



Scale: 5" / 100'
Measured Depth Log

Well Name HOUSTON 33N-8HZ

Location SEC.8-T3N-R67W

State COLORADO

Country USA

API Number 05-123-3894800

Region DJ BASIN

Spud Date 3/17/2014

Surface Coordinates 1750' FSL 594' FEL

Bottom Hole Coordinates 1460' FSL 50' FWL

County WELD

Rig Number XTREME 8

AFE # 2091309

Field WATTENBERG

Drilling Completed 5/29/2014

Ground Elevation 4807'

K.B. Elevation 4824'

Logged Interval 6700' To 11743'

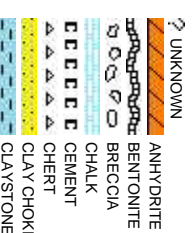
Total Depth 11743'

Formation NIOBRARA

Type of Drilling Fluid FW LSND

Company ANADARKO PE
Address 1099 18TH, SU
DENVER, CO 8

Name RIKKI WITHER
Company COLUMBINE L
Address 2385 S. LIPAN
DENVER, CO 8



Operator

PETROLEUM COMPANY

ITE 1800

0202

Geologist

SPOON, JERED KARR, MOHAMMED ALMUBARAK

OGGING INC

ST.

0223

Rock Types

| | | |
|----------------------|------------------|-----------------|
| CONGLOMERATE | MARLSTONE | SHALY SANDSTONE |
| DOLomite | METAMORPHIC | SHALY SILTSTONE |
| DOLomitic LIMESTONE | NO SAMPLE | SILTY SHALE |
| GRANITE | SALT | SILTSTONE |
| GYPsum | SANDSTONE | TILL |
| IGNEOUS | SALT-PEPPER SANc | TUFF |
| SIDERITE or LIMONITE | SHALE | WELDED TUFF |
| LIMESTONE | SHALE COLORED | |
| | SHALE GRAY | |

Accessories

| | | | | |
|----------------|----------------|--------------------|---------------------|-----------------------|
| Fossils | GASTROPOD | ARGILLITE GRAIN | HEAVY MINERAL | Stringer |
| INOCERAMUS | B BENTONITE | K KAOLIN | ANHYDRITE STRINGER | BENTONITE STRINGER |
| ALGAE | O OOLITE | M MARCASITE | COAL STRINGER | DOLOMITE STRINGER |
| AMPHIPORA | O OSTRACOD | BRECCIA FRAGMENTS | MINERAL CRYSTALS | GYPSUM STRINGER |
| BELEMNITE | P PELECYPOD | C CALCAREOUS | CARBONACEOUS FLAKES | LIMESTONE STRINGER |
| BIOCLASTIC | P PELLET | C CHITDK | CHITL | MARLSTONE (CALC) STRG |
| BRACHIOPOD | P PISOLITE | THIN BEDS | DOLOMITIC | MARLSTONE (DOL) STRG |
| BRYOZOA | PLANT REMAINS | F FELDSPAR | STROMATOPOROID | SANDY |
| CEPHALOPOD | PLANT SPORES | FERRUGINOUS PELLET | FERRUGINOUS | SIDERITE |
| CORAL | S SCAPHOPOD | | S SUCCEOUS | SILTSTONE STRINGER |
| CRINOID | STROMATOPOROID | | S SILTY | |
| ECHINOID | | | T TUFFACEOUS | |
| F FISH | | | | |
| FORAMINIFERA | ANHYDRITIC | G GLAUCONITE | | |
| F FOSSIL | ARGILLACEOUS | G GYPSIFEROUS | | |

Other Symbols

| | | | |
|-----------------------|----------------------|------------------------|----------------|
| Oil Show | P PINPOINT | WIRELINE TESTED - LEFT | E EARTHY |
| V VUGGY | F FAULT | WIRELINE TESTED - RT | FM FINELYXLN |
| Engineering | FORMATION TOP | DRILL STEM TEST | GS GRAINSTONE |
| D DEAD | GAS SHOW | MN DEPTH | L LITHOGRAPHIC |
| E EVEN | OIL SHOW | | MX MICROXLN |
| Q QUESTIONABLE | BIT | | |
| SPOTTED STAINING | CONNECTION (UP) | Rounding | MS MUDSTONE |
| | | A ANGULAR | PS PACKSTONE |
| Porosity | CONNECTION (DOWN) | B SUBANG | WS WACKESTONE |
| CONNECTION GAS | NORMAL FAULT | B SUBANG | |
| CONNECTION GAS (LEFT) | OVERTURNED STRATA | B SUBANG | |
| E EARTHY | REVERSE FAULT | Sorting | |
| F FENESTRAL | CASING | P POOR | M MODERATE |
| F FRACTURE | TRIP GAS (LEFT) | B BOUNDSTONE | W WELL |
| INTERCRYSTALLINE | DOWN TIME GAS | C CHALKY | |
| INTERCRYSTALLINE | DOWN TIME GAS (LEFT) | C CRYPTOXLN | |
| M MOLDIC | CORE - LOST | | |
| O ORGANIC | CORE - RECOVERED | | |
| | SURVEY | | |

ROP
ROF
GAMMA

Bit Data

Bit #: 2

Type: SD1611

Size: 8.75

Depth In: 822'

Depth Out: 7,395'

Jets: 6X18

S/N: JJ2938

Total Gas & Chromatograph
GAS
C1
C2
C3
C4

Columbine Logging Two Man Rigged
Up 16:32 hrs 05/22/2014 With
Bloodhound Unit # 0313
Logging Began @ 09:47 hrs 05/23/2014
at 6700' MD

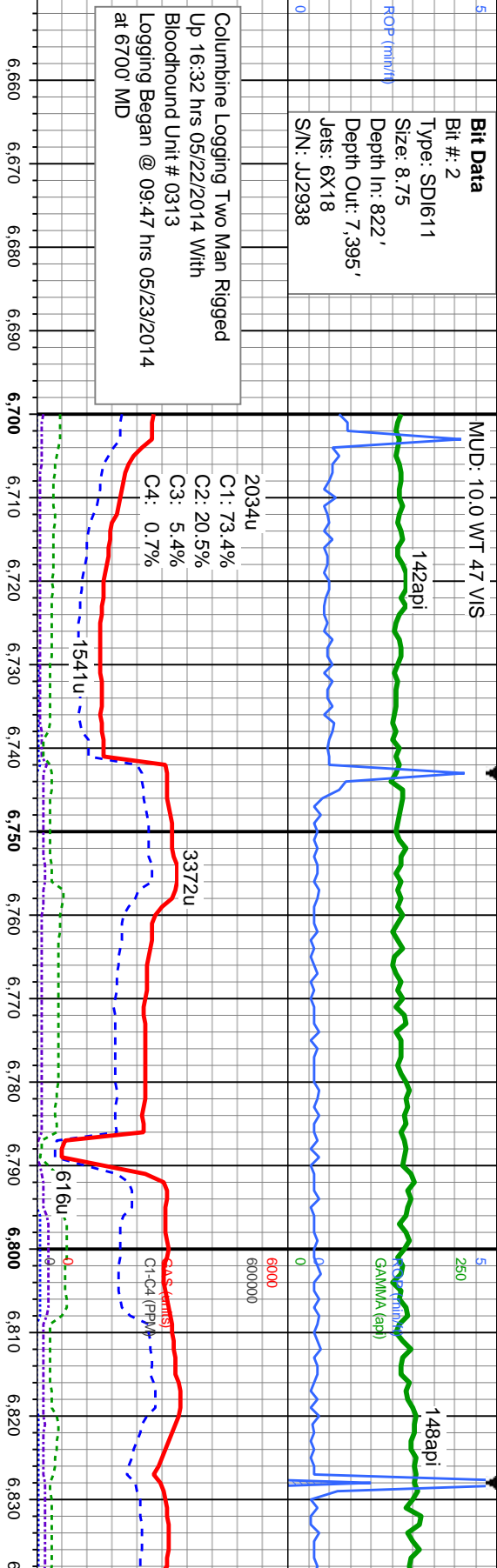
Depth Labels

% Lith

Well Bore
TVD

Oil Show

Images



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: lt-med gy, sb ply-sb blk, med
sft-firm, mod fir-sl brt, v f gr, w md, mod-w
srt, silty tex, v sl calc, string mky bl cut, bl ring

SLTY SH: lt-med gy, sb ply-sb blk, med
sft-firm, mod fir-sl brt, v f gr, w md, mod-w
srt, silty tex, v sl calc, string mky bl cut, bl ring

SLTY SH: lt-med gy, sb ply-sb blk
sft-firm, mod fir-sl brt, v f gr, w md,
srt, silty tex, v sl calc, tr pyr, string m
bl ring

MD: 6,724'
TVD: 6,626.73'
Inclination: 32.89 °
Azimuth: 276.33 °
VS: -433.87'

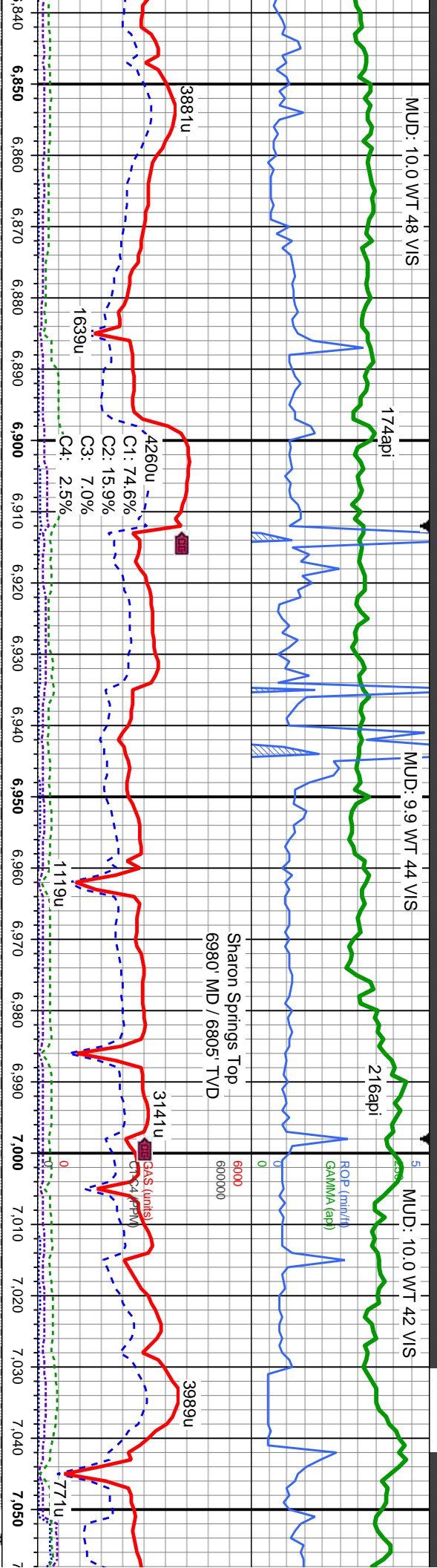
MD: 6,767'
TVD: 6,662.04'
Inclination: 36.67 °
Azimuth: 276.02 °
VS: -409.46'

MD: 6,809'
TVD: 6,694.45'
Inclination: 42.27 °
Azimuth: 276.52 °
VS: -382.9'

7400

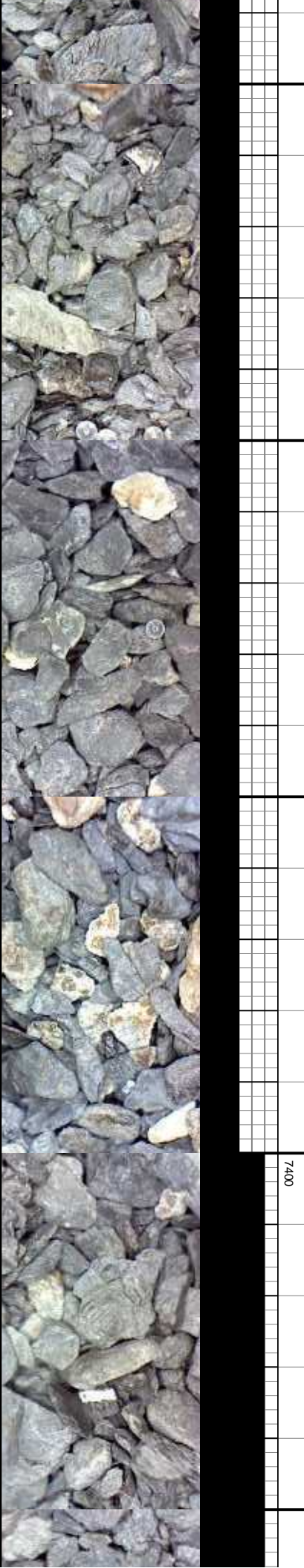
EGMFTSR

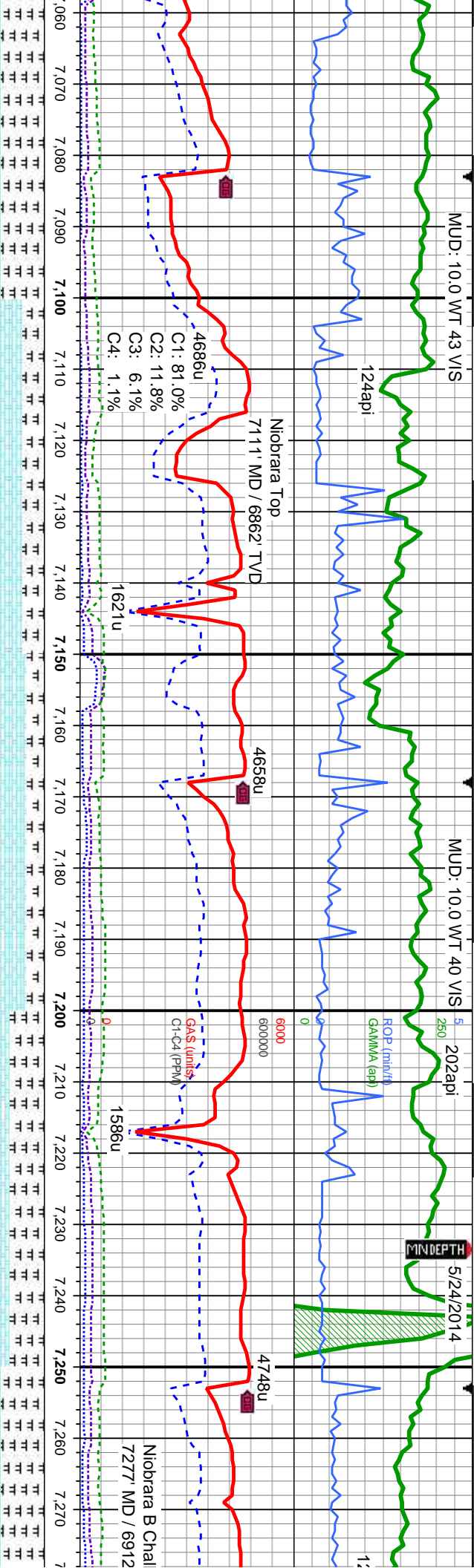




| | | | | | |
|---------------------|---|--|--|---|--|
| mod-w ky bl cut, | SLTY SH: lt-med gy, sb ply-sb blk, med sft-firm, mod fir-sl brt, v f gr, w md, mod-w srt, silty tex, v sl calc, tr pyr, tr bent, sting mky bl cut, bl ring | SLTY SH: lt-drkgy, sb ply-sb blk, med sft-firm, mod fir-sl brt, v f gr, w md, mod-w srt, silty tex, v sl calc, abnt bent, sting mky bl cut, bl ring | SLTY SH: med-drkgy, sb ply-sb blk, med sft-firm, mod fir-sl brt, v f gr, w md, mod-w srt, silty tex, tr bent, tr pyr, sting mky bl cut, bl ring | SLTY SH: med-drkgy, sb ply-sb blk, med sft-firm, mod fir-sl brt, v f gr, w md, mod-w srt, silty tex, mod bent, tr pyr, MRLST: lt-med mot gy-bm, stri, sb blk, med sft-firm, v f gr, w srt, silty tex, sting mky bl cut, bri bl ring | MRLST: sft-firm, bm, sb bent, s |
|---------------------|---|--|--|---|--|

| | | | | |
|---|--|---|---|---|
| MD: 6,852' TVD: 6,725.37' Inclination: 45.79 ° Azimuth: 274.29 ° VS: -353.13' | MD: 6,895' TVD: 6,753.97' Inclination: 50.8 ° Azimuth: 271.95 ° VS: -321.07' | MD: 6,937' TVD: 6,779.63' Inclination: 53.87 ° Azimuth: 271.89 ° VS: -287.83' | MD: 6,980' TVD: 6,803.62' Inclination: 58.29 ° Azimuth: 271.93 ° VS: -252.17' | MD: 7,022' TVD: 6,824.35' Inclination: 62.53 ° Azimuth: 271.15 ° VS: -215.66' |
|---|--|---|---|---|





It-med mot gy, stri, sb blkly, med
srt, wxy-rthy lstr, tr cal, tr pyr;
blkly, sft, vf gr, mod srt, wxy-rthy lstr, tr
ring mky bl cut, bri bl ring

CHK: It-med gy-gy brn, sb blkly, sft, vf gr, mod
srt, wxy-rthy lstr, tr bent, tr bnnd cal; MRLST:
blkly, med sft-frm, vf gr, w srt, sily tex, slow
stmg mky bl cut, bri bl ring

CHK: It-med gy-gy brn, sb blkly, sft, vf gr, mod
srt, wxy-rthy lstr, tr bent, tr bnnd cal; MRLST:
med mot gy, stri, sb blkly, med sft-frm, vf gr,
w srt, sily tex, slow stmg mky bl cut, bri bl
ring

CHK: It-med gy-gy brn, occ bnnd, sb blkly, sft,
vf gr, mod srt, wxy-rthy lstr, tr cal, tr pyr;
MRLST: med mot gy, stri, sb blkly, med
sft-frm, vf gr, w srt, sily tex; tr SLTST: It-med
gy, ply, med frm, sl brit, v f gr, w rnd, mod-w
srt, sily tex, slow stmg mky bl cut, bri bl ring

CHK: It-med gy-gy brn, sb
srt, wxy-rthy lstr, tr cal, tr f
mot gy, stri, sb blkly, med
sily tex, slow stmg mky bl

MD: 7,065'
TVD: 6,843.41'
Inclination: 64.85 °
Azimuth: 270.8 °
VS: -177.11'

MD: 7,108'
TVD: 6,861.04'
Inclination: 66.75 °
Azimuth: 269.66 °
VS: -137.9'

MD: 7,150'
TVD: 6,876.43'
Inclination: 70.25 °
Azimuth: 269.59 °
VS: -98.83'

MD: 7,193'
TVD: 6,889.95'
Inclination: 73.09 °
Azimuth: 268.82 °
VS: -58.03'

MD: 7,235'
TVD: 6,901.64'
Inclination: 74.59 °
Azimuth: 269.38 °
VS: -17.71'

MD: 7,276'
TVD: 6,91
Inclination:
Azimuth: 2
VS: 22.09'



MUD: 9.9 WT 39 VIS

5/26/2014

MUD: 9.8 WT 39 VIS

142api

98api

ROP (min/hr)
GAMMA (api)

5151u

5064u

4296u

4589u

4623u

27u
: 7.4%
: 15.4%
: 7.7%
: 2.9%

Gas (units)
C1-C4 (PPM)

C1: 70.2%
C2: 14.8%
C3: 9.4%
C4: 5.6%

MRLST: med-dk gy, sb blk, med sft-fm, vf gr, w srt, slty tex calc incl, abnt cal; CHK: lt-med gy brn, sb blk, sft, vf gr, mod srt, wxy-rthy lstr, slow stmg mky bl cut, mod bl ring

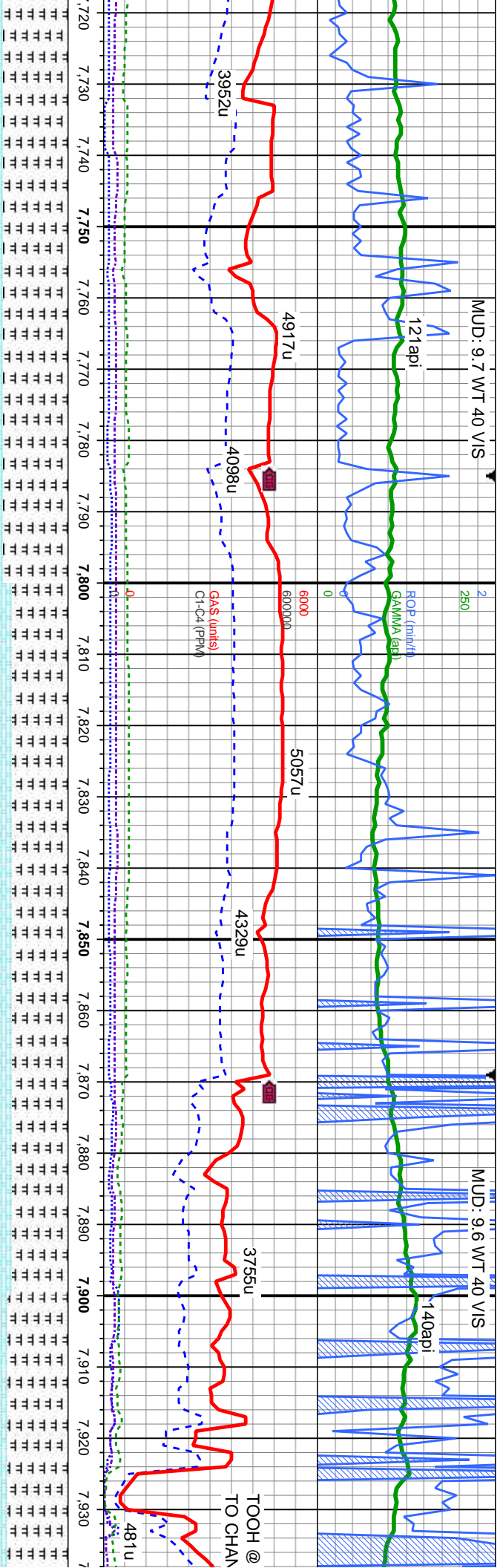
MRLST: med-dk gy, sb blk, med sft-fm, vf gr, w srt, slty tex calc incl, occ cal, abnt bent; CHK: lt-med gy brn, sb blk, sft, vf gr, mod srt, wxy-rthy lstr, slow stmg mky bl cut, mod bl ring

MD: 7,550'
TVD: 6,930.07'
Inclination: 88.64 °
Azimuth: 269.67°
VS: 295.05'

MD: 7,635'
TVD: 6,931.59'
Inclination: 89.32 °
Azimuth: 269.39°
VS: 380.02'

MD: 7,7
TVD: 6,
Inclination:
Azimuth
VS: 464





MRLST: med-dk gy, sb blk, med sft-fm, vf gr, w srt, sily tex, calc incl, occ cal, abnt bent; CHK: lt-med gy brn, sb blk, sft, vf gr, mod srt, wxy-rthy lstr, tr inoc, sting mky bl cut, mod bl ring

MRLST: med-dk gy, sb blk, med sft-fm, vf gr, w srt, sily tex, abnt bent; CHK: lt-med gy brn, sb blk, sft, vf gr, mod srt, wxy-rthy lstr, com inoc, sting mky bl cut, bri bl ring

MRLST: mec gr, w srt, sily blk, sft, vf gr mky bl cut, br

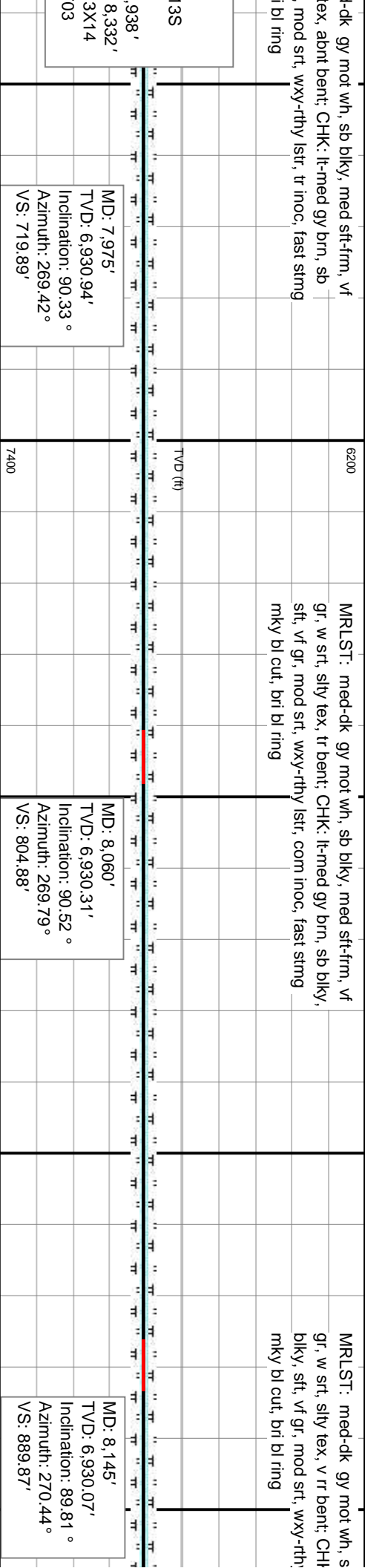
3332.07'
on: 90.03 °
: 268.82°
99'

MD: 7,805'
TVD: 6,931.94'
Inclination: 90.15 °
Azimuth: 268.72°
VS: 549.94'

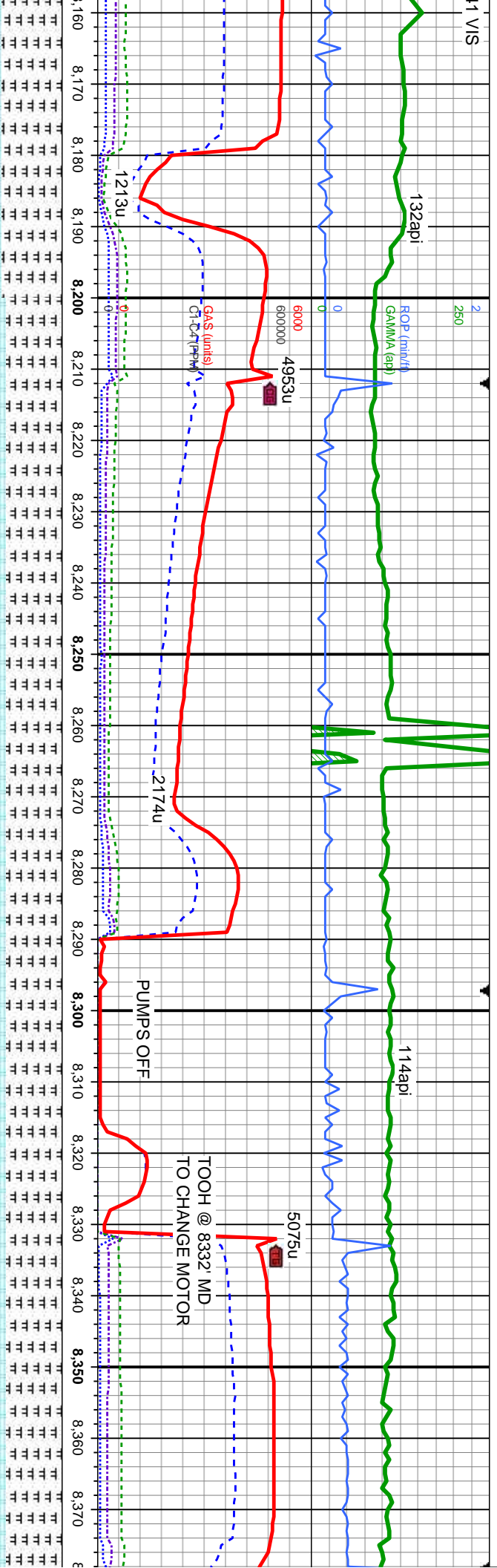
MD: 7,890'
TVD: 6,931.51'
Inclination: 90.43 °
Azimuth: 269.62°
VS: 634.91'

Bit Data
Bit #: 4
Type: VSS
Size: 6.12
Depth In: 7
Depth Out:
Jets: 2X12
S/N: 40057





11 VIS



b blkly, med sft-frn, vf
w srt, silty tex; CHK: lt-med gy brn, sb blkly, sft, vf gr,
mod srt, wxy-rthy lstr, tr inoc, string mky bl cut, bri bl
ring

MRLST: med-dk gy, mot, sb blkly, med sft-frn, vf gr,
w srt, silty tex; CHK: lt-med gy brn, sb blkly, sft, vf gr,
mod srt, wxy-rthy lstr, tr inoc, string mky bl cut, bri bl
ring

6200
TVD (ft)

MD: 8,230'
TVD: 6,930.65'
Inclination: 89.41 °
Azimuth: 270.18 °
VS: 974.87'

MD: 8,312'
TVD: 6,931.93'
Inclination: 88.79 °
Azimuth: 271.71 °
VS: 1,056.85'

Bit Data
Bit #: 5
Type: VS513D
Size: 6.12
Depth In: 8,332'
Jets: 2X12 3X14
S/N: 4006580

MRLST: med-dk gy, mot, sb blkly, med sft-frn, vf g
w srt, silty tex; CHK: lt-med gy brn, sb blkly, sft, vf gr,
mod srt, wxy-rthy lstr, tr inoc, fast string mky bl cut,
bl ring



MUD: 10 WT 43 VIS

250

ROP (min/hr)

MA (min)

0

6000

600000

GA\$ (units)

CI-C4 (PPM)

4167u

5155u

4456u

4828u

3459u

4913u

C1: 73.2%

C2: 14.8%

C3: 7.9%

C4: 4.1%

MUD: 9.7 WT 40 VIS

126api

136api

136api

136api

136api

136api

136api

136api

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8

8,380

8,390

8,400

8,410

8,420

8,430

8,440

8,450

8,460

8,470

8,480

8,490

8,500

8,510

8,520

8,530

8,540

8,550

8,560

8,570

8,580

8,590

8,600

8,610

8,620

8,630

8,640

8,650

8,660

8,670

8,680

8,690

8,700

8,710

8,720

8,730

8,740

MRLST: med-dk gy, mot, sb blk, med sft-fm, vf gr,

w srt, silty tex, abnt sec cal; CHK: lt-med gy brn, sb

blk, sft, vf gr, mod srt, wxy-rthy lst, tr inoc, fast stmg

mky bl cut, bri bl ring

MRLST: med-dk gy, mot, sb blk, med sft-fm, vf gr,

w srt, silty tex, abnt sec cal; CHK: lt-med gy brn, sb

blk, sft, vf gr, mod srt, wxy-rthy lst, rr inoc, stmg mky

bl cut, bri bl ring

TVD (ft)

MD: 8,397'

TVD: 6,933.34'

Inclination: 89.32 °

Azimuth: 271.39 °

VS: 1,141.83'

MD: 8,482'

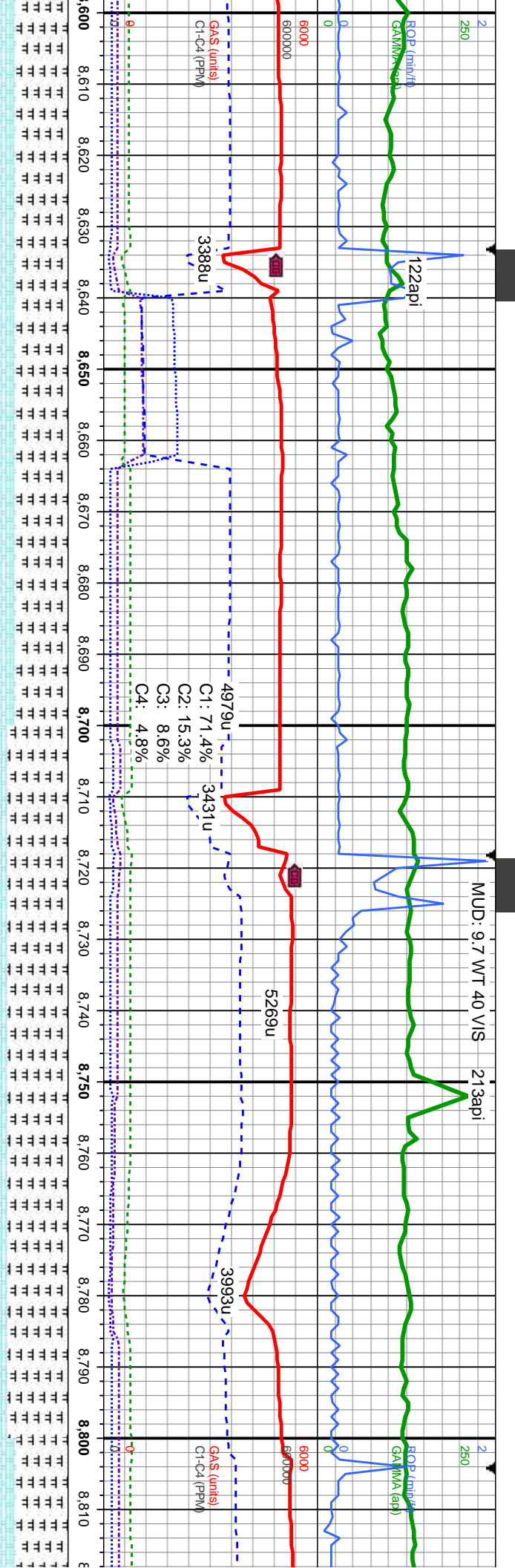
TVD: 6,933.68'

Inclination: 90.21 °

Azimuth: 270.91 °

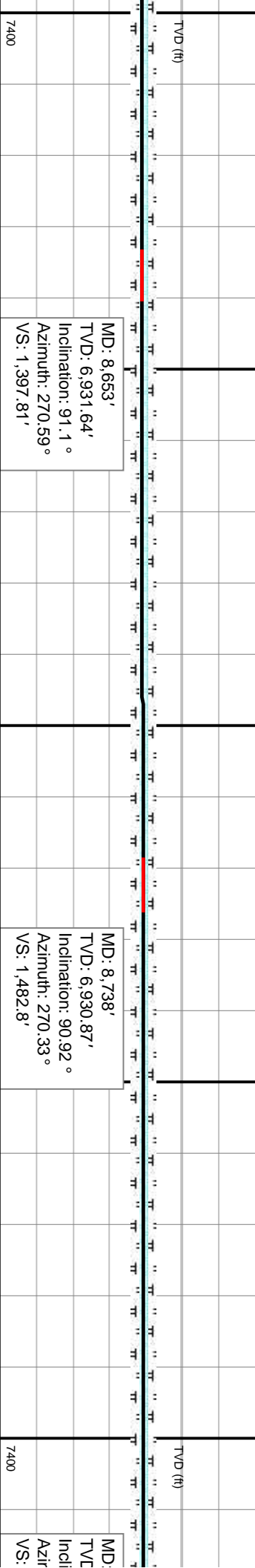
VS: 1,226.83'





MRLST: med-dk gy, sb blk, med sft-fm, vf gr, w srt, silty tex, occ sec cal; CHK: lt-med gy brn, sb blk, sft, vf gr, mod srt, wxy-rthy lst, tr inoc, stmg mky bl cut, bri bl ring

MRLST: med-dk gy, sb blk, med sft-fm, vf gr, w srt, silty tex, tr sec cal; CHK: lt-med gy brn, sb blk, sft, vf gr, mod srt, wxy-rthy lst, tr inoc, stmg mky bl cut, bri bl ring



MD: 8,738'

TVD: 6,930.87'

Inclination: 90.92°

Azimuth: 270.33°

VS: 1,482.8'

MD: 8,738'

TVD: 6,930.87'

Inclination: 90.92°

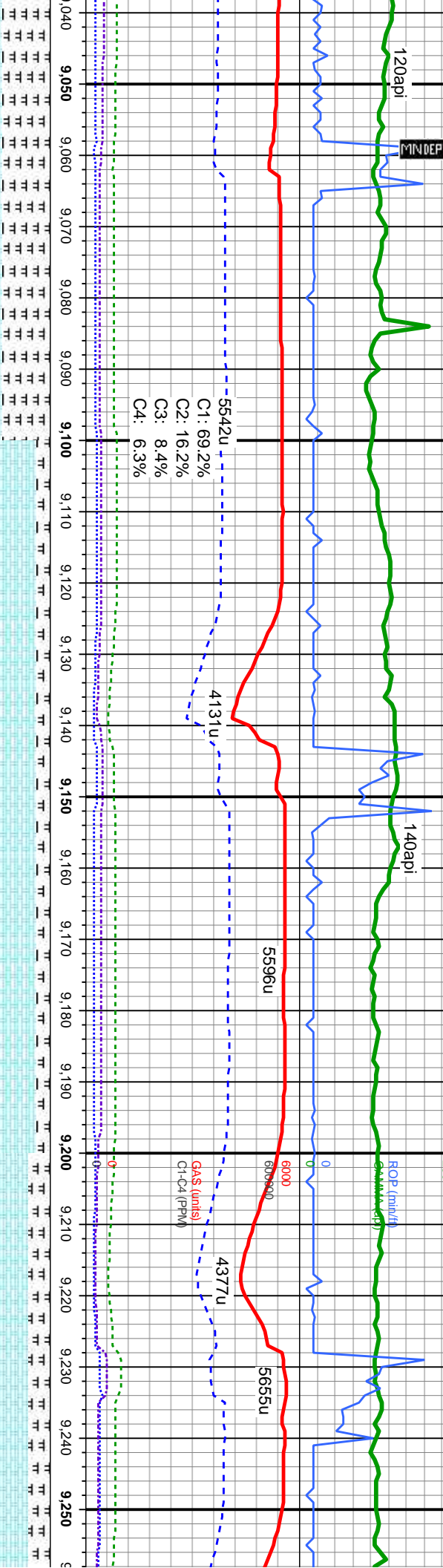
Azimuth: 270.33°

VS: 1,482.8'



D: 9.8 WT 43 VIS 5/28/2014

MUD: 9.8 WT 42 VIS



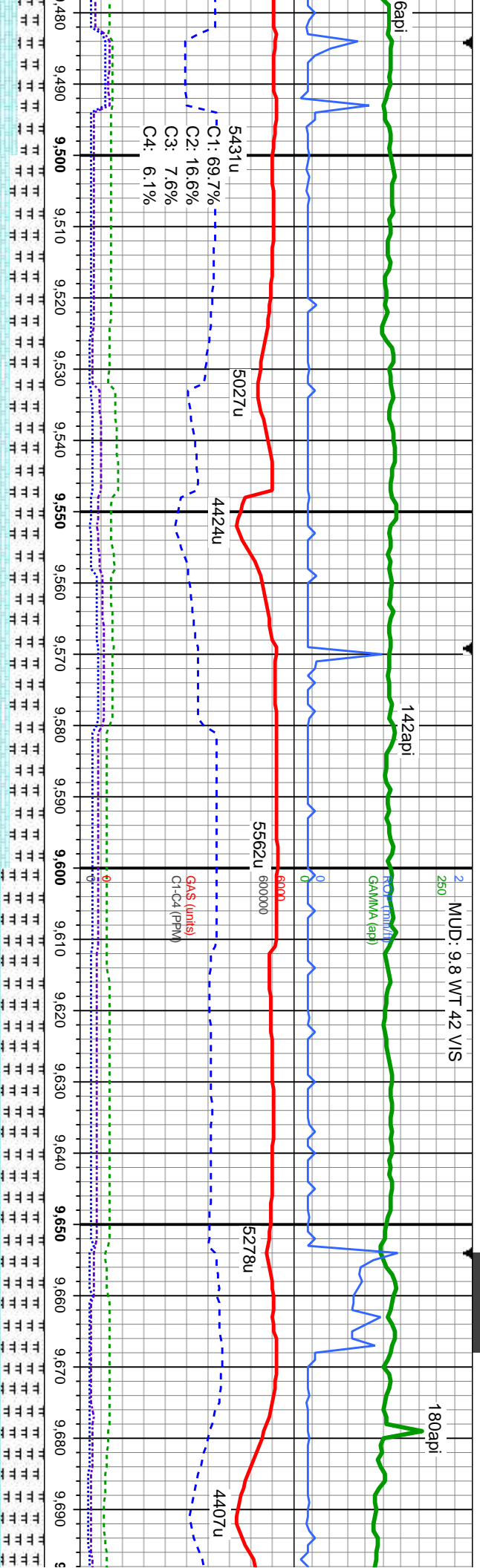
ed-dk gy, occ speckl, sb blk, med sft-firm, silty tex, tr sec cal; CHK: lt-med gy brn, sb gr, mod srt, wxy-rthy lstr, tr inoc, stmg mky ring

CHK: lt-med gy brn, sb blk, sft, vf gr, mod srt, wxy-rthy lstr; MRLST: med-dk gy, sb blk, med sft-firm, vf gr, w srt, silty tex, tr sec cal, tr inoc, lt bent, stmg mky bl cut, bri bl ring

CHK: lt-med gy brn, sb blk, sft wxy-rthy lstr; MRLST: med-dk sft-firm, vf gr, w srt, silty tex, tr s stmg mky bl cut, bri bl ring

| | | | | | |
|--|--|--|--|---|--|
| MD: 9,078' TVD: 6,924.93' Inclination: 90.89° Azimuth: 270.38° VS: 1,822.75' | | MD: 9,164' TVD: 6,924.25' Inclination: 90.98° Azimuth: 269.68° VS: 1,908.74' | | MD: 9,249' TVD: 6,923.5' Inclination: 90.03° Azimuth: 269.57° VS: 1,993.72' | |
| TVD (ft) | | TVD (ft) | | TVD (ft) | |
| 7400 | | 7400 | | 7400 | |





CHK: lt-med gy brn, sb blk, sft, f gr, mod srt, wxy-rthy
lstr, MRLST: med-dk gy, sb blk, med sft-fm, vf gr, w
srt, silty tex, com inoc, string mky bl cut, bri bl ring

CHK: lt-med gy brn, sb blk, sft, f gr, mod srt, wxy-rthy
lstr, MRLST: med-dk gy, sb blk, med sft-fm, vf gr, w
srt, silty tex, com inoc, lt bent, string mky bl cut, bri bl
ring

MD: 9,504'
TVD: 6,924.81'
Inclination: 89.69 °
Azimuth: 269.83 °
VS: 2,248.67'

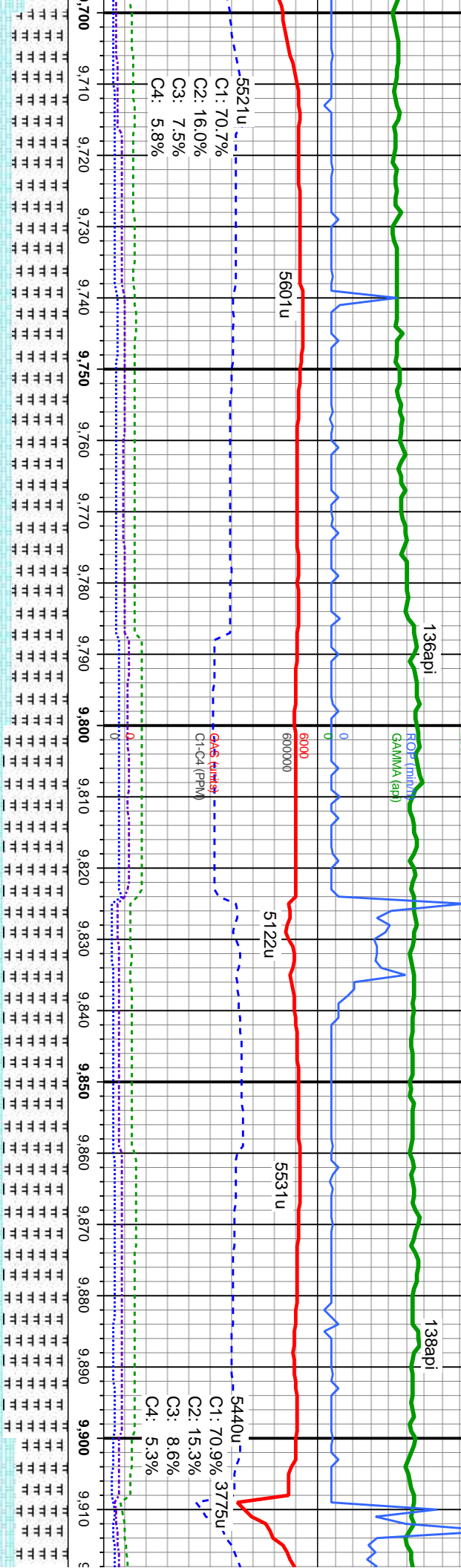
MD: 9,589'
TVD: 6,925.84'
Inclination: 88.92 °
Azimuth: 269.89 °
VS: 2,333.66'

MD: 9,675'
TVD: 6,926.81'
Inclination: 89.78 °
Azimuth: 270.05 °
VS: 2,419.65'



MUD: 9.8 WT 42 VIS

MU

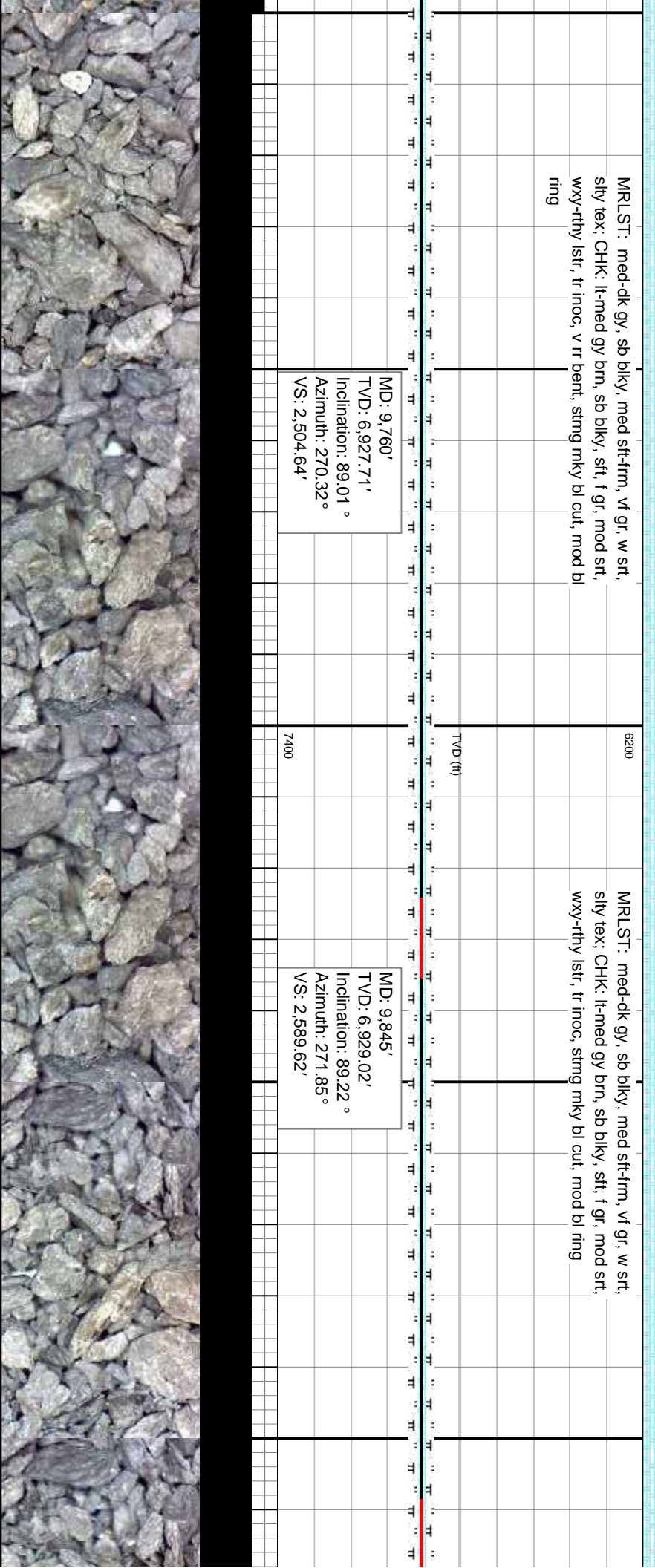


MRLST: med-dk gy, sb blk, med sft-fm, vf gr, w srt,
sfty tex: CHK: lt-med gy brn, sb blk, sft, f gr, mod srt,
wxy-rthy lst, tr inoc, v rr bent, sting mky bl cut, mod bl
ring

MRLST: med-dk gy, sb blk, med sft-fm, vf gr, w srt,
sfty tex: CHK: lt-med gy brn, sb blk, sft, f gr, mod srt,
wxy-rthy lst, tr inoc, sting mky bl cut, mod bl ring

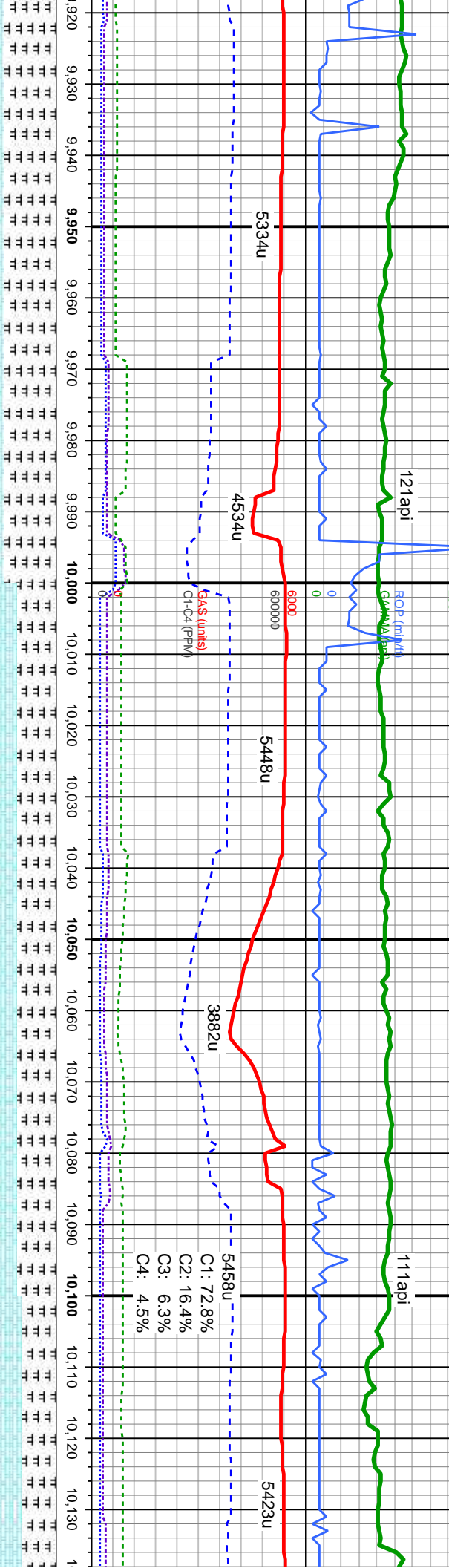
MD: 9,760'
TVD: 6,927.71'
Inclination: 89.01°
Azimuth: 270.32°
VS: 2,504.64'

MD: 9,845'
TVD: 6,929.02'
Inclination: 89.22°
Azimuth: 271.85°
VS: 2,589.62'



D: 10.1 WT 45 VIS

MUD: 10.0 WT 42 VIS



MRLST: med-dk gy, sb blk, med sft-frn, vf gr, w srt, slty tex, CHK: lt-med gy brn, sb blk, sft, f gr, mod srt, wxy-rthy lstr, com inoc, string mky bl cut, mod bl ring

CHK: lt-med gy brn, sb blk, sft, f gr, mod srt, wxy-rthy lstr, MRLST: med-dk gy, sb blk, med sft-frn, vf gr, w srt, slty tex, com inoc, string mky bl cut, mod bl ring

CHK: lt-med gy lstr, MRLST: r srt, slty tex, tr i

MD: 9,930'
TVD: 6,929.68'
Inclination: 89.9°
Azimuth: 270.42°
VS: 2,674.61'

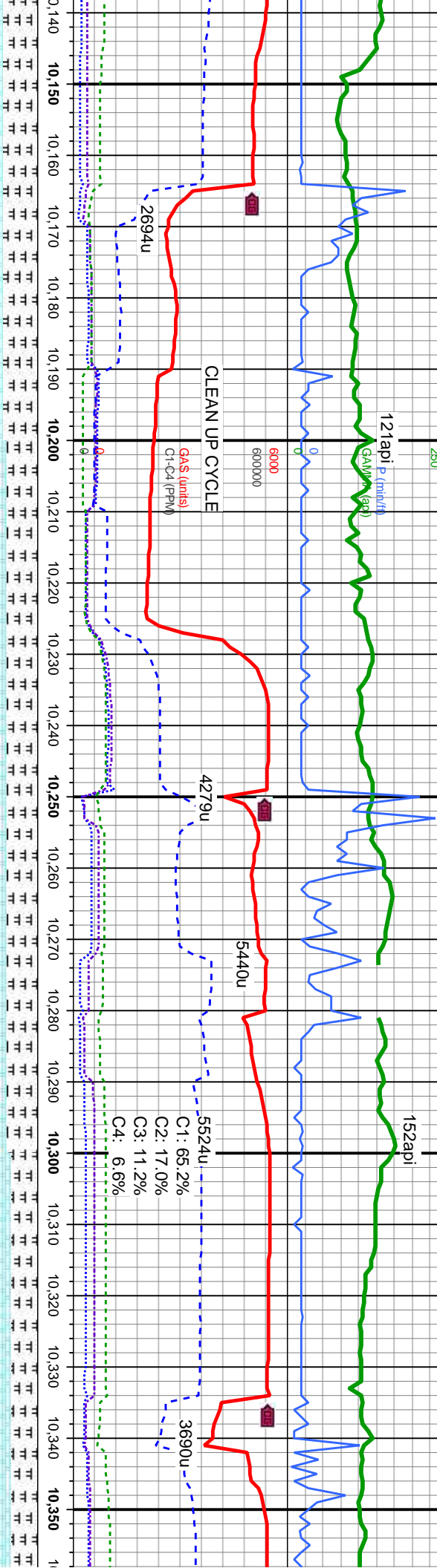
MD: 10,015'
TVD: 6,929.11'
Inclination: 90.86°
Azimuth: 270.78°
VS: 2,759.61'

MD: 10,101'
TVD: 6,927.45'
Inclination: 91.35°
Azimuth: 271.04°
VS: 2,845.59'



MUD: 10.0 WT 43 VS

MUD: 10.0 WT



v brn, sb blk, sft, f gr, mod srt, wxy-rthy
med-dk gy, sb blk, med sft-fm, vf gr, w
noc, sting mky bl cut, mod bl ring

CHK: lt-med gy brn, sb blk, sft, f gr, mod srt, wxy-rthy
lstr, MRLST: med-dk gy, sb blk, med sft-fm, vf gr, w
srt, silty tex, tr inoc, sting mky bl cut, mod bl ring

CHK: lt-med gy brn, sb blk, sft, f gr, mod srt, wxy-rthy
lstr, MRLST: med-dk gy, sb blk, med sft-fm, vf gr, w
srt, silty tex, tr inoc, fast sting mky

MD: 10,186'
TVD: 6,925.73'
Inclination: 90.98°
Azimuth: 270.44°
VS: 2,930.58'

MD: 10,271'
TVD: 6,924.87'
Inclination: 90.18°
Azimuth: 271.15°
VS: 3,015.57'

MD: 10,350'
TVD: 6,920'
Inclination: 90.18°
Azimuth: 271.15°
VS: 3,100'



43 VIS

MUD: 9.9 WT 45 VIS

5/29/2014

119api

ROP (min/hr)

120api

MINDEPTH

120api

5448u

4792u

5550u

5182u

5528u

GAS (units)

3003u

5029u

TOOH @ 10529' MD
TO CHANGE MOTOR

C1: 65.4%

C2: 18.3%

C3: 11.9%

C4: 4.5%

CI-C4 (PPM)

116u

10,360 10,370 10,380 10,390 10,400 10,410 10,420 10,430 10,440 10,450 10,460 10,470 10,480 10,490 10,500 10,510 10,520 10,530 10,540 10,550 10,560 10,570

gr, mod srt, wxy-rthy
med sft-frm, vf gr, w
/ bl cut, bri bl gn ring

CHK: lt-med gy brn, sb blk, sft, f gr, mod srt, wxy-rthy
lsfr: MRLST: med-dk gy, sb blk, med sft-frm, vf gr, w
srt, sily tex, fast sting mky bl cut, bri bl wh ring

CHK: med-dk gy brn, sb blk, sft, f gr, mod srt,
wxy-rthy lsfr: MRLST: med-dk gy, sb blk, med
sft-frm, vf gr, w srt, sily tex, fast sting mky bl cut, bri
wh ring

TVD (ft)

MD: 10,442'

TVD: 6,924.21'

Inclination: 89.66°

Azimuth: 270.47°

VS: 3,186.56'

MD: 10,537'

TVD: 6,923.7'

Inclination: 90.09°

Azimuth: 268.81°

VS: 3,281.54'

7400

6'
4,35'
90.52°
271.39°
56'



MUD: 10.0 WT 44 VIS

MUD: 9.9 WT 42 VIS

ROP (min/hr)

122api

122api

5285u

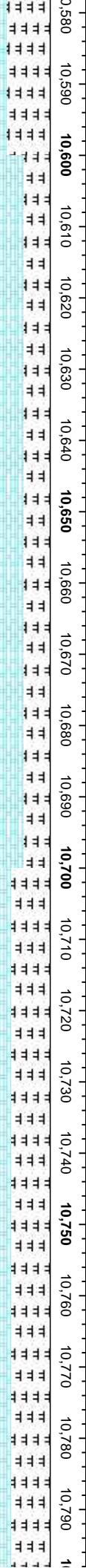
4111u

5379u

4629u

GA S (min/hr)
CFC4 (PPM)

5184u
C1: 69.5%
C2: 15.3%
C3: 9.3%
C4: 5.9%



6200

CHK: med-dk gy brn, sb blk, sft, f gr, mod srt,
wxy-rthy lstr, MRLST: med-dk gy, sb blk, med
sft-fm, vf gr, w srt, slty tex, fast stmg mky bl cut, bri bl
gn ring

CHK: med-dk gy brn, sb blk, sft, f gr, mod srt,
wxy-rthy lstr, tr pyr, MRLST: med-dk gy, sb blk, med
sft-fm, vf gr, w srt, slty tex, fast stmg mky bl cut, bri bl
gn ring

TVD (ft)

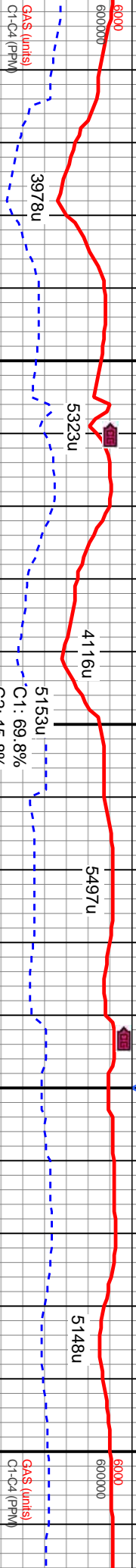
7400

MD: 10,622'
TVD: 6,923.43'
Inclination: 90.27°
Azimuth: 269.27°
VS: 3,366.51'

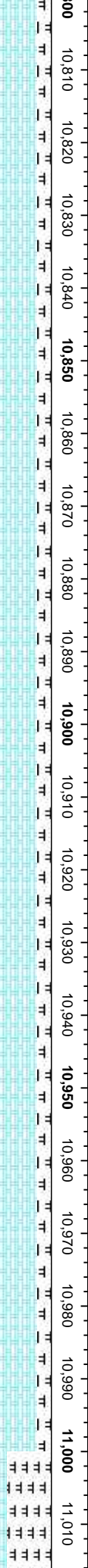
MD: 10,707'
TVD: 6,923.29'
Inclination: 89.29°
Azimuth: 268.72°
VS: 3,451.47'



2
250
MUD: 9.8 WT 41 VIS
MUD: 9.9 WT 44 VIS



C1: 69.8%
C2: 15.8%
C3: 9.3%
C4: 5.1%



CHK: med-dk gy brn, sb blk, mod srt, wxy-rthy lstr, tr pyr; MRLST: med-dk gy, sb blk, med srt-fm, vf gr, w srt, sly tex, fast stmg mky bl cut, bri bl gn ring

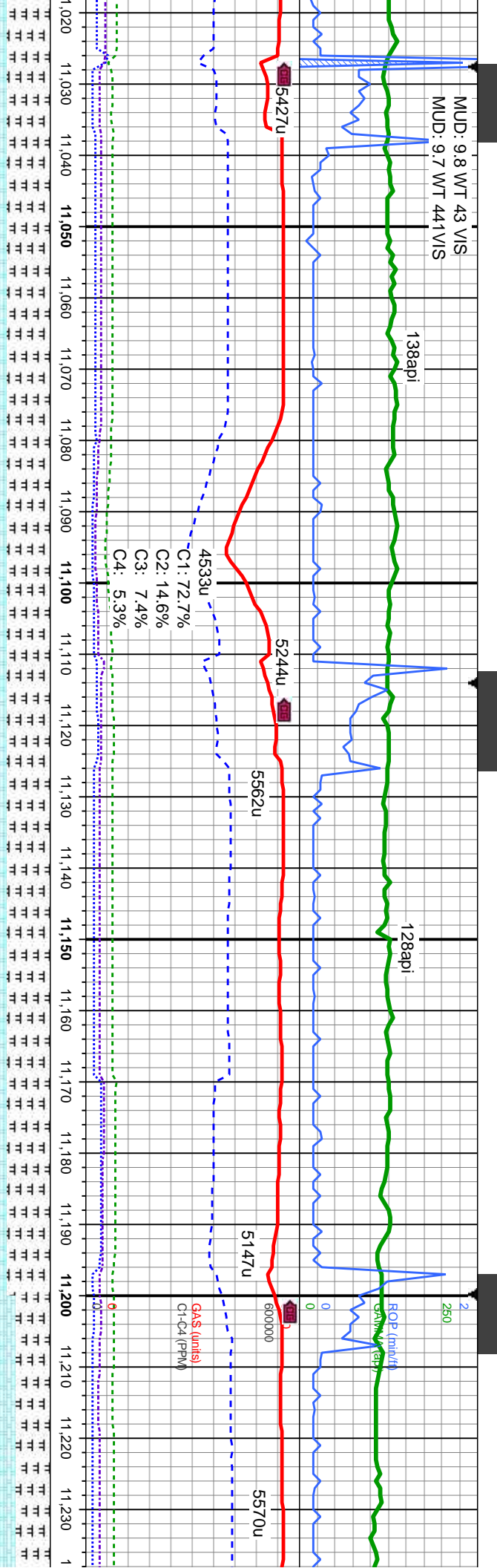
CHK: med-dk gy brn, sb blk, mod srt, wxy-rthy lstr, tr pyr; MRLST: med-dk gy, sb blk, med srt-fm, vf gr, w srt, sly tex, fast stmg mky bl cut, bri bl wh ring

CHK: n wxy-rth med sf bri bl w

MD: 10,878'
TVD: 6,926.53'
Inclination: 88.85°
Azimuth: 268.77°
VS: 3,622.35'

MD: 10,963'
TVD: 6,928.46'
Inclination: 88.55°
Azimuth: 269.04°
VS: 3,707.29'





med-dk gy brn, sb blk, sft, f gr, mod srt,
y lstr, tr pyr, tr bent, MRLST: dk gy, sb blk,
l-trm, vf gr, w srt, silty tex, fast stmg mky bl cut,
h ring

CHK: med-dk gy brn, sb blk, sft, f gr, mod srt,
wxy-rthy lstr, MRLST: dk gy, sb blk, med sft-trm, vf
gr, w srt, silty tex, fast stmg mky bl cut, bri bl wh ring

CHK: med-dk gy brn, sb
wxy-rthy lstr, MRLST: d
gr, w srt, silty tex, fast st

MD: 11,048'
TVD: 6,930.22'
Inclination: 89.08°
Azimuth: 269.35°
VS: 3,792.24'

MD: 11,128'
TVD: 6,930.96'
Inclination: 89.32°
Azimuth: 270.55°
VS: 3,872.22'

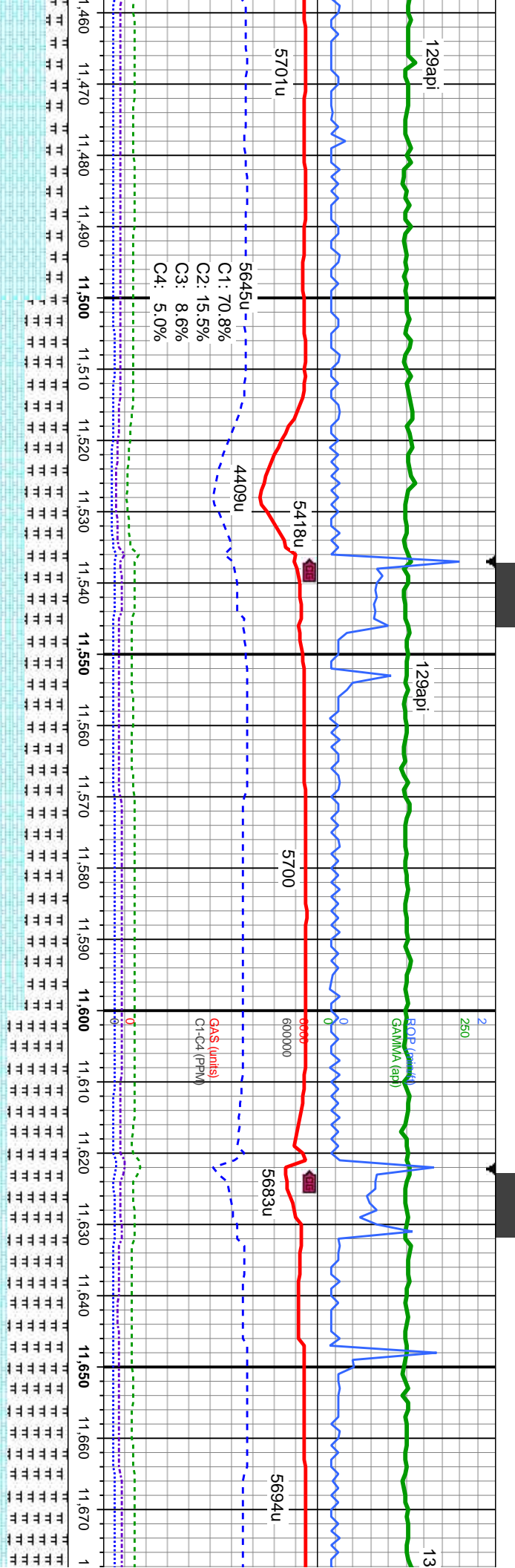
MD: 11,133'
TVD: 6,931'
Inclination: 89.87°
Azimuth: 269.59°
VS: 3,877.22'

TVD (ft)

6200

7400





CHK: med-dk gy brn, sb blk, sft, f gr, mod srt, wxy-rthy lstr, tr pyr, cal, tr inoc.; MRLST: dk gy, sb blk, med sft-firm, vf gr, w srt, silty tex, mod stmg mky bl cut, bri bl wh ring

MRLST: dk gy, sb blk, med sft-firm, vf gr, w srt, silty tex; CHK: med-dk gy brn, sb blk, sft, f gr, mod srt, wxy-rthy lstr, tr bent, cal, mod stmg mky bl cut, bri bl wh ring

| | | | |
|----------------------|----------------------|----------------------|----------------------|
| MD: 11,474' | MD: 11,559' | MD: 11,645' | MD: 11,676' |
| TVD: 6,931.52' | TVD: 6,932.12' | TVD: 6,933.01' | TVD: 6,933 |
| Inclination: 89.78 ° | Inclination: 89.41 ° | Inclination: 89.41 ° | Inclination: 89.41 ° |
| Azimuth: 271.2° | Azimuth: 270.77° | Azimuth: 270.45° | Azimuth: 270.45° |
| VS: 4,218.21' | VS: 4,303.2' | VS: 4,389.2' | VS: 4,420.1' |

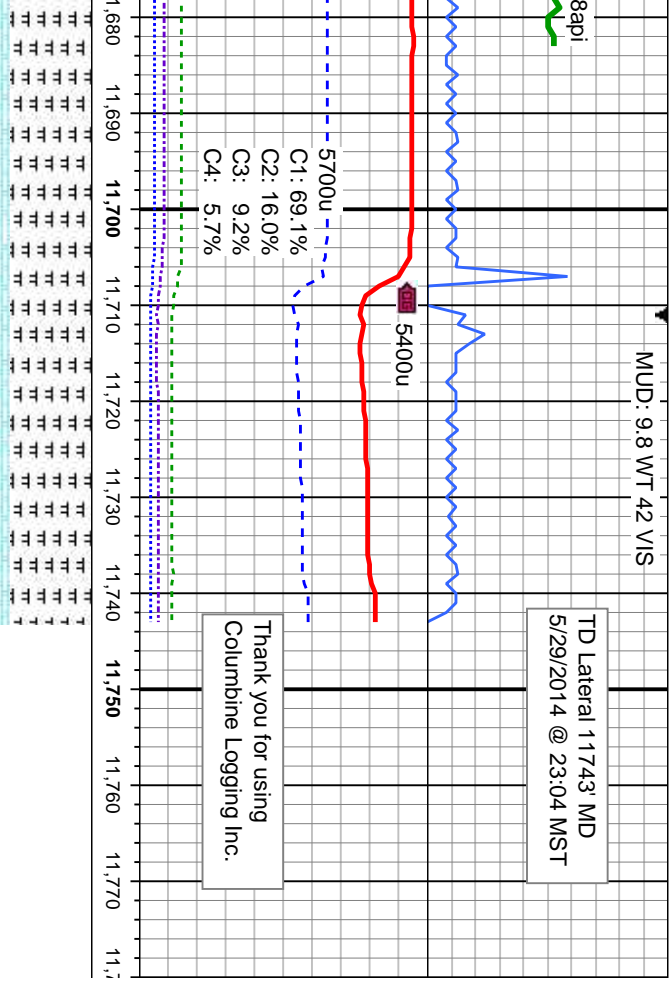


MUD: 9.8 WT 42 VIS

TD Lateral 11743' MD
5/29/2014 @ 23:04 MST

C1: 69.1%
C2: 16.0%
C3: 9.2%
C4: 5.7%

Thank you for using
Columbine Logging Inc.



MRLST: dk gy, sb blk,
med sft-fm, vf gr, w srt, silty
tex: CHK: med-dk gy brn,
sb blk, sft, f gr, mod srt,
wxy-rthy lstf, tr bent, cal, fast
stmg mky bl cut, bri bl wh
ring

PROJECTION TO BIT

32'
89.41°
0.5°
9'

