

COLUMBINE LOGGING

Scale: 5" / 100'
Measured Depth Log

Well Name Merritt 6-66-9-0857CH

Location NWNE S9-T6N-R66W

State Colorado

County Weld

Country USA

Rig Number Nabors M22

API Number 05-123-37706

Region DJ Basin

Field Wattenberg

Drilling Completed 12/26/2013

Surface Coordinates NWNE S9-T6N-R66W

Bottom Hole Coordinates SESE Sec 09-T6N-R66W

Ground Elevation 4,824'

K.B. Elevation 4,844'

Logged Interval 5,800' To 6,800'

Total Depth 11,988'

Formation Shannon Sandstone

Type of Drilling Fluid LSND

Operator

Company Bill Barrett Corporation

Address 1099 18th Street, Suite 2300
Denver, CO 80202

Geologist

Name John Roesink

Company Bill Barrett Corp.

Address 1099 18th Street, Suite 2300
Denver, CO 80202

Other

Kevin Donahue

Wellsite Geologist / Geosteering Specialist
Columbine Logging Inc.

Rikki Witherspoon

Wellsite Geologist / Geosteering Specialist
Columbine Logging Inc.

Rock Types

| | | | |
|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <ul style="list-style-type: none"> UNKNOWN ANHYDRITE BENTONITE BRECCIA CEMENT CHALK CHERT CLAY CHOKE SAND CLAYSTONE | <ul style="list-style-type: none"> COAL CONGLOMERATE DOLOMITE DOLOMITIC LIMESTONE GRANITE GYPSUM IGNEOUS LIMESTONE SIDERITE or LIMONITE | <ul style="list-style-type: none"> MARLSTONE METAMORPHIC NO SAMPLE SALT SALT- PEPPER SAND SANDSTONE SHALE SHALE COLORED SHALE GRAY | <ul style="list-style-type: none"> SHALY SANDSTONE SHALY SILTSTONE SILTSTONE SILTY SHALE TILL TUFF WELDED TUFF |
|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|

Accessories

Fossils

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

- GASTROPOD
- INOCERAMUS
- 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 PELLETT

- FERRUGINOUS
- GLAUCONITE
- GYPSIFEROUS

- HEAVY MINERAL
- KAOLIN
- MARLSTONE
- MICACEOUS
- MINERAL CRYSTALS
- NODULES
- PHOSPHATE PELLETS
- PYRITE
- SALT CAST
- SANDY
- SILICEOUS
- SILTY

- TUFFACEOUS

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

Stringer

Other Symbols

Oil Show

- DEAD
- EVEN
- QUESTIONABLE
- SPOTTED STAINING

Porosity

- E EARTHY
- F FENESTRAL
- F FRACTURE
- X INTERCRYSTALLINE
- O INTEROOLITIC
- M MOLDIC

- O ORGANIC
- P PINPOINT
- V VUGGY

Engineering

- BIT CHANGE
- CONNECTION (LEFT)
- CONNECTION (RIGHT)
- CONNECTION GAS
- TRIP GAS
- DST INTERVAL
- CORE - LOST
- CORE - RECOVERED
- DST INTERVAL

- FAULT
- FORMATION TOP
- GAS SHOW
- OIL SHOW
- MN DEPTH
- MN DEPTH (RIGHT)
- NORMAL FAULT
- OVERTURNED STRATA
- REVERSE FAULT
- CASING
- SIDEWALL CORE (LEFT)
- SIDEWALL CORE (RIGHT)
- SLIDE
- SURVEY

- DRILL STEM TEST
- WIRELINE TESTED - LEFT
- WIRELINE TESTED - RT

Rounding

- A ANGULAR
- R ROUNDED
- S SUBANG
- S SUBRND

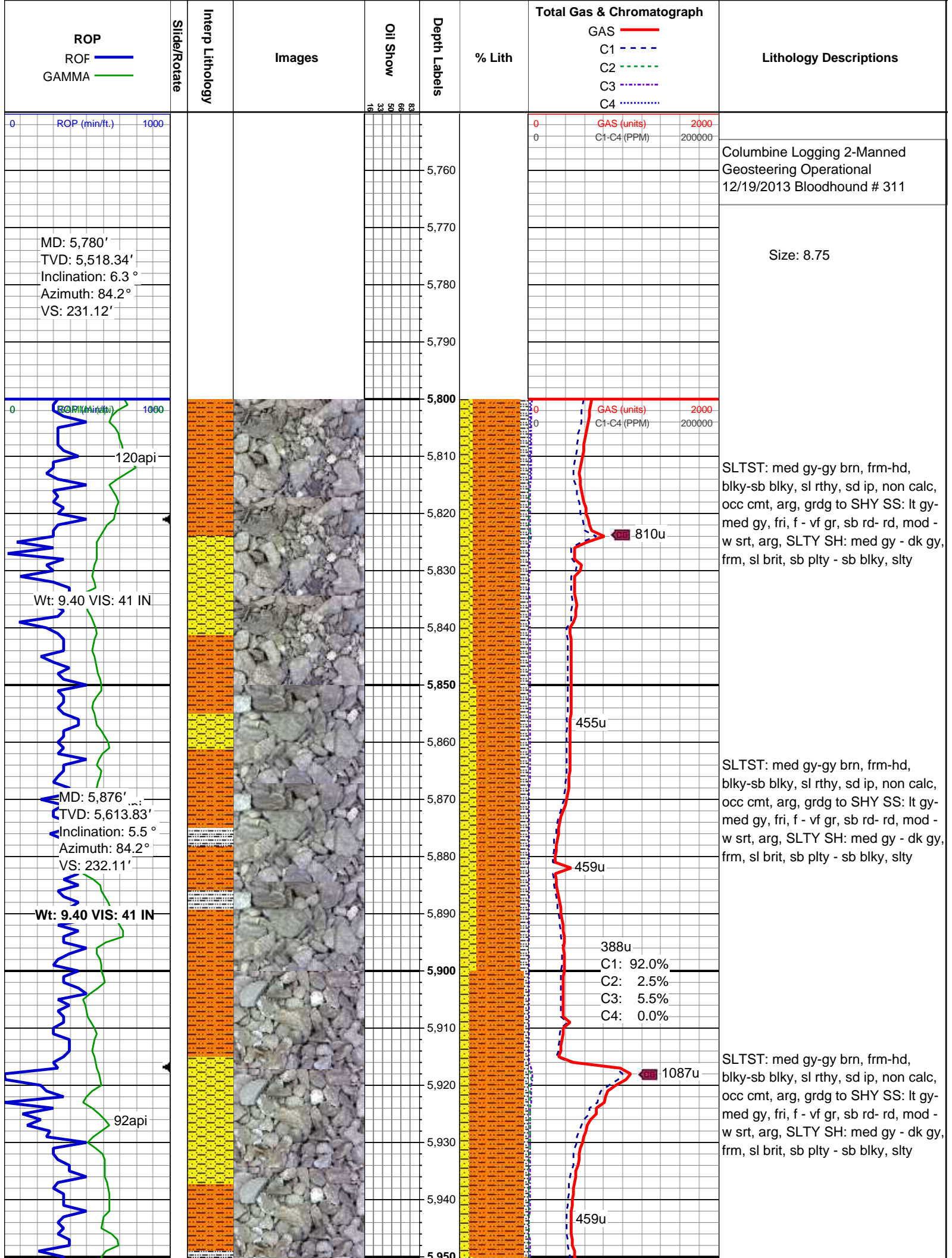
Textures

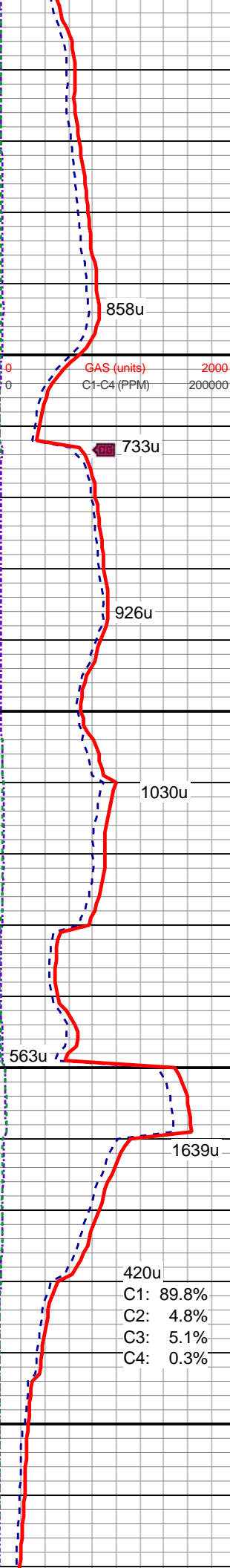
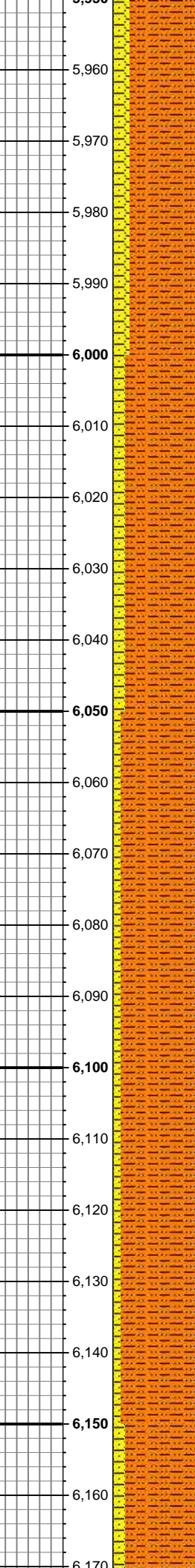
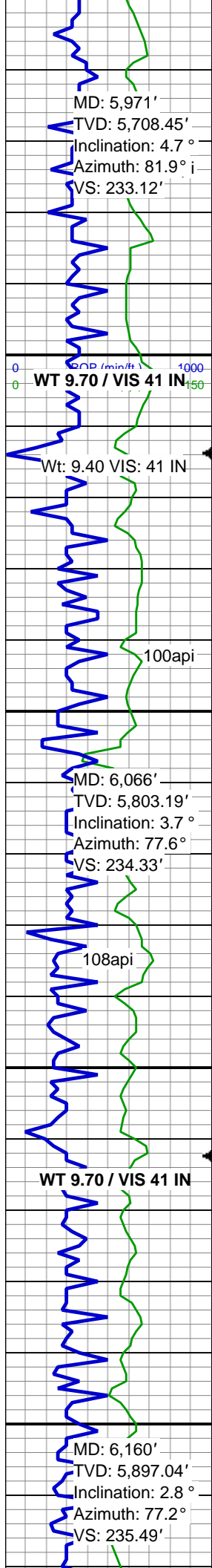
- B BOUNDSTONE
- C CHALKY
- C CRYPTOXLN

- E EARTHY
- F FINELYXLN
- G GRAINSTONE
- L LITHOGRAPHIC
- M MICROXLN
- M MUDSTONE
- P PACKSTONE
- W WACKESTONE

Sorting

- M MODERATE
- P POOR
- W WELL





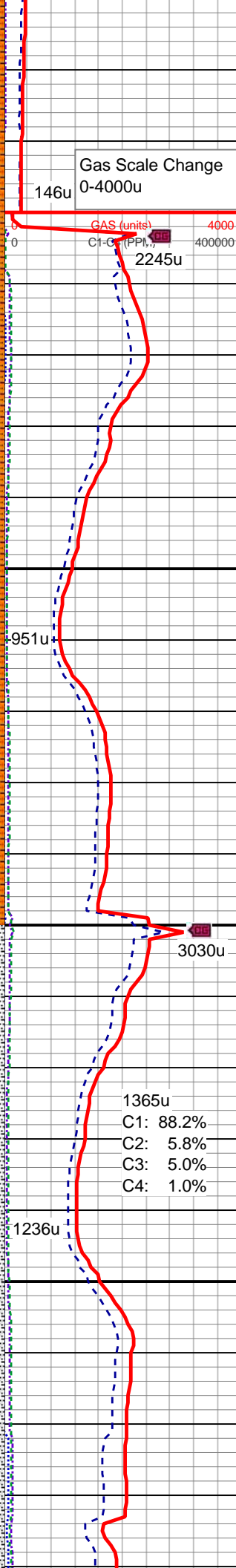
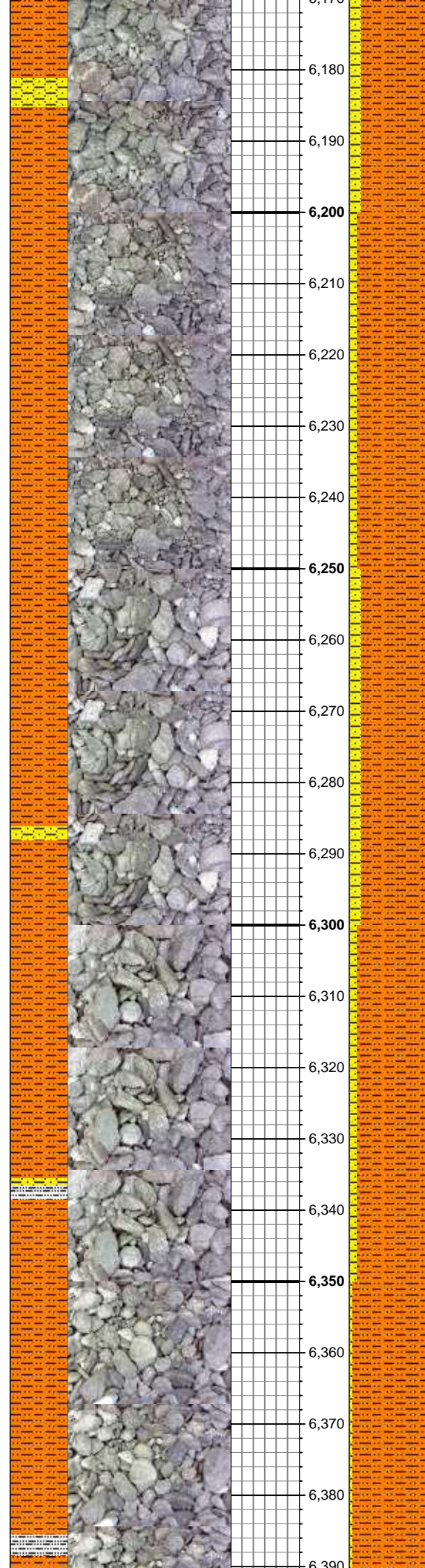
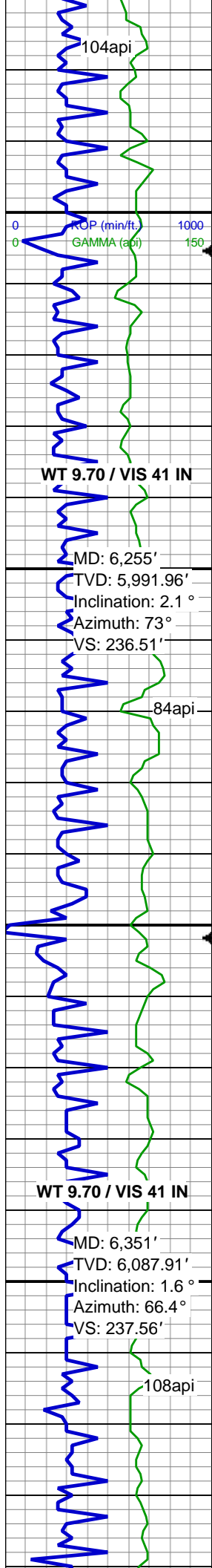
SLTST: med gy-gy brn, frm-hd, blk-sb blk, sl rthy, sd ip, non calc, occ cmt, arg, grdg to SHY SS: lt gy-med gy, fri, f - vf gr, sb rd- rd, mod - w srt, arg

SLTST: med gy-gy brn, frm-hd, blk-sb blk, sl rthy, sd ip, non calc, occ cmt, arg, grdg to SHY SS: lt gy-med gy, fri, f - vf gr, sb rd- rd, mod - w srt, arg

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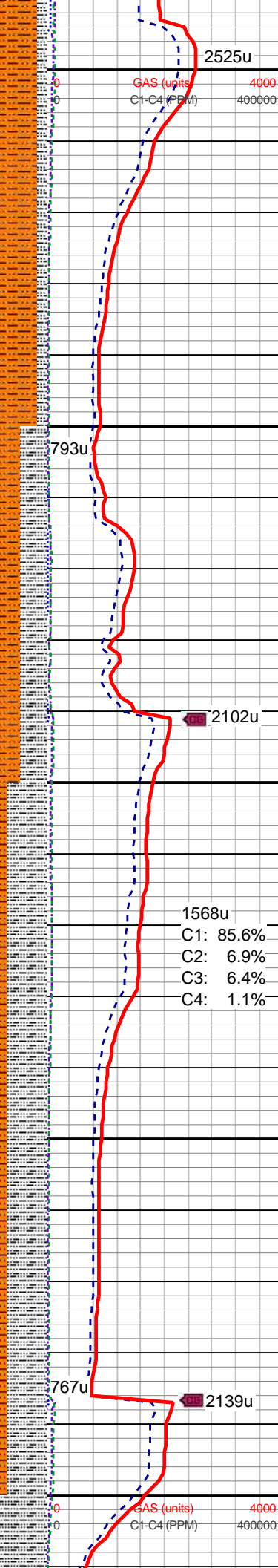
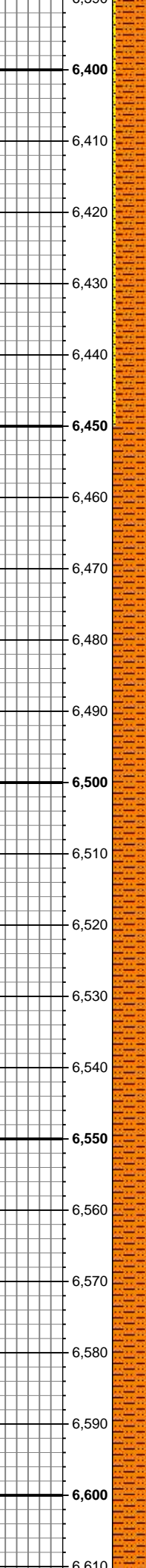
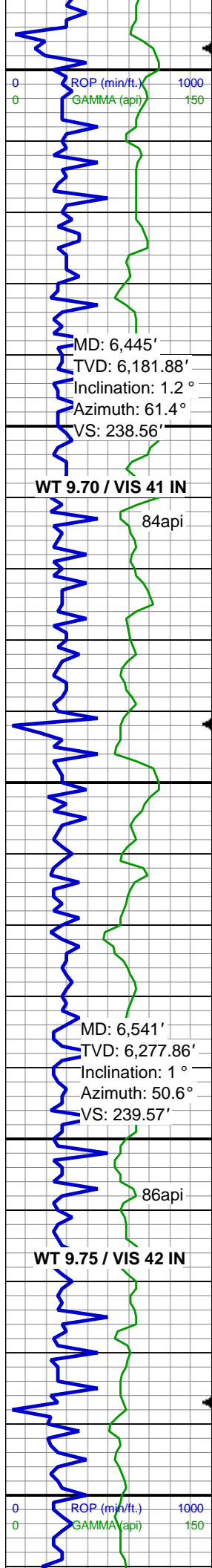
occ cmt, arg, grd to SHY SS: lt gy-med gy, fri, f - vf gr, sb rd- rd, mod - w srt, arg

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SLTYSH: m gy-m gy brn, mod fri-sl britt, sb blk- sb plty, grt-rthy, non calc, silty; SLST: lt gy-dk gy, sft-frm, sb blk- plty, sl aren, arg, non calc, grd to sh; SHYSS: lt gy- m gy, fri, f-vf gr, sb rd- rd, mod - w srt, arg, w/ occ clr-lt gy SS

SLTYSH: m gy-m gy brn, mod fri-sl britt, sb blk- sb plty, grt-rthy, non calc, silty; SLST: lt gy-dk gy, sft-frm, sb blk- plty, sl aren, arg, non calc, grd to sh; SHYSS: lt gy- m gy, fri, f-vf gr, sb rd- rd, mod - w srt, arg, w/ occ clr-lt gy SS



2525u

GAS (units) 4000
C1-C4 (PPM) 400000

SLTYSH: m gy-m gy brn, mod fri-sl britt, sb blk-y-sb plty, grt-rthy, non calc, silty; SLST: lt gy-dk gy, sft-frm, sb blk-y - plty, sl aren, arg, non calc, grd-g to sh; SHYSS: lt gy- m gy, fri, f-vf gr, sb rd- rd, mod - w srt, arg, w/ occ clr-lt gy SS

793u

SLTYSH: med-dk gy, mod frm-sl britt, sb blk-y-sb plty, v grt-rthy, non calc, silty; SLST: lt gy-dk gy, sft-frm, sb blk-y - plty, sl aren, arg, non calc, grd-g to sh

2102u

1568u
C1: 85.6%
C2: 6.9%
C3: 6.4%
C4: 1.1%

SLTYSH: med-dk gy, mod frm-sl britt, sb blk-y-sb plty, v grt-rthy, non calc, silty; SLST: lt gy-dk gy, sft-frm, sb blk-y - plty, sl aren, arg, non calc, grd-g to sh

767u

2139u

SLTYSH: med-dk gy, mod frm-sl britt, sb blk-y-sb plty, v grt-rthy, non calc, silty; SLST: lt gy-dk gy, sft-frm, sb blk-y - plty, sl aren, arg, non calc, grd-g to sh

MD: 6,445'
TVD: 6,181.88'
Inclination: 1.2 °
Azimuth: 61.4 °
VS: 238.56'

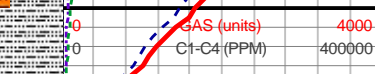
WT 9.70 / VIS 41 IN

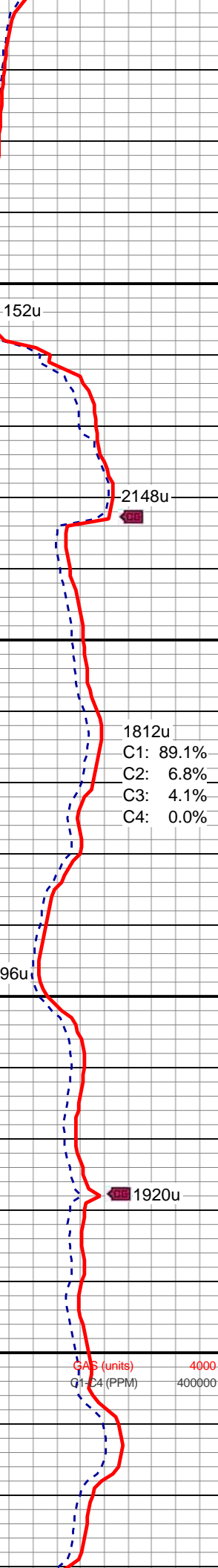
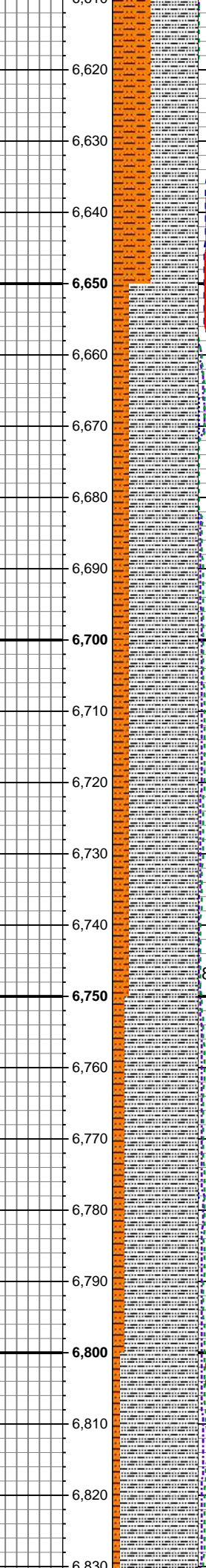
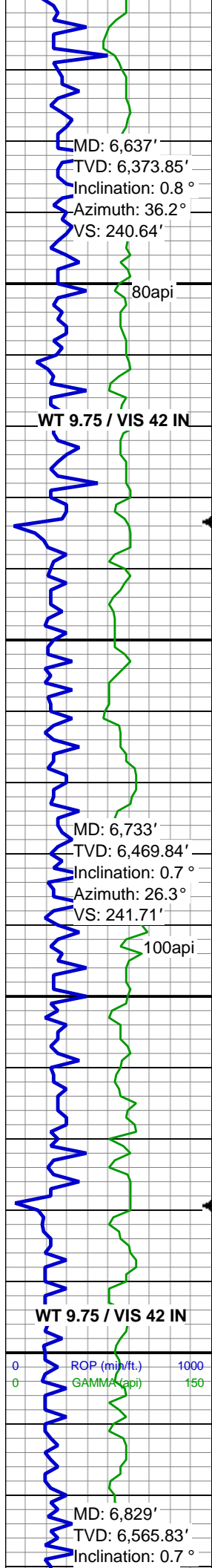
84api

MD: 6,541'
TVD: 6,277.86'
Inclination: 1 °
Azimuth: 50.6 °
VS: 239.57'

WT 9.75 / VIS 42 IN

86api





SLTYSH: med-dk gy, mod frm-sl
 britt, sb blk-y-sb pty, v grt-rthy, non
 calc, silty; SLST: lt gy-dk gy, sft-frm,
 sb blk-y - pty, sl aren, arg, non calc,
 grd to sh

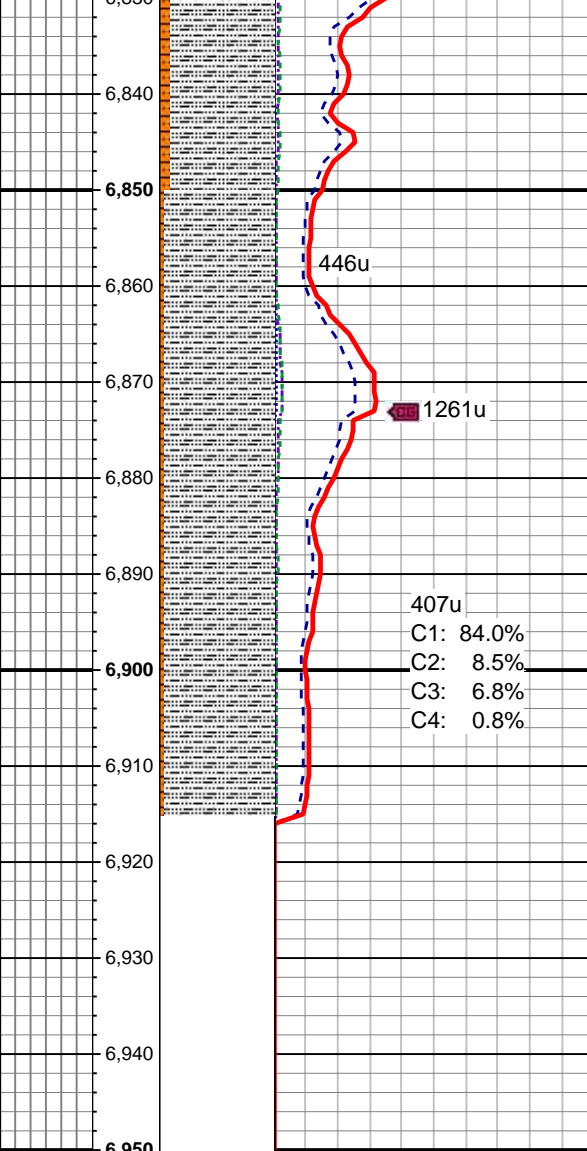
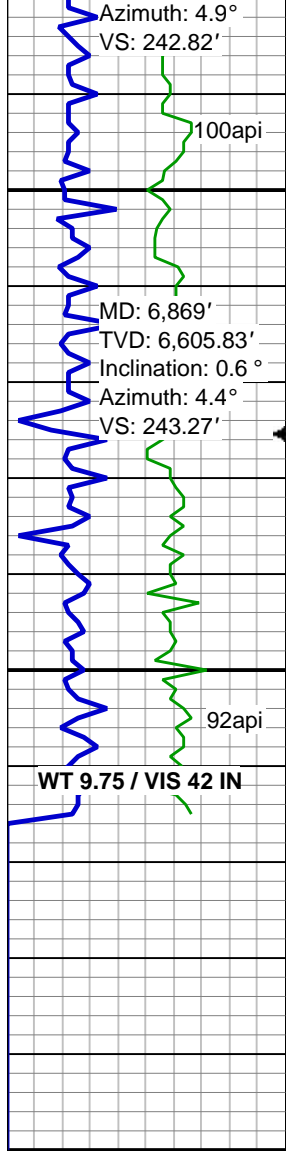
SLTYSH: med-dk gy, mod frm-sl
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 calc, silty; SLST: lt gy-dk gy, sft-frm,
 sb blk-y - pty, sl aren, arg, non calc,
 grd to sh

grug to sh



SLTYSH: med-dk gy, mod frm-sl
 britt, sb blk-y-sb pty, v grt-rthy, non
 calc, silty; SLST: lt gy-dk gy, sft-frm,
 sb blk-y - pty, sl aren, arg, non calc,
 grdg to sh

Log continues on Merritt
 6-66-9-0857CH HZ