



# RESERVOIR GROUP

Scale: 5" / 100'  
Measured Depth Log

**Well Name** Buford 33-9-3L

**Location** SWSW Sec 33

**State** Colorado

**County** Weld

**Country** USA

**Rig Number** Ensign 160

**API Number** 05 123 45544

**Field** DJ Wattenberg

**Geographic Region** Rockies

**Drilling Completed** xx/xx/xxxx

**Spud Date** 11/2/2017

**Ground Elevation** 5,077'

**Logged Interval** 5000 To 7500

**Total Depth** TBD

**Formation** Niobrara C Chalk

**Type of Drilling Fluid** Oil Based Mud

## Operator

**Company** Confluence DJ, LLC

**Address** 1001 17th Street  
Suite 1250  
Denver, CO 80202



## Geologist

**Name** Robert Sterling

**Company** Confluence Resources

**Address** Confluence Resources LP  
1001 17th St. Suite 1250  
Denver, CO 80202

## Zone Color Coding

|       |            |          |
|-------|------------|----------|
| Oil   | Condensate | Gas      |
| Note  | Core       | Pressure |
| Error | Water      | Seal     |

## Other

**Services Provided** 2-Man Logging, Geosteering

**Loggers:** Michael McAuley / Thomas Anderson

**Equipment:** ML-610

**Address** Reservoir Group  
6510 Guhn Road  
Houston, Texas 77040

**Service Start Date:** 11/05/2017

**Service End Date:** TBD

## Rock Types

|           |               |                 |             |
|-----------|---------------|-----------------|-------------|
| UNKNOWN   | CHERT         | SILTSTONE       | TUFF        |
| ANHYDRITE | COAL          | SANDY SILTSTONE | IGNEOUS     |
| GYPSUM    | MARLSTONE     | SANDSTONE       | METAMORPHIC |
| SALT      | CLAYSTONE     | CONGLOMERATE    | CEMENT      |
| CHALK     | SHALE         | BRECCIA         |             |
| LIMESTONE | SHALE GRAY    | TILL            |             |
| DOLOMITE  | SHALE COLORED | BENTONITE       |             |

## Accessories

### Fossils

ALGAE  
AMPHIPORA  
BELEMNITE  
BIOCLASTIC  
BRACHIOPOD  
BRYOZOA  
CEPHALOPOD  
CORAL  
CRINOID  
ECHINOID  
FISH  
FORAMINIFERA

### F FOSSIL

GASTROPOD  
OOLITE  
OSTRACOD  
PELECYPOD  
PELLET  
PISOLITE  
PLANT REMAINS  
PLANT SPORES  
SCAPHOPOD  
STROMATOPOROID

### Minerals

ANHYDRITIC

### ARGILLACEOUS

ARGILLITE GRAIN  
BENTONITE  
BITUMENOUS SUBSTANCE  
BRECCIA FRAGMENTS  
CALCAREOUS  
CARBONACEOUS FLAKES  
CHTDK  
CHTLT  
COAL - THIN BEDS  
DOLOMITIC  
FELDSPAR  
FERRUGINOUS PELLET  
FERRUGINOUS

### GLAUCONITE

GYPSIFEROUS  
HEAVY MINERAL  
KAOLIN  
MARLSTONE  
MINERAL CRYSTALS  
NODULES  
PHOSPHATE PELLETS  
PYRITE  
SALT CAST  
SANDY  
SILICEOUS  
SILTY  
TUFFACEOUS

### Stringer

ANHYDRITE STRINGER  
BENTONITE STRINGER  
COAL STRINGER  
DOLOMITE STRINGER  
GYPSUM STRINGER  
LIMESTONE STRINGER  
MARLSTONE (CALC) STRG  
MARLSTONE (DOL) STRG  
SANDSTONE STRINGER  
SHALE STRINGER  
SILTSTONE STRINGER

## Other Symbols

### Oil Show

DEAD  
EVEN  
QUESTIONABLE  
SPOTTED STAINING

ORGANIC  
PINPOINT  
VUGGY

### Engineering

BIT  
CASING

FORMATION TOP  
GAS SHOW  
MN DEPTH  
NORMAL FAULT  
OIL SHOW  
OVERTURNED STRATA  
REVERSE FAULT

### Rounding

ANGULAR  
ROUNDED  
SUBANG  
SUBRND

LITHOGRAPHIC  
MICROXLN  
MUDSTONE  
PACKSTONE  
WACKESTONE

### Sorting

Porosity

- E EARTHY
- ▣ FENESTRAL
- F FRACTURE
- × INTERCRYSTALLINE
- ⊕ INTEROOLITIC
- ⌘ MOLDIC

CASING

- ◀ CONNECTION (LEFT)
- ▶ CONNECTION (RIGHT)
- ⬮ CONNECTION GAS
- ⬇ CORE - LOST
- CORE - RECOVERED
- ⋮ DST INTERVAL
- ⚡ FAULT

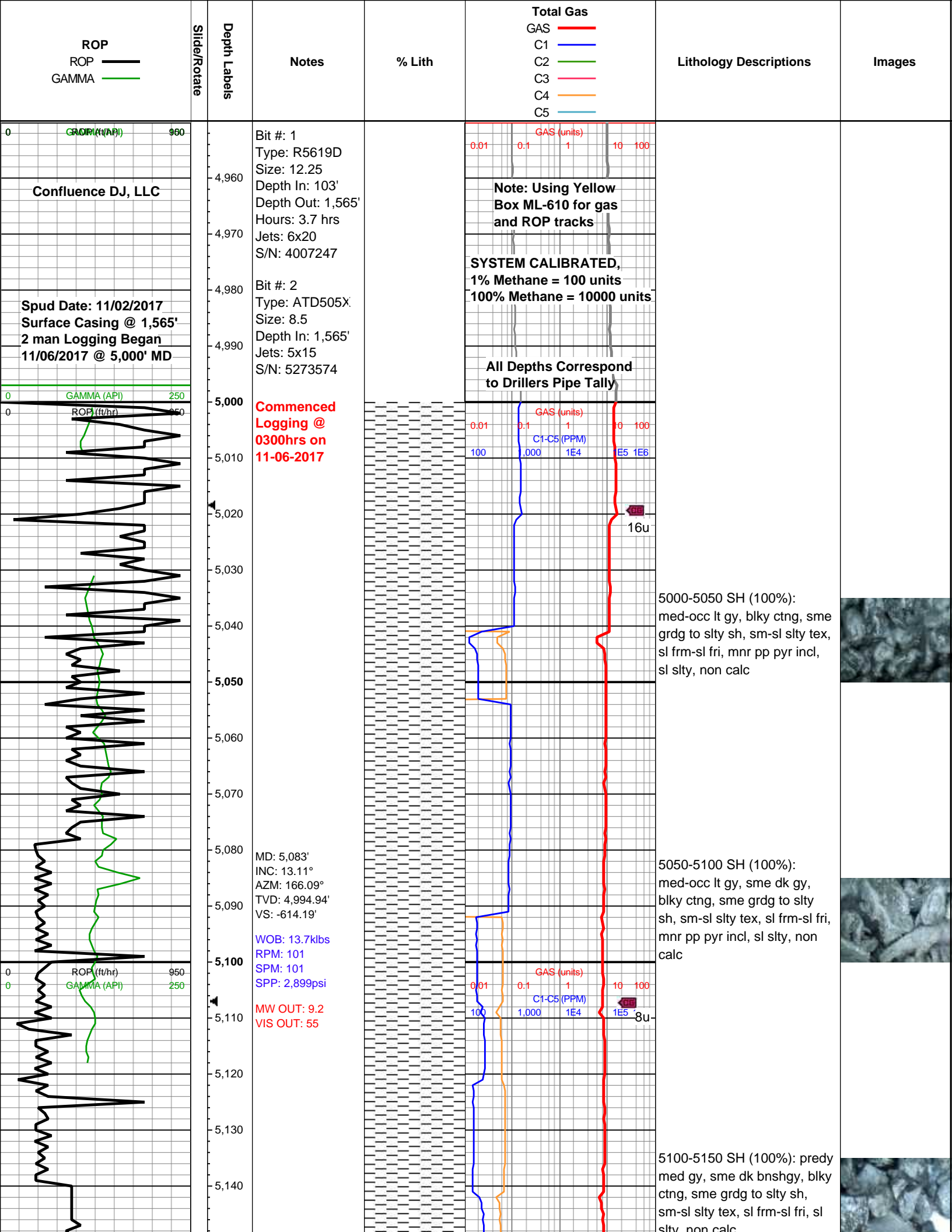
REVERSE FAULT

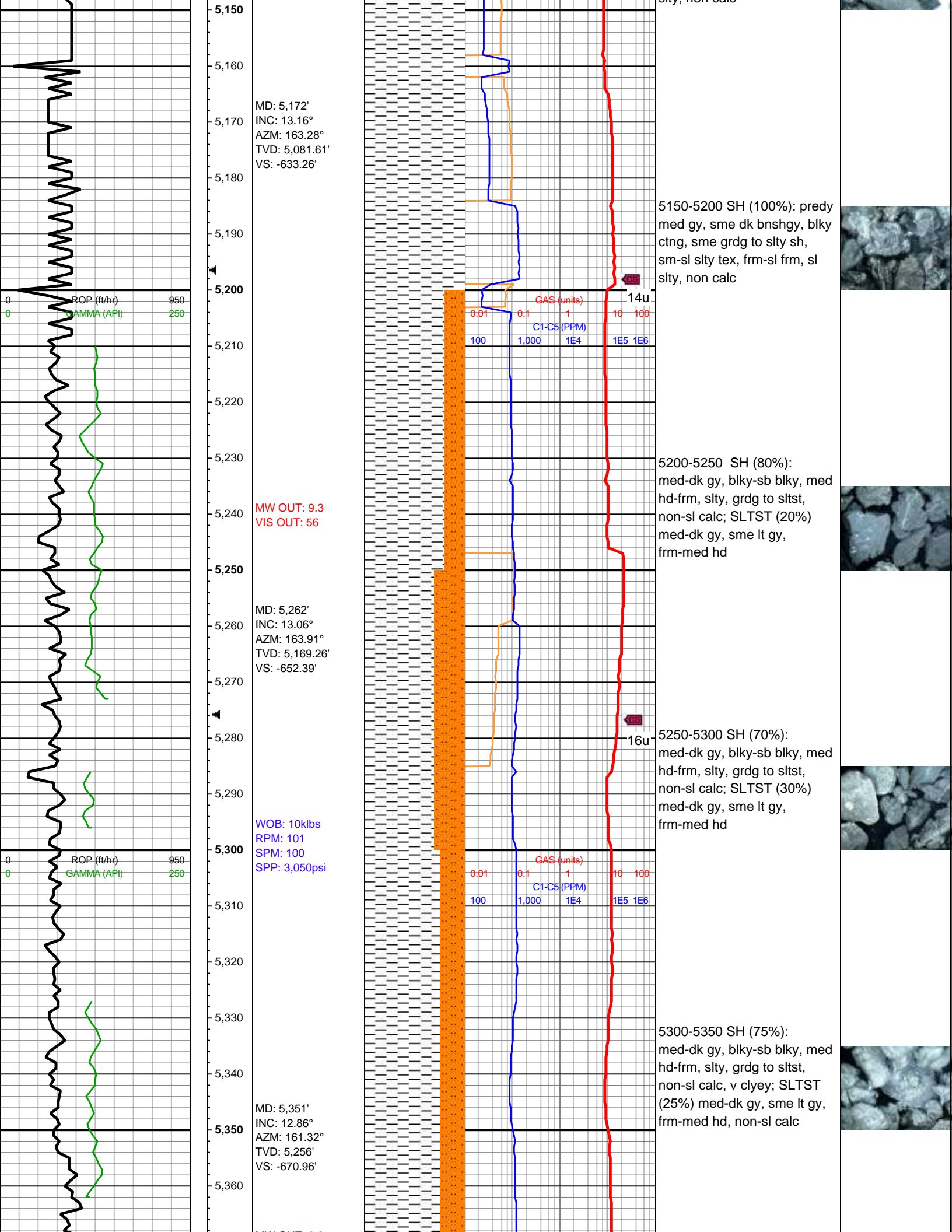
- ◀ SIDEWALL CORE (LEFT)
- ▶ SIDEWALL CORE (RIGHT)
- ▨ SLIDE
- 📄 SURVEY
- 🔥 TRIP GAS
- ◀ WIRELINE TESTED - LEFT
- ▶ WIRELINE TESTED - RT

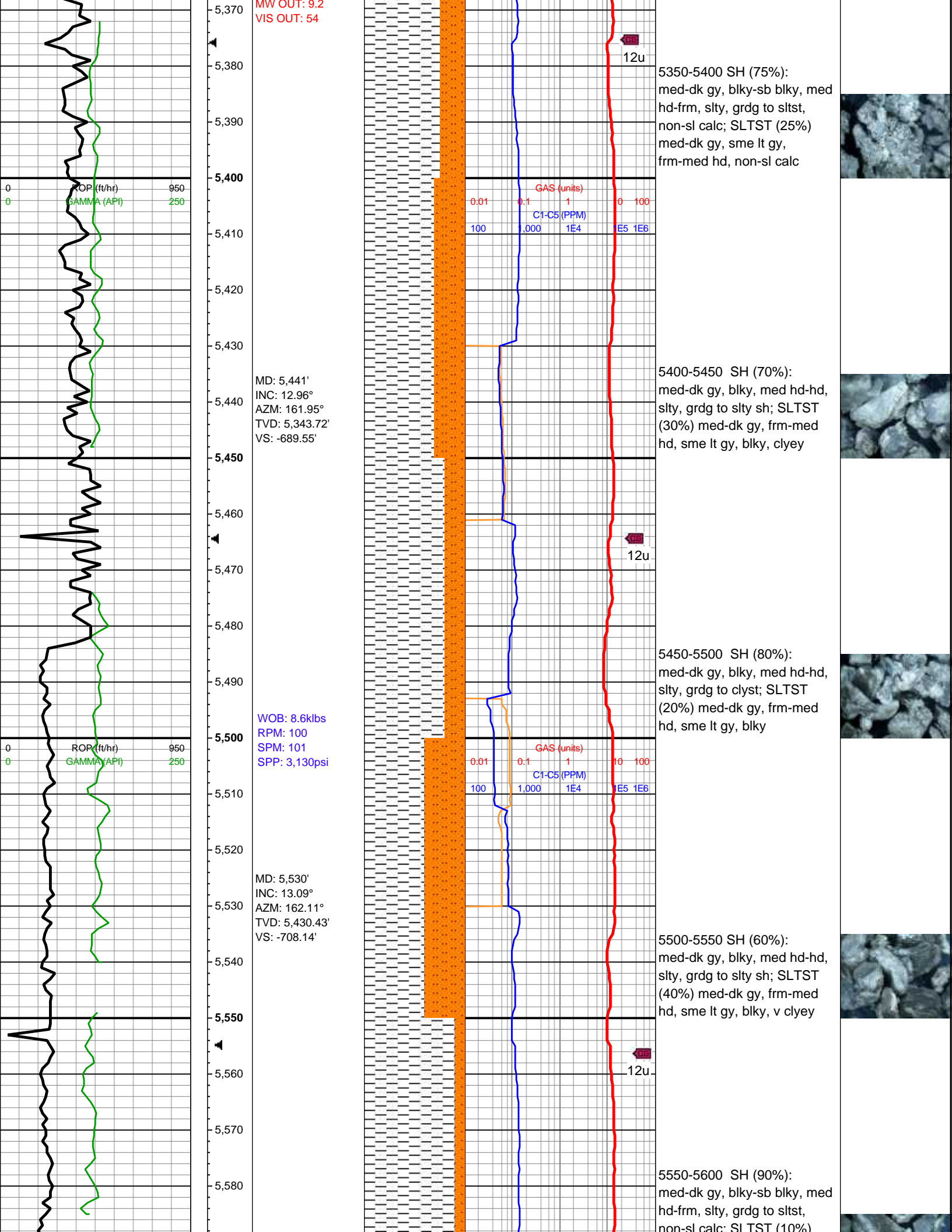
Textures

- BS BOUNDSTONE
- ⦿ CHALKY
- ⦿× CRYPTOXLN
- E EARTHY
- FX FINELYXLN
- GS GRAINSTONE

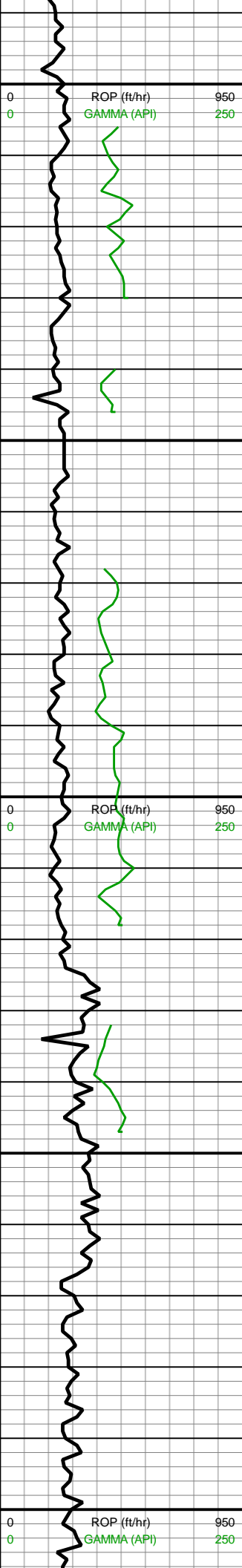
- M MODERATE
- P POOR
- W WELL











5,590  
5,600  
5,610  
5,620  
5,630  
5,640  
5,650  
5,660  
5,670  
5,680  
5,690  
5,700  
5,710  
5,720  
5,730  
5,740  
5,750  
5,760  
5,770  
5,780  
5,790  
5,800

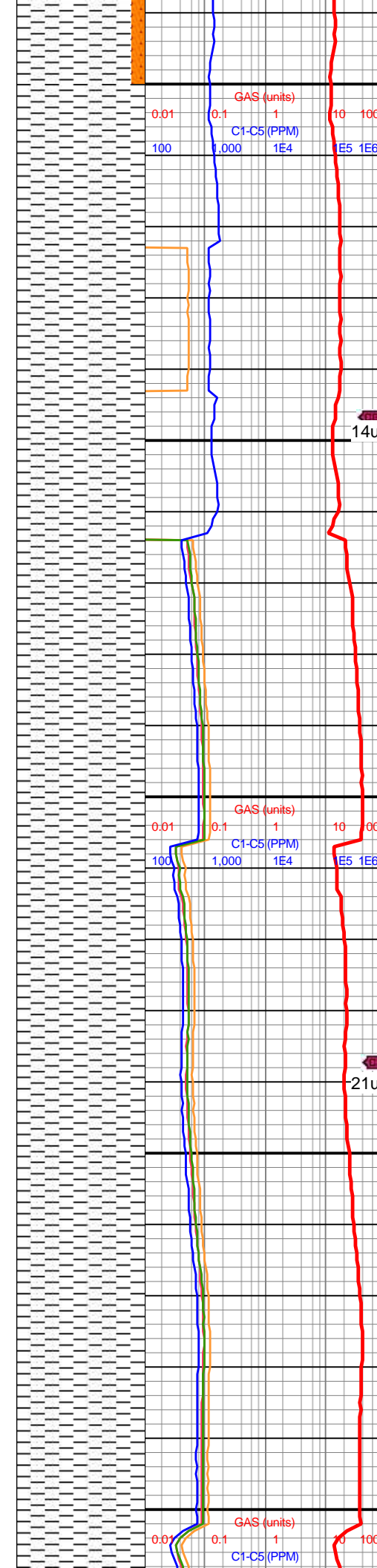
MD: 5,620'  
INC: 13.34°  
AZM: 157.81°  
TVD: 5,518.05'  
VS: -726.91'

MD: 5,709'  
INC: 13.5°  
AZM: 137.57°  
TVD: 5,604.67'  
VS: -743.28'

WOB: 17klbs  
RPM: 43  
SPM: 99  
SPP: 3,200psi

MW OUT: 9.2  
VIS OUT: 53

MD: 5,799'  
INC: 13.34°  
AZM: 139.96°  
TVD: 5,692.21'  
VS: -757.97'



non-sl calc, SLTST (Tr) med-dk gy, sme lt gy, frm-med hd, silc, non-sl calc

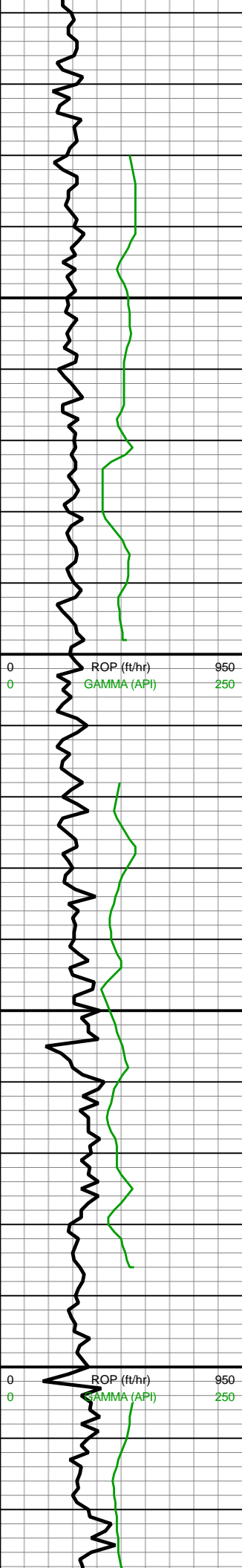
5600-5650 SH (100%):  
med-dk gy, blkyl-sb blkyl, med  
hd-frm, slty, wxy ip, non-sl  
calc; SLTST (Tr) med-dk gy,  
sme lt gy, frm-med hd, clyey,  
non-sl calc

5650-5700 SH (100%):  
med-dk gy, sme gyshbn,  
blkyl-sb blkyl, med hd-frm, slty  
tex, wxy ip, non-sl calc

5700-5750 SH (100%):  
med-dk gy, sme gyshbn,  
blkyl-sb blkyl, med hd-frm, slty  
tex, wxy ip, non-sl cal

5750-5800 SH (100%):  
med-dk gy, sme gy brn,  
blkyl-sb blkyl, med hd-frm, slty  
tex, wxy ip, non-sl cal



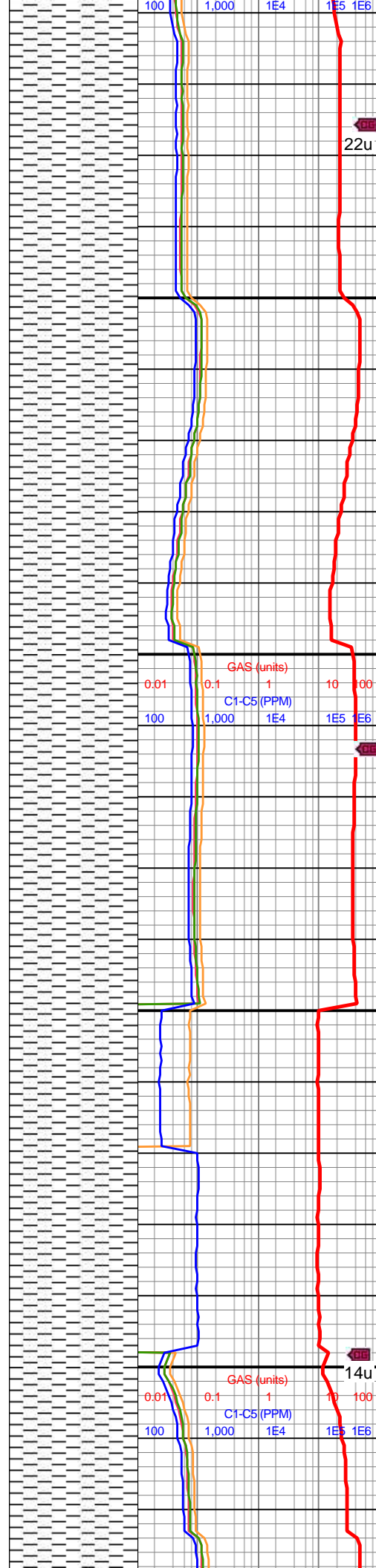


5,810  
5,820  
5,830  
5,840  
5,850  
5,860  
5,870  
5,880  
5,890  
5,900  
5,910  
5,920  
5,930  
5,940  
5,950  
5,960  
5,970  
5,980  
5,990  
6,000  
6,010  
6,020

MD: 5,888'  
INC: 13.54°  
AZM: 139.74°  
TVD: 5,778.78'  
VS: -772.79'

WOB: 14klbs  
RPM: 41  
SPM: 99  
SPP: 3,180psi

MD: 5,977'  
INC: 13.48°  
AZM: 140.52°  
TVD: 5,865.31'  
VS: -787.77'



5800-5850 SH (100%):  
med-dk gy, sme gyshbn,  
blky-sb blky, med hd-frm, slty  
tex, wxy ip, non-sl calc

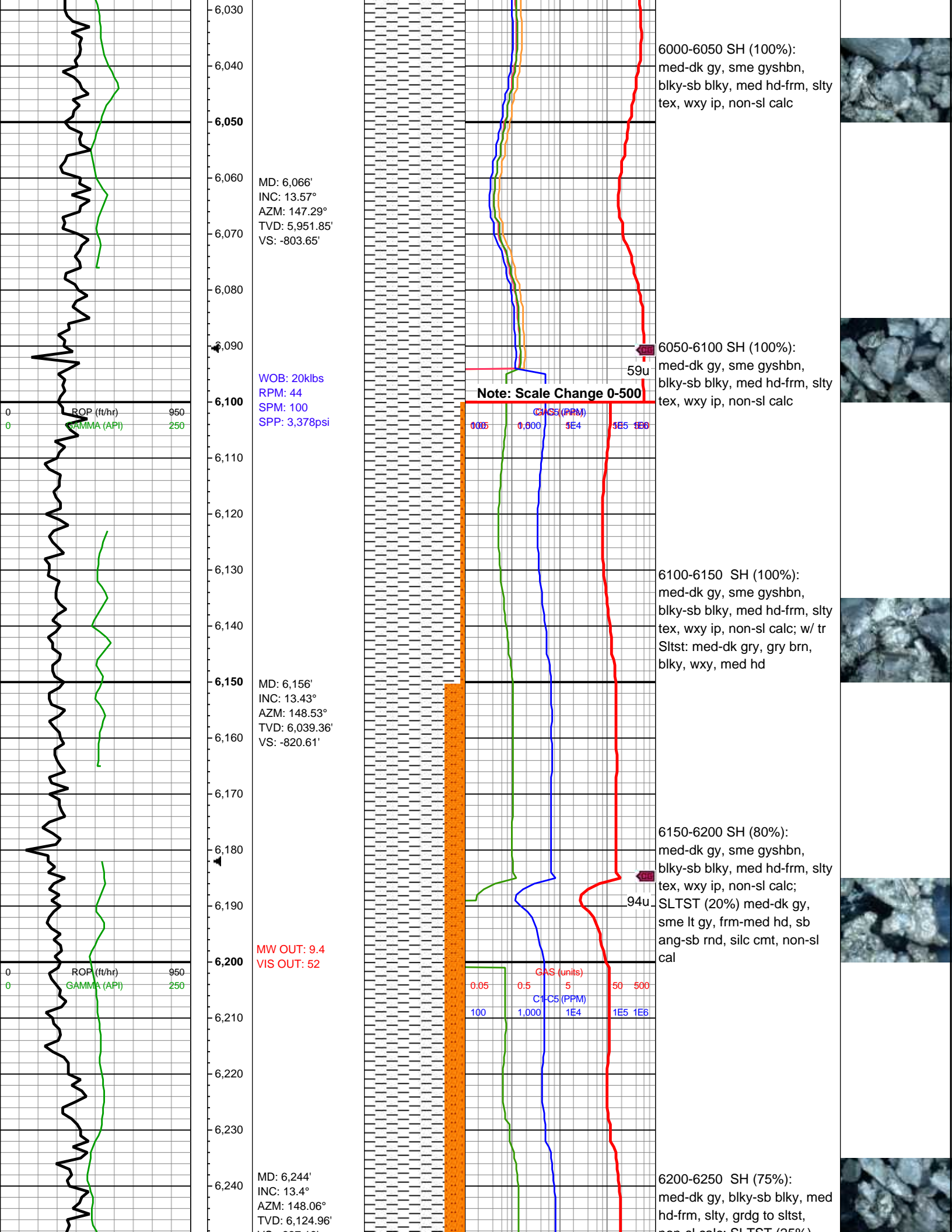
5850-5900 SH (100%):  
med-dk gy, sme gy bn,  
blky-plty, med hd-frm, slty tex,  
wxy ip, non-sl calc

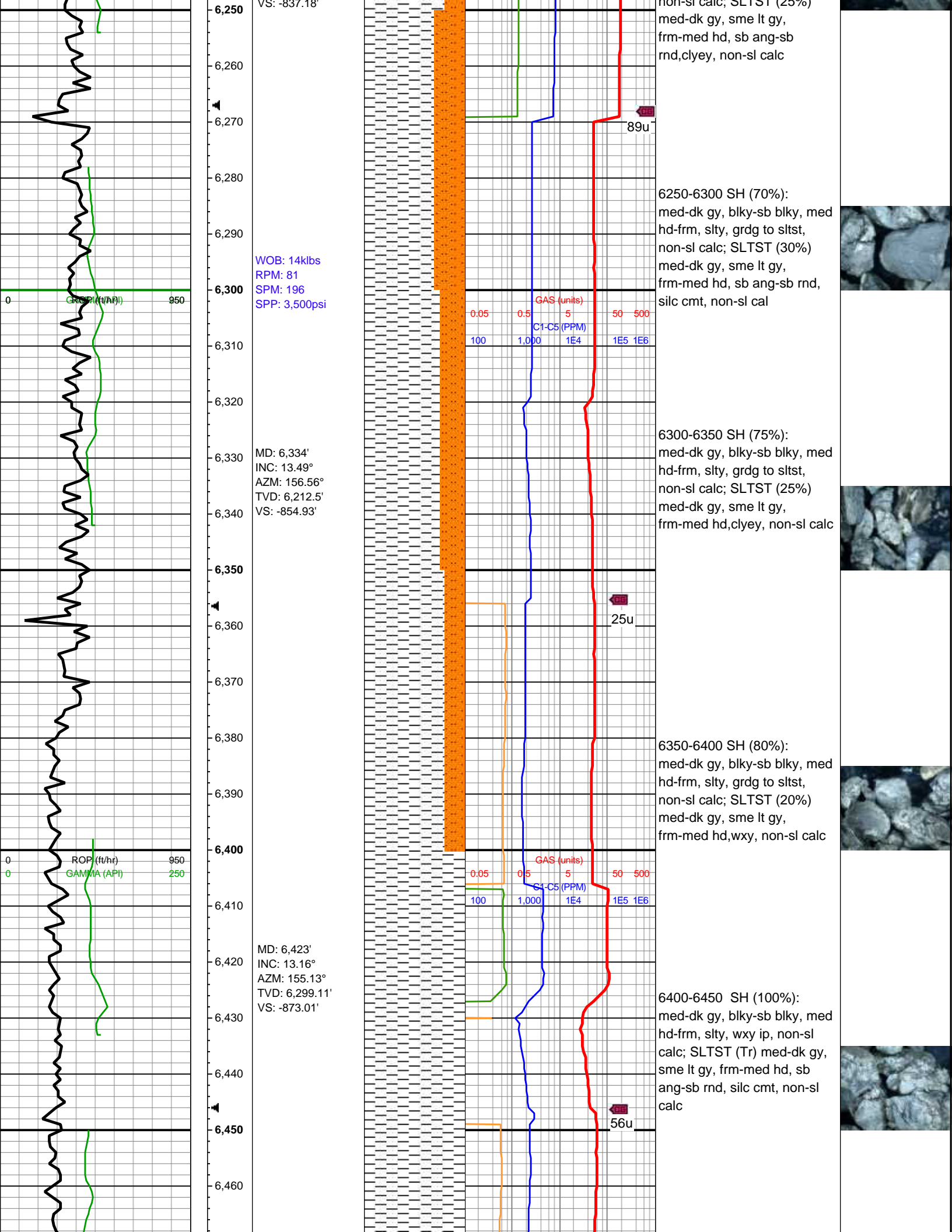
5900-5950 SH (100%):  
med-dk gy, sme gyshbn,  
blky-sb blky, med hd-frm, slty  
tex, wxy ip, non-sl calc

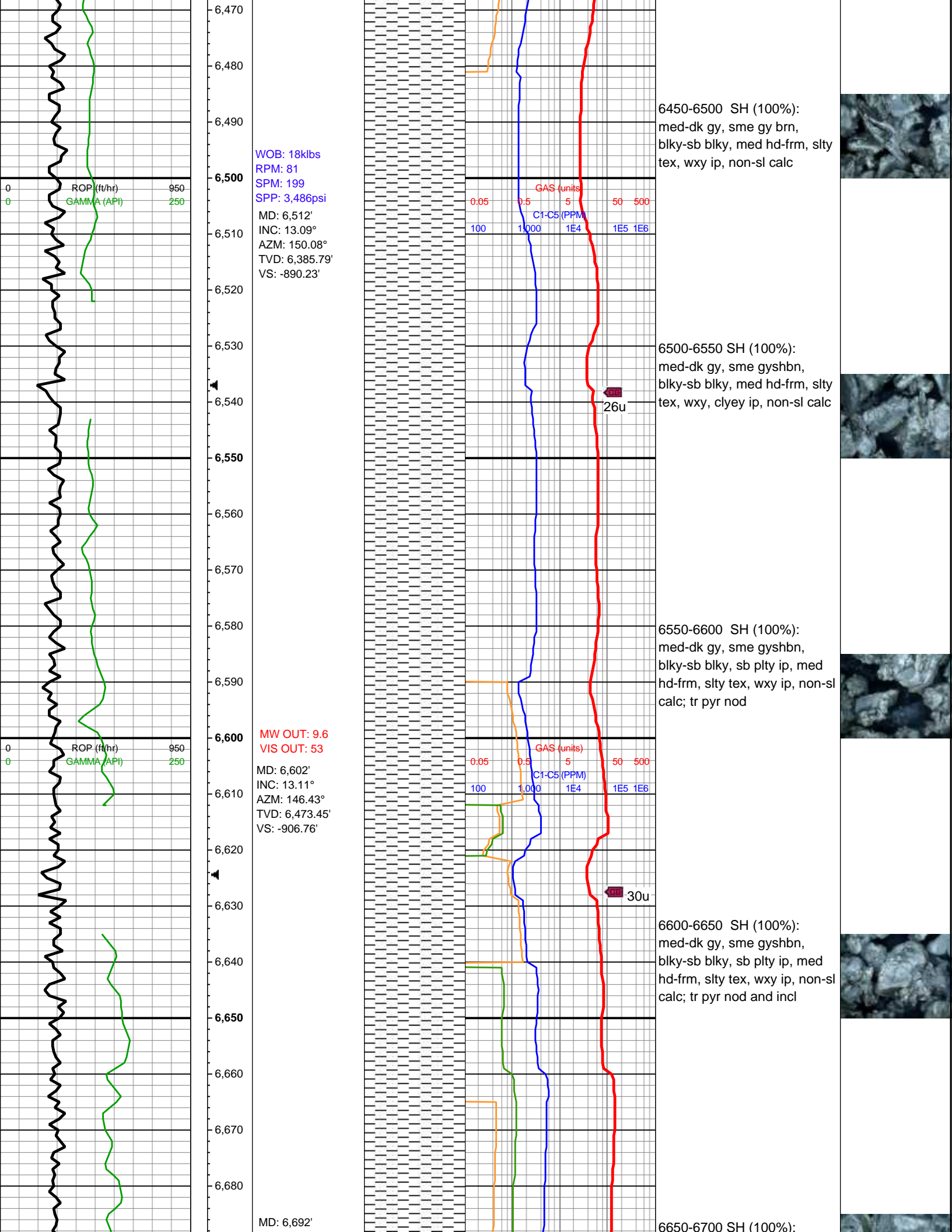
5950-6000 SH (100%):  
med-dk gy, sme gyshbn,  
blky-sb blky, med hd-frm, slty  
tex, wxy ip, non-sl calc



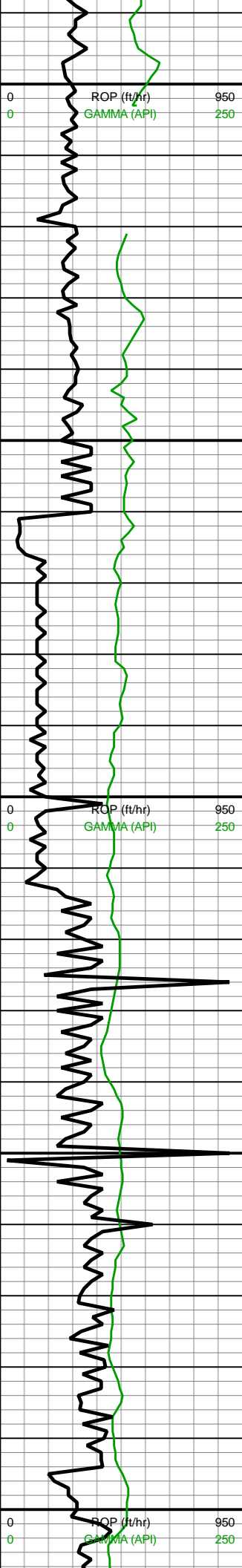












INC: 13.11°  
AZM: 142.58°  
TVD: 6,561.1'  
VS: -922.49'

WOB: 13klbs  
RPM: 81  
SPM: 200  
SPP: 3,505psi

MD: 6,781'  
INC: 11.19°  
AZM: 123.69°  
TVD: 6,648.14'  
VS: -934.33'

MW OUT: 9.7  
VIS OUT: 52

WOB: 11klbs  
RPM: 81  
SPM: 198  
SPP: 3,281psi



med-dk gy, sme gyshbn,  
blky-sb blky, med hd-frm, slty  
tex, wxy ip, non-sl calc

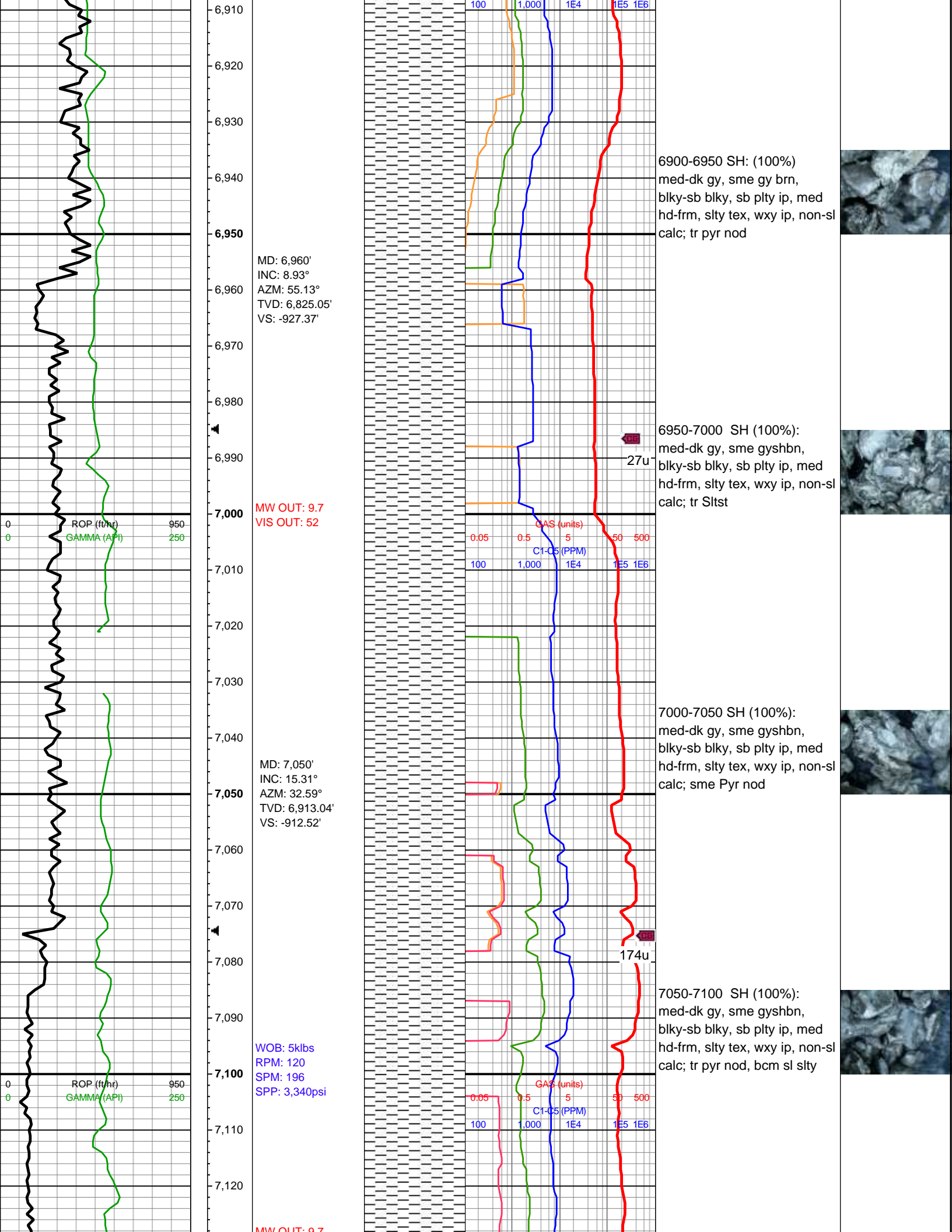
6700-6750 SH (90%):  
med-dk gy, blky-sb blky, med  
hd-frm, slty, grdg to sltst,  
non-sl calc; SLTST (10%)  
med-dk gy, sme lt gy,  
frm-med hd, silc cmt, non-sl  
calc

6750-6800 SH (100%):  
med-dk gy, blky-sb blky, med  
hd-frm, slty, wxy ip, non-sl  
calc; SLTST (Tr) med-dk gy,  
sme lt gy, frm-med h, sbwxy,  
non-sl calc

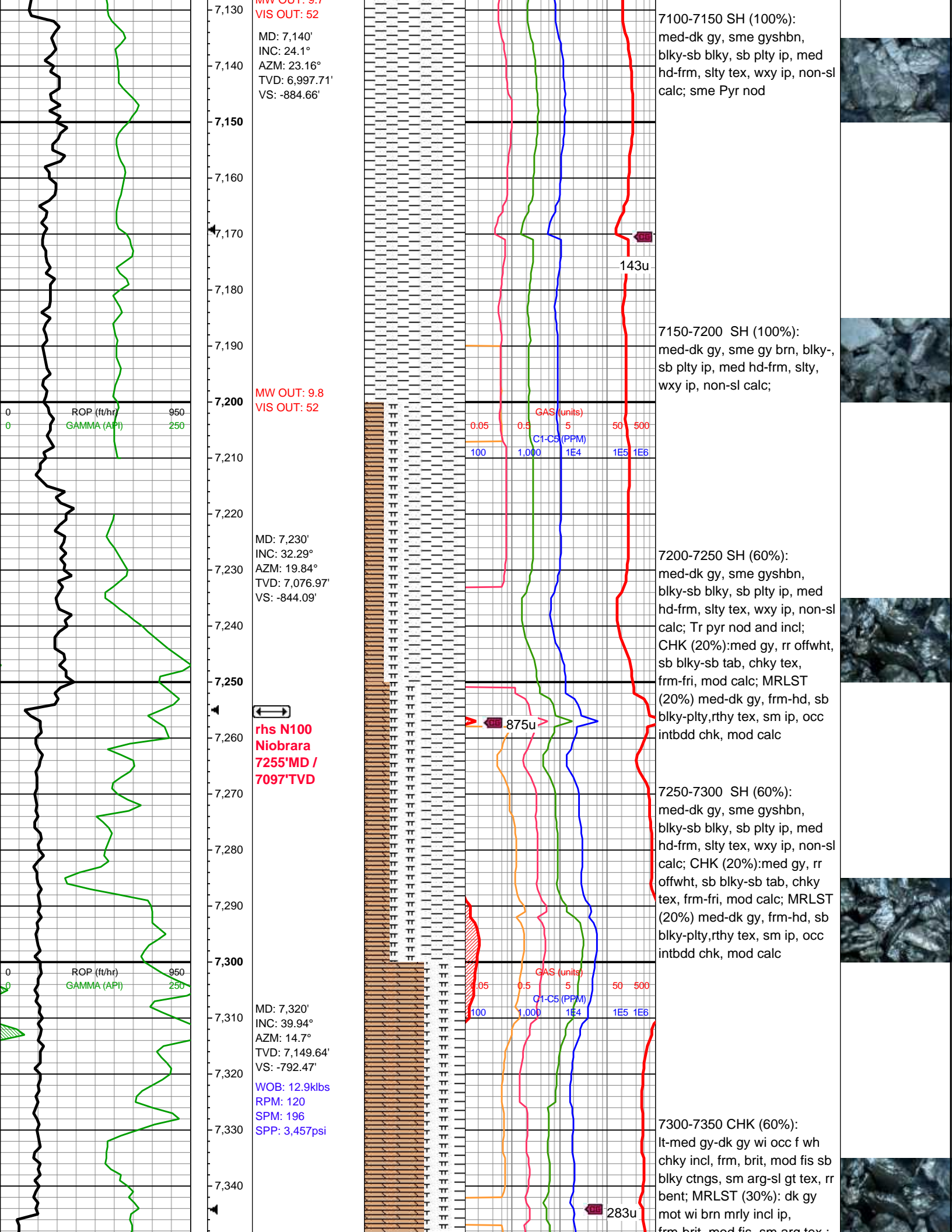
6800-6850 SH (90%):  
med-dk gy, blky-sb blky, med  
hd-frm, slty, grdg to sltst,  
non-sl calc; SLTST (10%)  
med-dk gy, sme lt gy,  
frm-med hd, sb wxy, non-sl  
calc

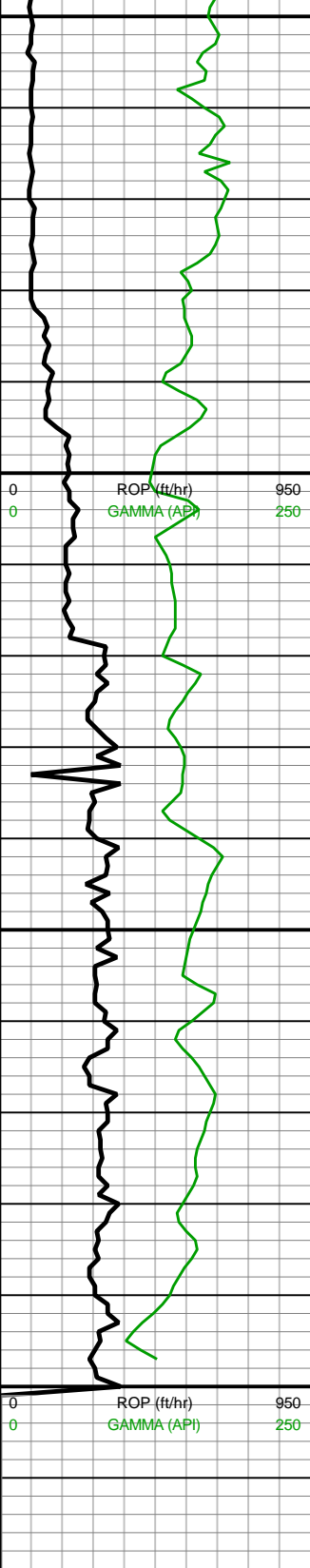
6850-6900 SH (100%):  
med-dk gy, sme gyshbn,  
blky-sb blky, med hd-frm, slty  
tex, wxy ip, non-sl calc











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

MW OUT: 9.8  
VIS OUT: 52

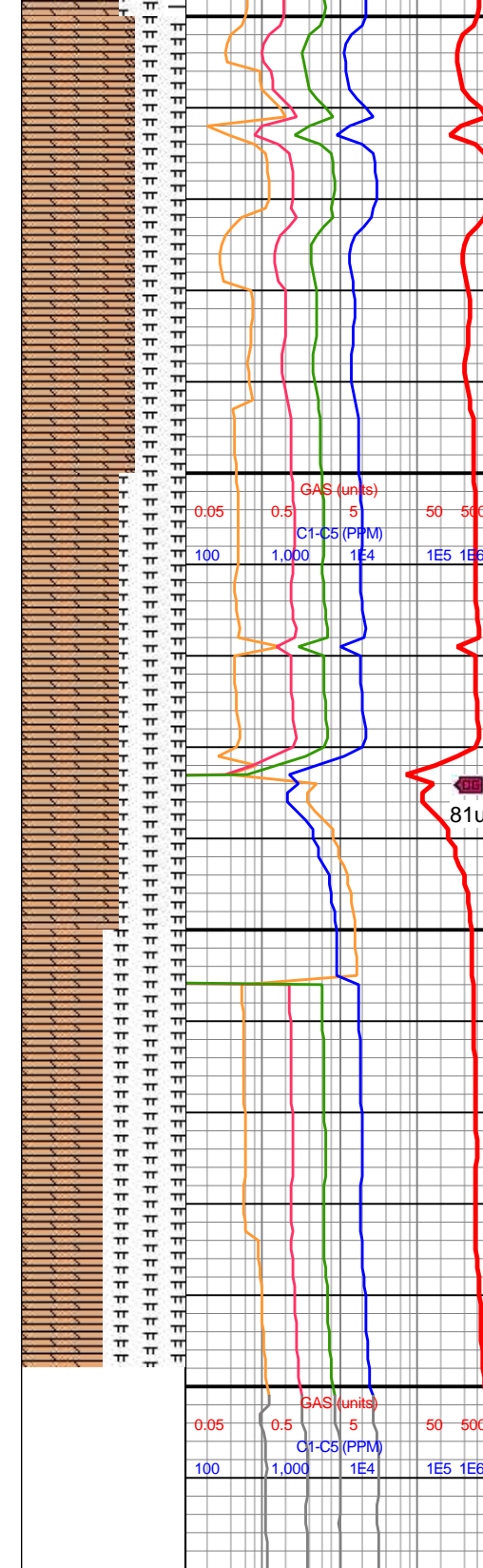
ROP (ft/hr) 950  
GAMMA (API) 250

ROP (ft/hr) 950  
GAMMA (API) 250

MD: 7,409'  
INC: 49.86°  
AZM: 7.61°  
TVD: 7,212.64'  
VS: -730.25'

MD: 7,499'  
INC: 58.44°  
AZM: 3.09°  
TVD: 7,265.32'  
VS: -657.41'

Continued on  
Horizontal @  
7450'MD



SH (10%) A/  
7350-7400 CHK (70%):  
lt-med gy-dk gy, frm, brit,  
mod fis sb blk cy ctngs, sm  
arg-sl grty tex, rr bent; MRLST  
(30%): dk gy mot wi brn mrly  
incl ip, frm-sl hd, sl brit, mod  
fis, sm arg tex  
7400-7450 CHK (60%):  
lt-med gy-occ dk gy, frm, brit,  
mod fis, sb blk cy ctngs, sm  
arg-sl grty tex, rr bent; MRLST  
(40%): dk gy mot wi brn mrly  
incl ip, blk cy-sb ang ctng,  
frm-sl hd, sl brit, mod fis, sm  
arg tex  
7450-7500 CHK (50%):  
lt-med gy-occ dk gy, frm, brit,  
mod fis, sb blk cy ctngs, sm  
arg-sl grty tex, rr bent; MRLST  
(50%): dk gy mot wi brn mrly  
incl ip, blk cy-sb ang ctng,  
frm-sl hd, sl brit, mod fis, sm  
arg tex

