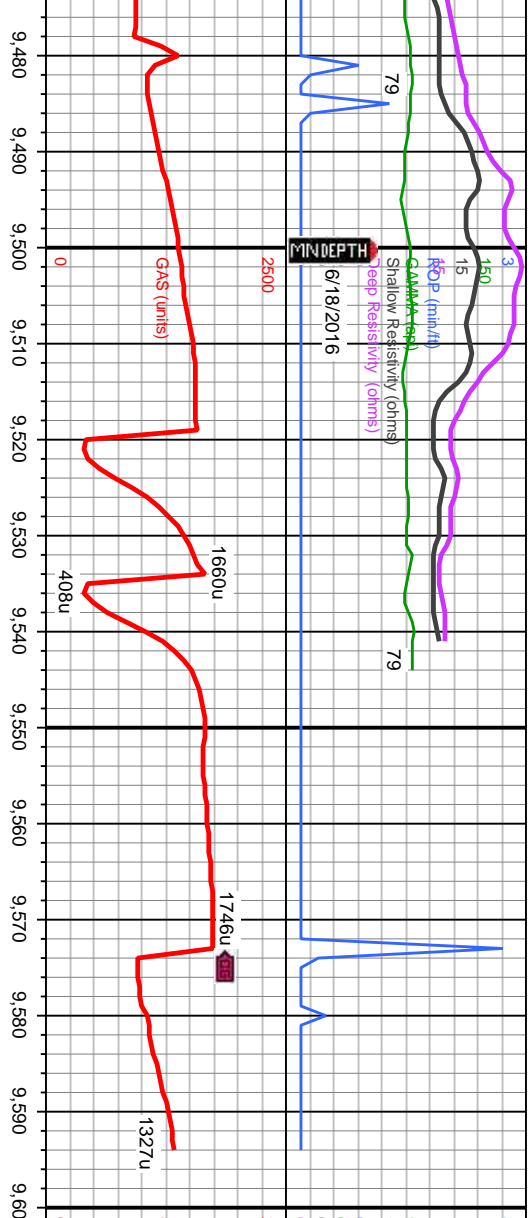




MD: 9,303'
TVD: 4,648.19'
Inclination: 89.48°
Azimuth: 179.39°

MD: 9,397'
TVD: 4,649.24'
Inclination: 89.24°
Azimuth: 179.4°

00% SS: lt-gry, gry, scat lbn-crm-bf, scat s&p, frm, fri, sb-biky, mod cmt, vt-med rmd, mod-w srt, lse sb-rnd grns, rr glau	100% SS: lt-gry, gry, scat lbn-crm-bf, scat s&p, frm, fri, sb-biky, mod cmt, vt-med grnd, mod-w srt, lse sb-rnd grns, sl sug appnc, rr glau	100% SS: lt-gry, gry, scat lbn-crm-bf, scat s&p, frm, fri, sb-biky, mod cmt, vt-med grnd, mod-w srt, lse sb-rnd grns, sl sug appnc, rr glau	100% SS: lt-gry, gry, scat lbn-crm-bf, scat s&p, frm, fri, sb-biky, mod cmt, vt-med grnd, mod-w srt, lse sb-rnd grns, sl sug appnc, rr glau	100% SS: lt-gry, gry, scat lbn-crm-bf, scat s&p, frm, fri, sb-biky, mod cmt, vt-med grnd, mod-w srt, lse sb-rnd grns, sl sug appnc, rr glau
				



TD at 12:35 hours on 6/18/2016.
TD at 9,594' MD in the Sussex Sandstone.

Thank you for using Decollement Consulting!

PROJECTION TO BIT

MD: 9,490'
TVD: 4,649.67'
Inclination: 90.23°
Azimuth: 178.95°

MD: 9,509'
TVD: 4,649.49'
Inclination: 90.85°
Azimuth: 179.57°

MD: 9,594'
TVD: 4,648.23'
Inclination: 90.85°
Azimuth: 179.57°

scat lbn-crm-bf, scat y, mod cmtd, vf-med sb-rnd grns, tr glau	100% SS: lt-gry, gry, scat lbn-crm-bf, scat s&p, frm, fri, sb-bkly, mod cmtd, vf-med grnd, mod-w srt, lse sb-rnd grns, tr glau	100% SS: lt-gry, gry, scat lbn-crm-bf, scat s&p, frm, fri, sb-bkly, mod cmtd, vf-med grnd, mod-w srt, lse sb-rnd grns, tr glau
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