



FORMATION EVALUATION LOG

WELL : ROCKHOPPER-1



FROM (m): 0

TO (m): 3570

SCALE: 1/ 500

Country : : AUSTRALIA
Region : : TASMANIA
Field : : ROCKHOPPER
Permit : : T/18P
Well Type : : EXPLORATION
Rig Name : : KAN TAN 4

POSITION
Latitude : 39 47' 34.1828" S
Longitude : 145 26' 21.4660" E
X (m) : 366376.031
Y (m) : 5594075.423
RT-Sealevel (m MSL) : 26
RT-Seabed (m) : 100.3

CASING SHOE SIZE / DEPTH
762mm (30") at (m MDRT) : 157.00
340mm (13 3/8") at (m MDRT) : 961.00
245mm (9 5/8") at (m MDRT) : 1965.00

Spud Date : 30-11-2009
Total Depth Date : 27-12-2009
Total Depth (m MDRT) : 3522.0
Total Depth (m TVSS) : 3191.97
Status : P & A

ABBREVIATIONS

MW MUD WEIGHT NB NEW BIT
FV FUNNEL VISCOSITY RR RERUN BIT
PV PLASTIC VISCOSITY CB CORE BIT
YP YIELD POINT WOB WEIGHT ON BIT
FC FILTER CAKE RPM REVS PER MINUTE
SOL SOLIDS FLC FLOW CHECK
CR CIRCULATE RETURNS WL FILTRATE
SD SAND - % PR POOR RETURNS
S SALINITY - PPM NR NO RETURNS
RM MUD RESISTIVITY BG BACKGROUND GAS
RMF MUD FILTRATE TG TRIP GAS
C CARBIDE TEST STG SHORT TRIP GAS
LAT LOGGED AFTER TRIP CG CONNECTION GAS
DS DEVIATION SURVEY SG SWAB GAS
SVG SURVEY GAS

LITHOLOGY LEGEND

Dolomite

Claystone

Argil Siltstone

Calcareous

Calcirudite

Siltstone

Sandy Siltstone

Dolomitic

Calcareenite

Sandstone

Calcareous Siltstone

Fossils

Calcsiltite

Coal

Argil Sandstone

Foraminiferae

Calcilutite

Intrusive Volcanics

Calcareous Sandstone

Carbonaceous

Sandy Claystone

Volcaniclastics

Dolomitic Sandstone

Chert

Silty Claystone

Tuff

Silty Sandstone

Pyrite

Calcareous Claystone

Cement

Glauconite

Argil Calcilutite

Mica

ENGINEERING

Test

FIT or LOT

Mud loss

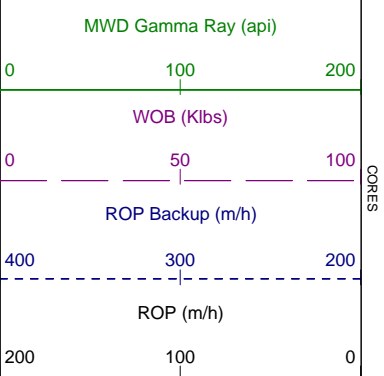
Mud gain

Deviation survey

Core

Shoe

Calcimetry

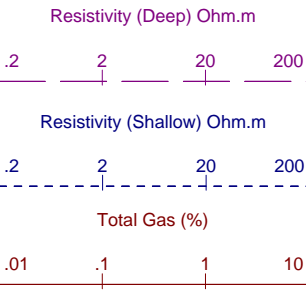


DEPTH
mMDRT

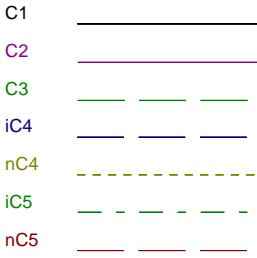
CUTTINGS LITHOLOGY %

INTERPRETED LITHOLOGY

TOTAL GAS & RESISTIVITY



CHROMATOGRAPH %



DIRECT FLUOR.

GOOD

FOR

FLUOR.

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CALC (%)

0 100

DOLO (%)

100 0

LITHOLOGICAL DESCRIPTIONS

AND REMARKS

30-11-2009

BIT # 1: 914mm (36")
HUGHES CR-1

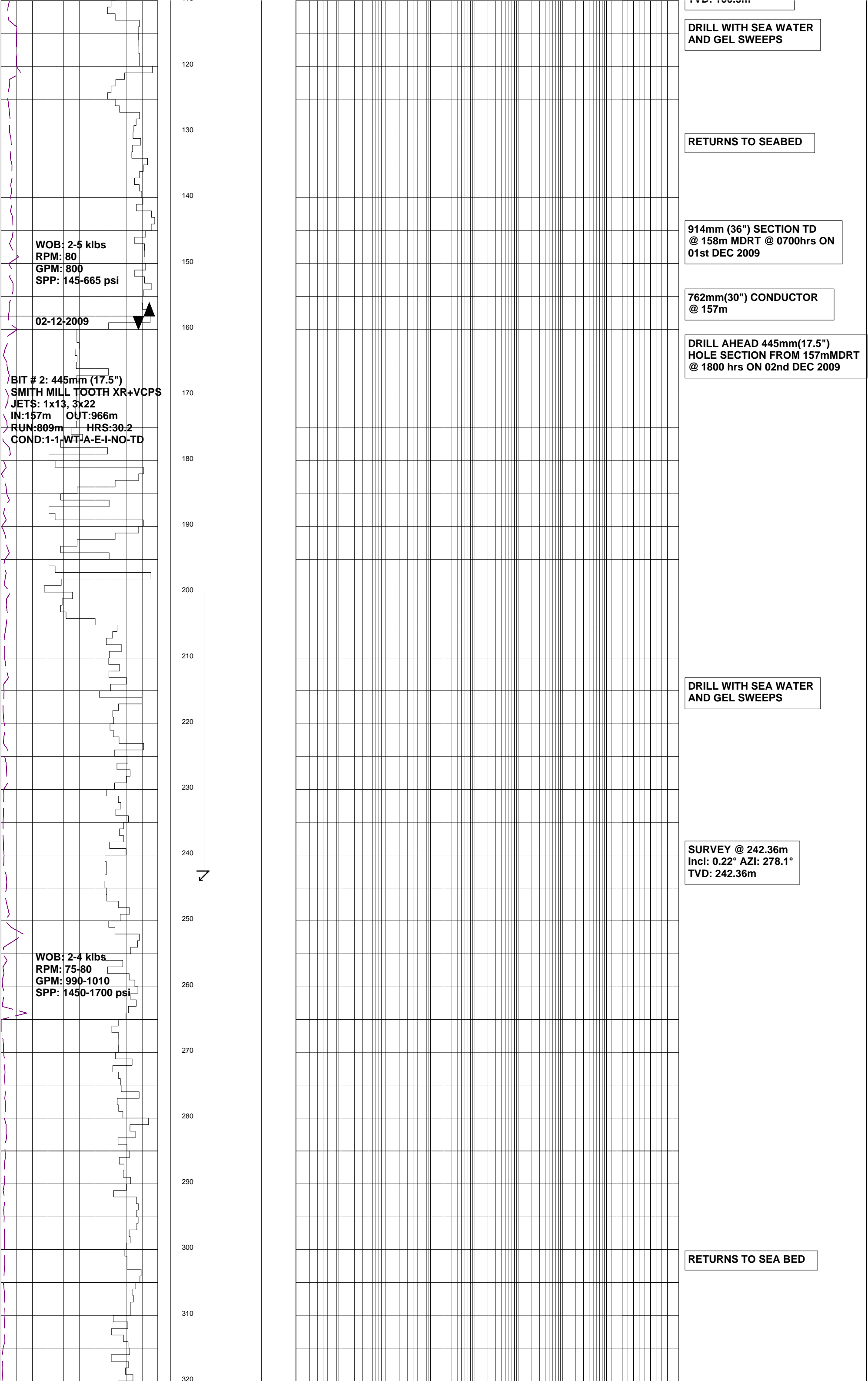
JETS: N/A
IN:100.3m OUT:158m
RUN:57.7m HRS:2.8

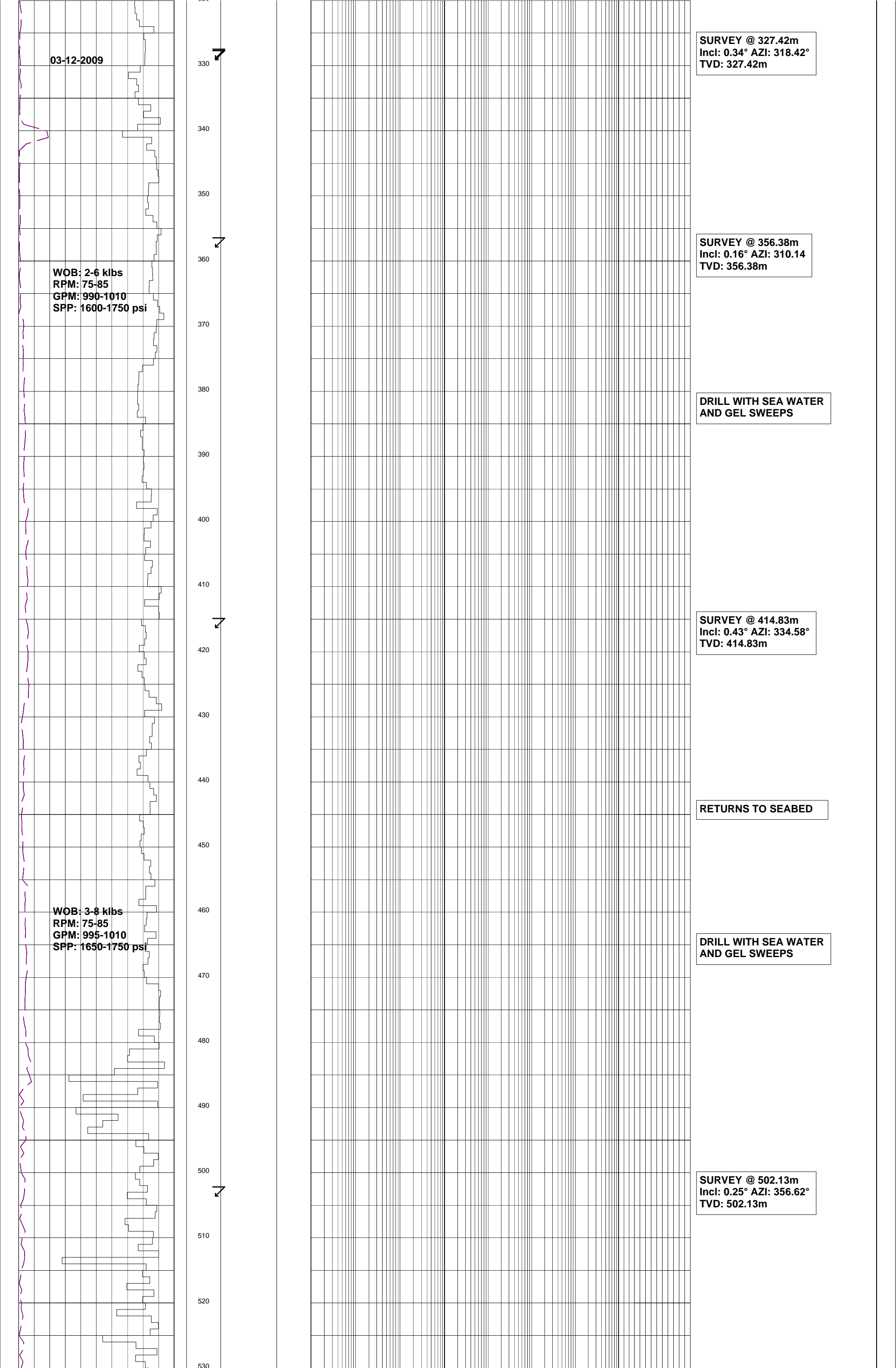
COND: 1-1-WT-A-1-I-NO-TD
01-12-2009

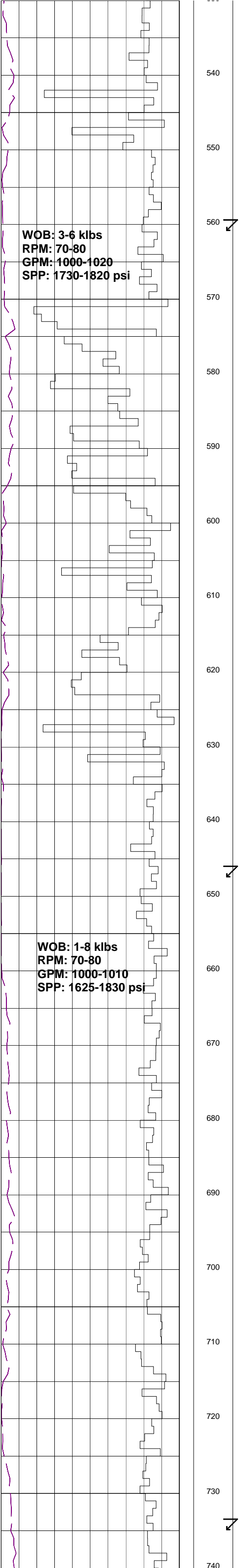
SPUD ROCKHOPPER-1 @ 23:30
914mm (36") SECTION
ON THE 30TH NOV 2009

SEABED @ 100.3m

SURVEY @ 100.30m
Incl: 0.00° AZI: 0.0°
TVD: 100.3m







SURVEY @ 559.33m
Incl: 0.33° AZI: 356.35°
TVD: 559.33m

RETURNS TO SEABED

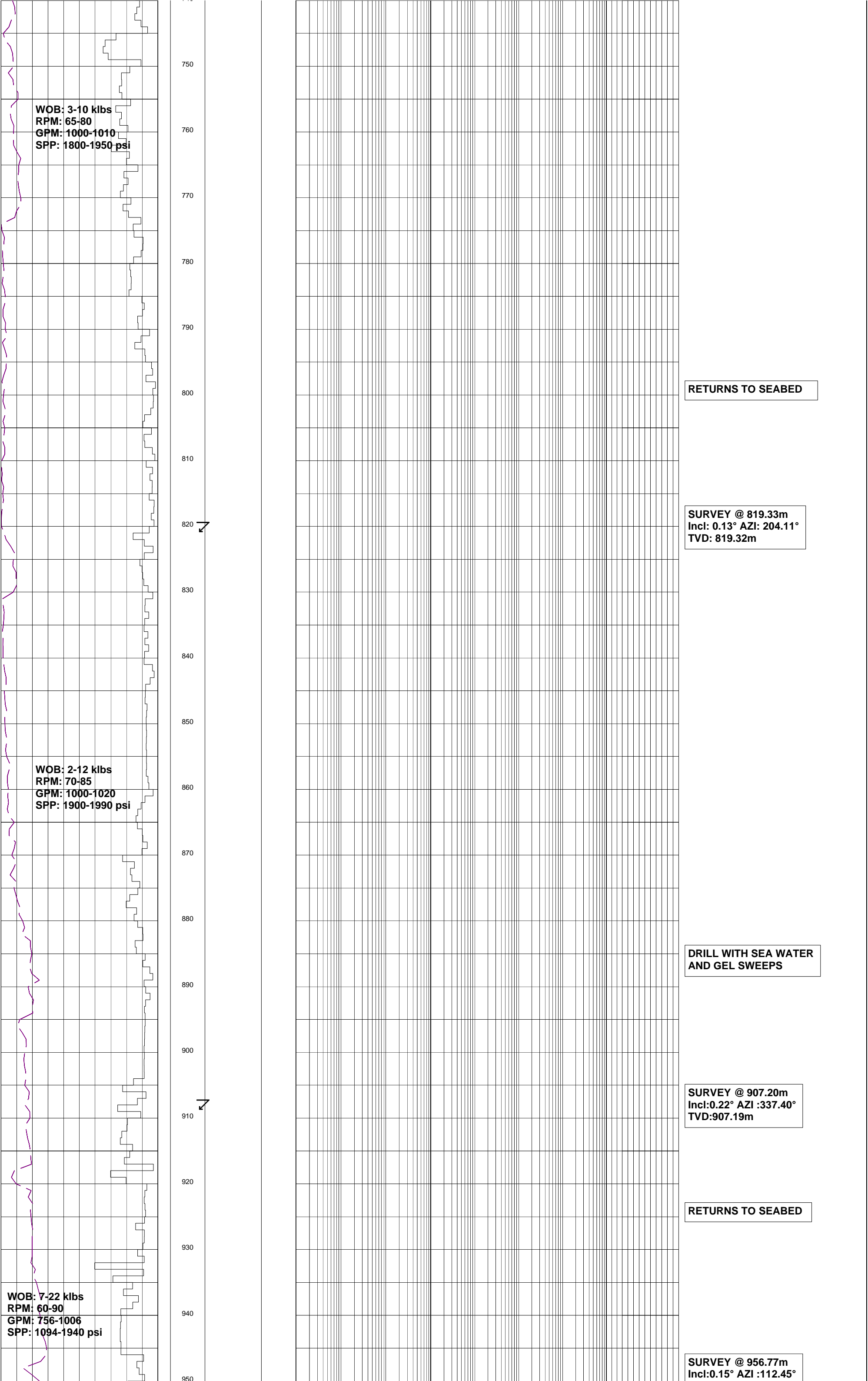
**DRILL WITH SEA WATER
AND GEL SWEEPS**

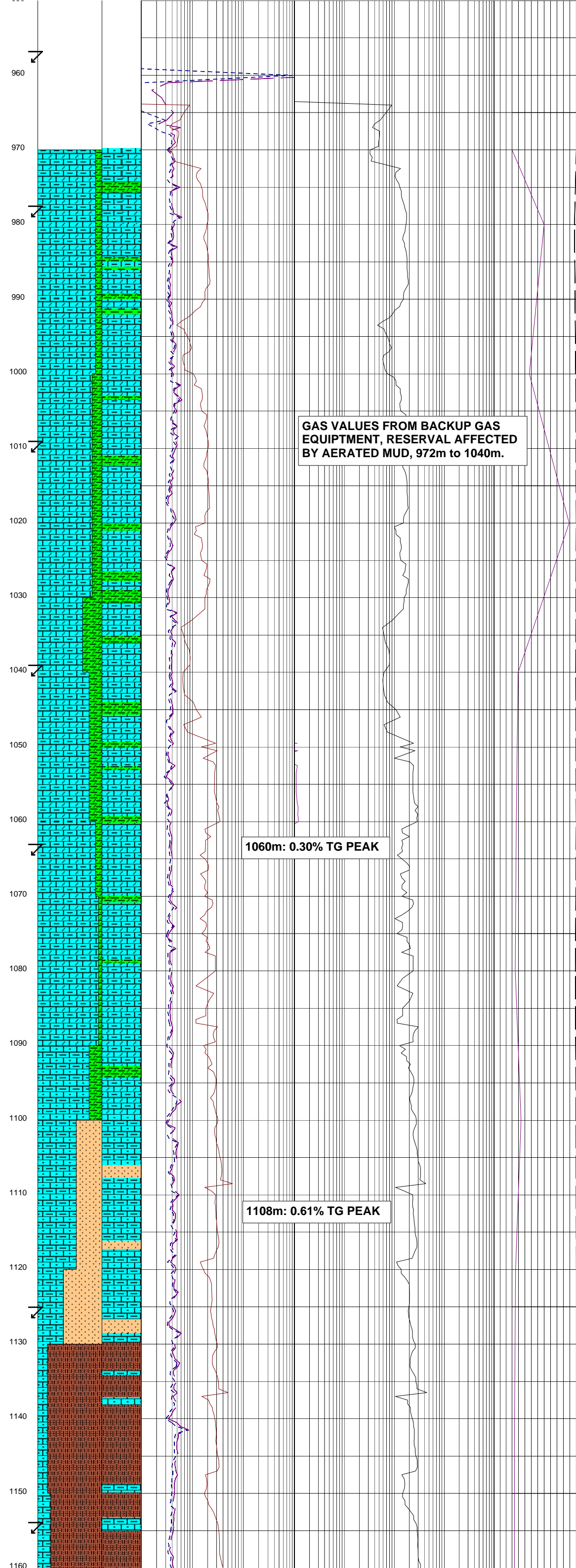
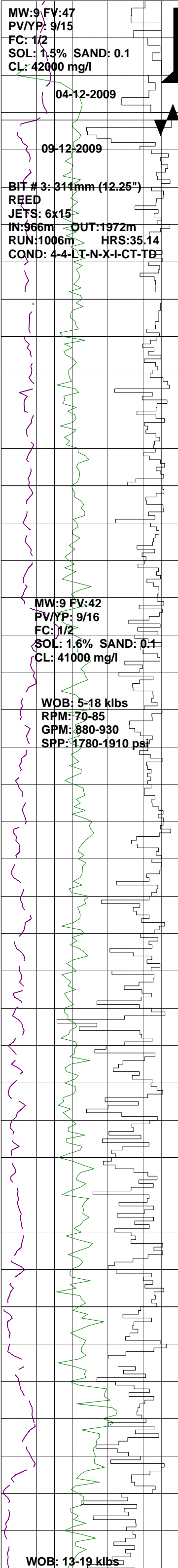
SURVEY @ 645.93m
Incl: 0.22° AZI: 77.08°
TVD: 645.92m

RETURNS TO SEABED

**DRILL WITH SEA WATER
AND GEL SWEEPS**

SURVEY @ 733.40m
Incl: 0.10° AZI: 264.51°
TVD: 733.39m





TVD:956.76m

340mm (13.375") CASING SHOE SET @ 961m MDRT

445mm (17.5") SECTION TD @ 966m MDRT @ 0900hrs ON 04th DEC 2009

DRILL AHEAD 311mm(12.25") HOLE SECTION FROM 966mMDRT @ 1630 hrs ON 09th DEC 2009

CONDUCT LOT @ 961m 17.5ppg EMW

SURVEY @ 980.53m
Incl:0° AZI:258.48°
TVD:980.34m

CALCILUTITE:med gry-med dk gry,v sft-sft,blky-sbblky, 3% skeletal frags,2% corals, 5% vf qrtz grns,tr vf grs pyr.

CALCAREOUS CLAYSTONE: med blu gry,v sft-sft,blky-sbblky, 20% calc CLY.

CALCILUTITE:med gry-med dk gry,v sft-sft,blky-sbblky, 3% skeletal frags,2% corals.

SURVEY @ 1009.96m
Incl:0.20° AZI :60.48°
TVD:980.34m

CALCILUTITE:med gry-med dk gry, v sft-sft,blky-sbblky,5% corals 3% skl frags.

SURVEY @ 1039m
Incl:0.22° AZI :57.43°
TVD:1039m

CALCAREOUS CLAYSTONE:med blu gry,v sft-sft,blky-sblky, 30% calc CLY.

SURVEY @ 1068.02m
Incl:0.25° AZI :56.72°
TVD:1039m

CALCILUTITE:med gry-med dk gry,v sft-sft,blky-sbblky, 1% skl frags,rr vf grs pyr.

CALCAREOUS CLAYSTONE:med blu gry,v sft-sft,blky-sbblky, 30% calc CLY.

CALCILUTITE:med gry-med dk gry,v sft-sft,blky-sbblky,2% corals,3% skl frags,rr vf grs pyr.

SURVEY @ 1096.61m
Incl:0.09° AZI :334.71°
TVD:1096.68m

CALCAREOUS CLAYSTONE:dk grn gry-dk gry,vf sft-fri, blky-sbblky,20% calc CLY.

SILTSTONE:med gry-med dk gry, sft-fri,blky-fiss,5% calc CLY.

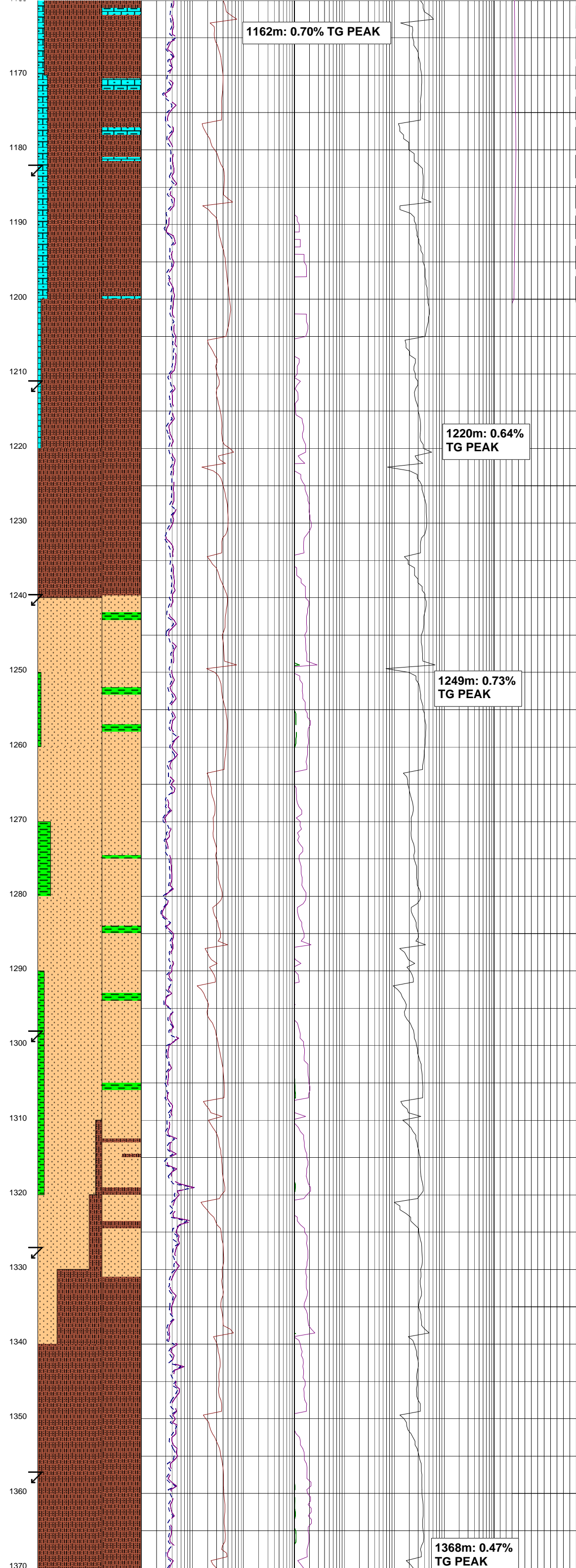
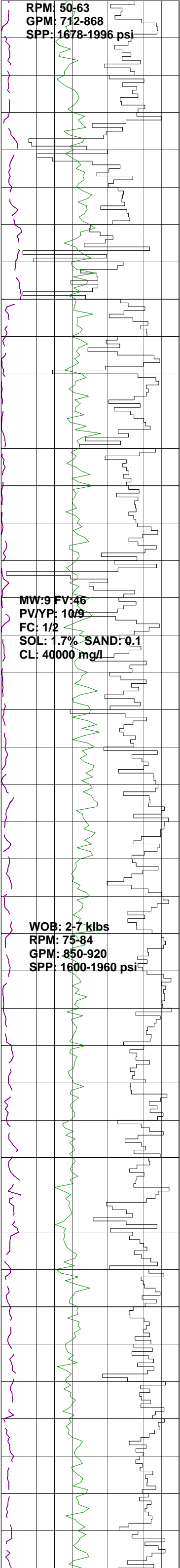
SURVEY @ 1125.20m
Incl:0.25° AZI:23.41°
TVD: 1125.19

CALCILUTITE:med lt gry-med gry,v sft-sft,blky-sbblky,1% skl frags,1% corals.

CALCILUTITE:med gry-pl yel brn, v sft-sft,rr vf grs pyr.

CALCACEROUS SILTSTONE:dk gry,dk grn gry,sft-fri,blky-fiss 20% calc CLY.

SURVEY @ 1153.52m
Incl:0.31° AZI :18.55°
TVD:1153.54



TVD:1153.51m

CALCILUTILE:med gry-pl yel
brn,v sft-blky,rr vf grs pyr.

SURVEY @ 1182.12m
Incl:0.26° AZI :64.52°
TVD:1182.11m

CALCAREOUS SILTSTONE:dk
gry,dk grn gry,sft-fri,blky-fiss
30% calc CLY.

CALCILUTITE:med gry-pl yel brn,
v sft-sft,blky,rr vf grs pyr.

SURVEY @ 11210.69m
Incl:0.31° AZI :28.33°
TVD:1210.68m

CALCAREOUS SILTSTONE:med
dk gry,olv gry,dk grnsh gry,
sft-frm,blky-sbblky,20% calc
cly,10% CLY,tr carb spks.

CALCAREOUS SILTSTONE: med
dk gry,olv gry,sft-frm,blky-sbblky,
20% calc CLY,5% CLY,5% vf grs
qtz grs,tr carb spks,tr mic flks,

SURVEY @ 1239.34m
Incl:0.36° AZI :49.88°
TVD:1239.33m

CLAYSTONE:pl yelsh brn,sft-frm,
blky-sbblky,15% calc CLY,tr shl
frags.

CLAYSTONE:med dk gry,sft-frm,
blky-sbblky,10% calc CLY.

SILTSTONE:med dk gry,olv gry,
sft-frm,bly-sbblky,10% calc CLY,
15% CLY,5% vf qtz grs,tr carb
mat,tr glauc grs,tr lith frags.

SURVEY @ 1298.15m
Incl:0.40° AZI :29.51°
TVD:1298.14m

CLAYSTONE:med dk gry,sft-frm,
blky-sbblky,1-% calc CLY,tr mic
flks,tr lith frags.

SILTSTONE:med dk gry,olv gry,
sft-frm,blky-sbblky,10% calc CLY,
5% vf qtz grs,tr carb mat,tr glauc
grs,tr lith frags,tr mic flks,grd
to aren w/ depth.

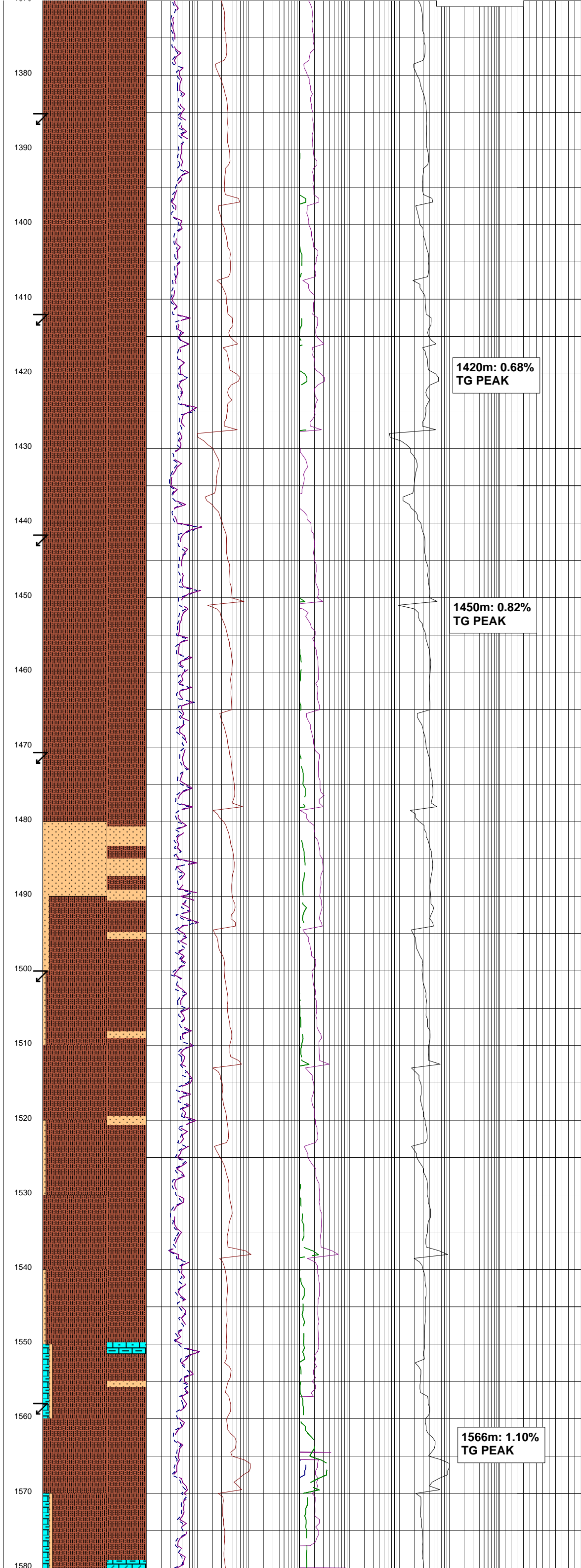
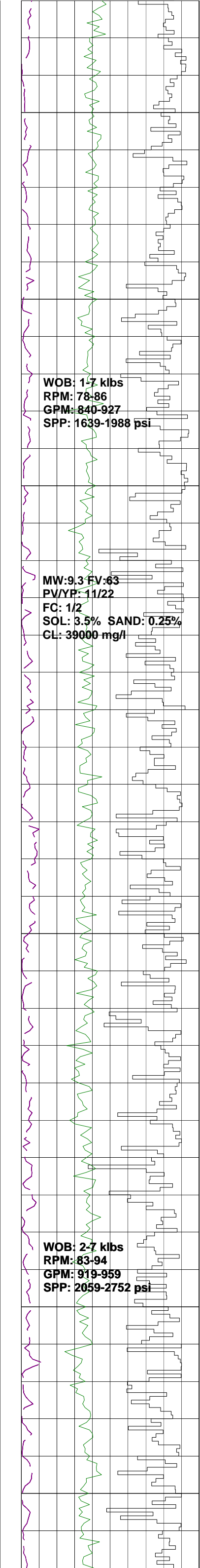
SURVEY @ 1327.53m
Incl:0.39° AZI :32.18°
TVD:1327.52m

CALCAREOUS SILTSTONE:v lt
gry,med lt gry,sft,sbblky,20%
calc CLY,tr carb spks,glauc
grs,lith frags,vf grs pyr.

CALCAREOUS SILTSTONE:v lt
gry,med lt gry,sft,sbblky,20%
calc CLY,tr carb spks,glauc
grs,lith frags,vf grs pyr &
shl frags.

SURVEY @ 1356.77m
Incl:0.31° AZI :47.29°
TVD:1356.76m

CALCAREOUS SILTSTONE:v lt



gry,med lt gry,olv gry,sft, sbblky,20% calc CLY,tr carb spks,glauc grs,lith frags & shl frags.

SURVEY @ 1385.60m
Incl:0.44° AZI :56.10°
TVD:1385.59m

CALCAREOUS SILTSTONE: v lt gry,med lt gry,olv gry,sft,sub blky,20% calc cly,tr carb spks,glauc grs,lith frag & forams.

SURVEY @ 1412.81m
Incl:0.48° AZI :46.30°
TVD:1441.65m

CALCAREOUS SILTSTONE: v lt gry,med lt gry,olv gry,sft, sbblky,20% calc cly,tr carb spks,glauc grs,lith frags & foram.

SURVEY @ 1441.66m
Incl:0.57° AZI :57.51°
TVD:1441.65m

CALCAREOUS SILTSTONE:v lt gry,med lt gry,olv gry,dk grn gry i/p,sft,sbblky-blky,20% calc cly,tr glauc grs,tr lith frags, tr shell frags & forams,tr corals.

SURVEY @ 1470.69m
Incl:0.57° AZI :43.73°
TVD:1470.68m

SILTSTONE:med lt gry-med gry,dk grnsh gry,lt gry i/p, sft,sbblky-blky,10% calc CLY, tr lith frags,tr corals.

SURVEY @ 1499.95m
Incl:0.59° AZI :47.75°
TVD:1499.93m

SILTSTONE:olv gry-dk grnsh gry,fri,sbblky-blky.

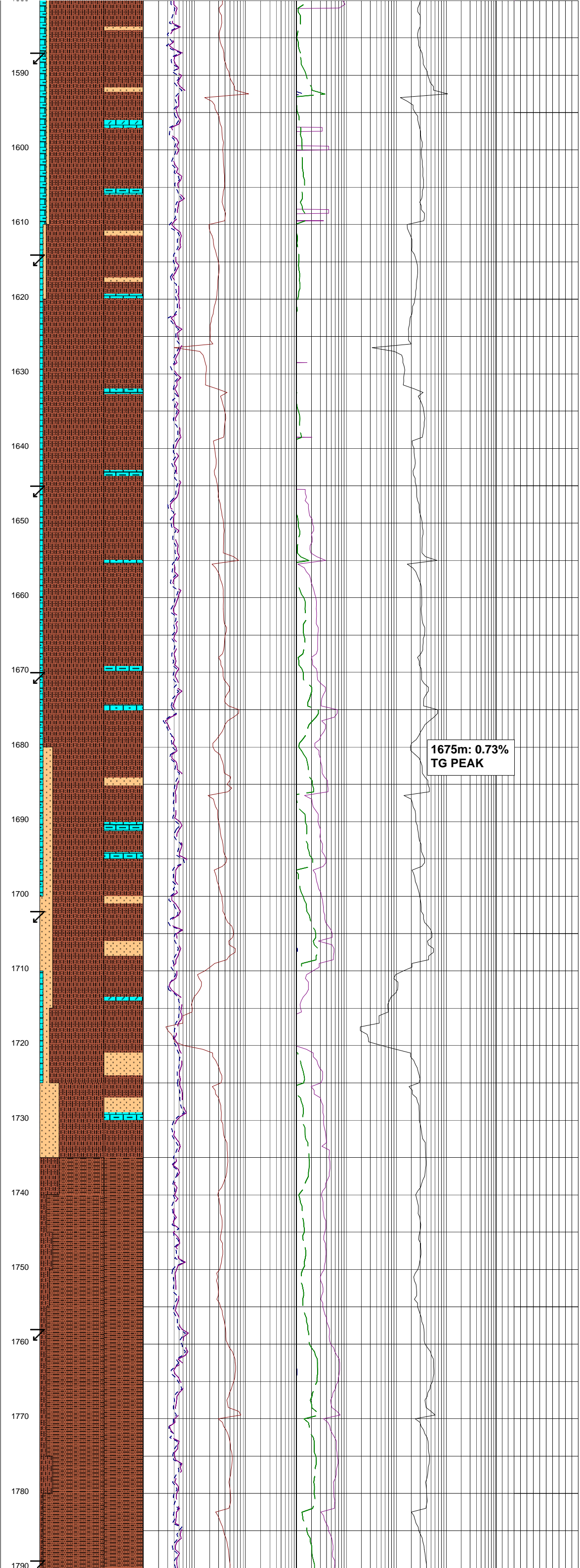
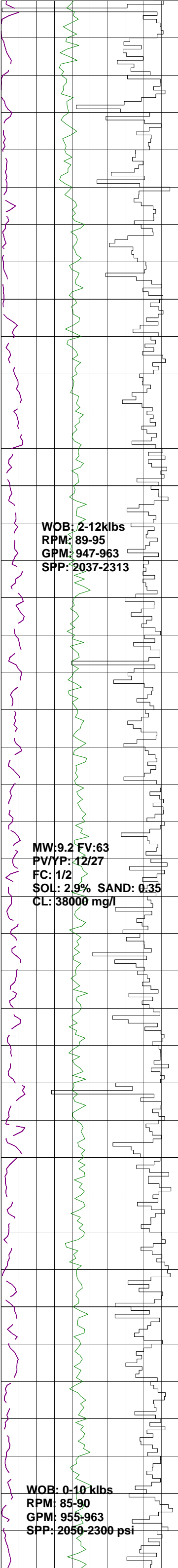
CALCAREOUS SILTSTONE:lt blu gry,v lt gry-med gry,sft,sbblky-blky,30% calc cly,2% glauc grs, tr lith frags,tr shell frags & tr corals.

CALCAREOUS SILTSTONE:med lt gry-med dk gry i/p,sft,sbblky-blky,30% calc CLY,tr carb spks, tr lith frags & forams.

CARBIDE LAG CHECK @ 1551m
THEO STKS: 6372
ACTUAL STKS: 6953
HOLE O.G: 8.6%

SURVEY @ 1558.73m
Incl:0.62° AZI :46.69°
TVD:1558.71m

CALCILUTITE:lt gry-med lt gry,v sft-sft,blky-sbblky, 10% CLY.



SURVEY @ 1587.90m
Incl:0.64° AZI :49.02°
TVD:1587.88m

SILTSTONE:olv gry-olv blk,
sft-frm,sbblky-blky,10% calc
CLY,tr carb spks,tr forams,tr
skl frags.

SURVEY @ 1616.89m
Incl:0.68° AZI :52.55°
TVD:1616.87m

CALCAREOUS SILTSTONE:
med gry-med dk gry,olv gry i/p,
sbblky-blky,20% calc CLY,tr
carb spks,tr forams,tr skl frags.

CALCILUTITE:v lt gry-lt gry,
v sft-sft,blky-sbblky,10%
SILT.

SURVEY @ 1645.39m
Incl:0.64° AZI:67.47°
TVD:11645.39m

CALCAREOUS SILTSTONE:med
gry-med dk gry,olv gry i/p,sfr,
sbblky-blky,20% calc CLY,tr
carb specs,tr forams,tr slk
frags,tr vf grs pyr.

CALCILUTITE:v lt gry-lt gry,
v sft-sft,blky-sbblky,10% SILT.

SURVEY @ 1673.84m
Incl:0.66° AZI :56.91°
TVD:1673.81m

1675m: 0.73%
TG PEAK

SILTSTONE:brn gry-med dk gry,
sft,sbblky-blky,10% calc CLY,
10% CLY.

CALCAREOUS SILTSTONE:brn
gry-med dk gry,occ olv gry,drk
grn gry,sft-frm,sbblky-blky,
ang i/p,20 calc CLY,10% CLY,
tr feld,tr lith frags.

SURVEY @ 1702.24m
Incl:0.64° AZI :57.55°
TVD:1702.21m

CALCILUTITE:v lt gry-lt gry,v
sft-sft,blky-sbblky.

SILTSTONE:brnsh gry-med dk gry,
sft,sbblky-blky,10% calc CLY,10%
CLY.

CALCAREOUS SILTSTONE:brnsh
gry-med dk gry,occ olv gry dk
grnsh gry,sft-frm,sbblky-ang
i/p,20% calc CLY,10% CLY,tr
felds,tr lith frags.

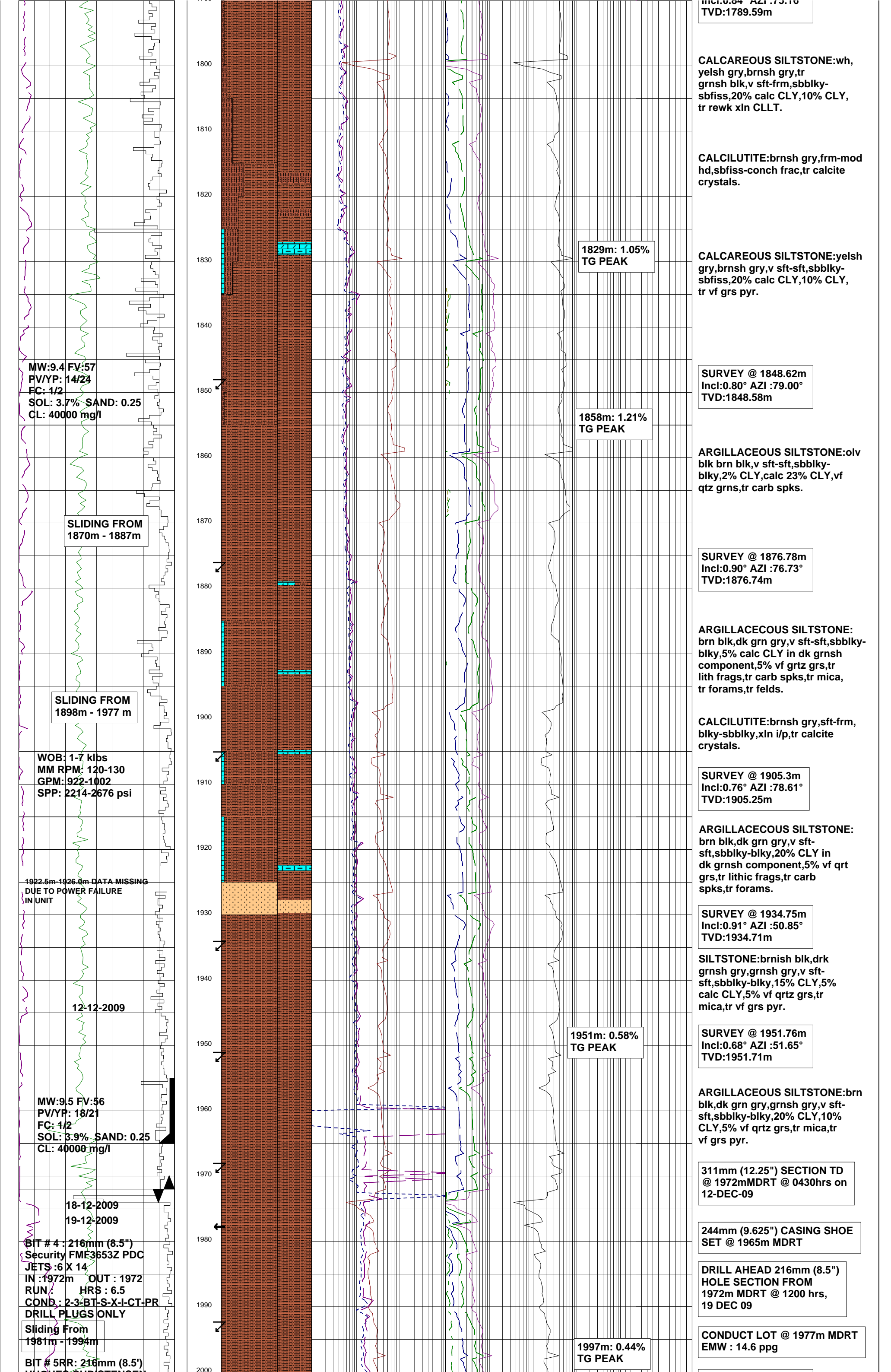
ARGILLACEOUS SILTSTONE:dk
gry,brnsh blk,sft,sbblky-
blky,5% calcCLY,30% CLY,5%
vf qtz grs,tr lith frags,tr
carb spks,tr vf grs pyr.

CALCAREOUS SILTSTONE:wh,
yelsh gry,brnsh gry,tr grnsh
blk,v sft frm,sbblky-sbfiss,20%
calc CLY,10% CLY,tr rewk
xln CLLT.

SURVEY @ 1758.92m
Incl:0.72° AZI :70.24°
TVD:1758.89m

ARGILLACEOUS SILTSTONE:
brnsh gry,sft,sbblky-blky,5% calc
CLY,25% CLY,tr lith frags,tr carb
spks,tr glauc grs,tr vf grs pyr.

SURVEY @ 1789.63m
Incl:0.84° AZI :75.16°



HUGHES CHRISTENSEN
 JETS: 3X20
 IN: 1972m OUT:2019
 RUN:47m HRS:4.7
 COND:2-2-WT-A-1-NO-BHA

20-12-2009
 21-12-2009

BIT # 6: 216mm (8.5')
 REED
 JETS: 4X16
 IN: 2019m OUT:2023m
 RUN:4m HRS:0.3hrs
 COND:0-0-NO-A-X-I-NO-DTF

BIT # 6RR1: 216mm 98.5")
 REED
 JETS: 4 X 16
 IN: 2023 OUT:3522
 RUN:1499 HRS:89.4
 COND:6-6-BT-A-X-I-NO-PR

MW:9.65 FV:50
 PV/YP: 12/26
 FC: 1/2
 SOL: 4.0% SAND: 0.20
 CL: 41000 mg/l

WOB: 2.7-21.0 klbs
 RPM: 64-126
 GPM: 453-569
 SPP: 1350-1870 psi

WOB: 6-15 klbs
 RPM: 98-145
 GPM: 525-560
 SPP: 1591-1770 psi

MW:9.55 FV:51
 PV/YP: 13/26
 FC: 1/2
 SOL: 4.4% SAND: 0.20
 CL: 41000 mg/l

WOB: 6-15 klbs
 RPM: 98-145
 GPM: 525-560
 SPP: 1591-1770 psi

MW:9.55 FV:51
 PV/YP: 13/26
 FC: 1/2
 SOL: 4.4% SAND: 0.20
 CL: 41000 mg/l

WOB: 6-15 klbs
 RPM: 98-145
 GPM: 525-560
 SPP: 1591-1770 psi

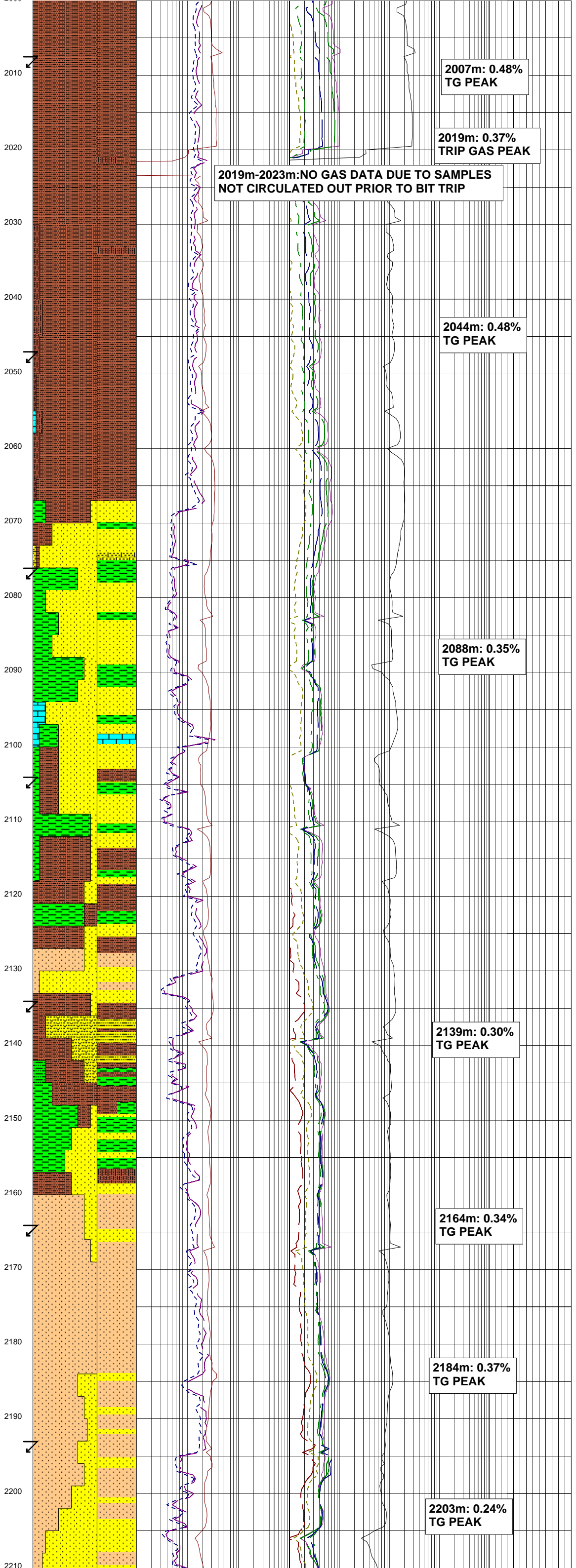
MW:9.55 FV:51
 PV/YP: 13/26
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 GPM: 525-560
 SPP: 1591-1770 psi

MW:9.55 FV:51
 PV/YP: 13/26
 FC: 1/2
 SOL: 4.4% SAND: 0.20
 CL: 41000 mg/l



SURVEY @ 1992.64m
 Incl:3.64° AZI :23.88°
 TVD:1992.567m

SURVEY @ 2006.90m
 Incl:4.8° AZI:23.88°
 TVD:2006.78m

ARGILLACEOUS SILTSTONE:brn
 blk,dk grn gry,v sft-sft,
 sbblky-blky,5% calc CLY,20%
 CLY,5% vf qrtz grs,tr mica,tr
 carb spks.

CALCAREOUS SILTSTONE:olv
 gry,frm sbblky,25% calc CLY,tr
 carb mat,tr glauc grns.

ARGILLACEOUS SILTSTONE:brn
 blk,i/p grn blk,v sft-frm,10% calc
 CLY,10% vf qrtz grs,tr carb
 spks,tr lith frags,tr mica flks.

SURVEY @ 2047.71m
 Incl:7.43° AZI:22.9°
 TVD:2047.36m

SANDSTONE:grnish gry,sft-fri,
 f grs,rnd,wl srt,sbrnd-rnd,
 mod-wl srt,sbsph-sph,10%
 glauc,gd vis por,no fluor.

SURVEY @ 2076.22m
 Incl:10.04° AZI:18.43°
 TVD:2075.54m

SANDSTONE:grn gry,lse-fri,
 20% vf-f grs,rnd-sbrnd,mod-
 wl srt,sbsph-sph,10% clay mtx,
 10% glauc,fr vis por,no fluor.

SANDSTONE:clr,lt gry,opq,tr
 yel gry,lse qrtz,10% vf,
 10% f,20% med,30% crs,20%
 v crs,10% gran,ang(shttd)-
 sbrnd,pr srt,sbsph-sbelg,inf
 fr vis por,no fluor.

SURVEY @ 2104.97m
 Incl:12.80° AZI:14.68°
 TVD:2103.72m

LIMESTONE:olv gry,mott,fri-
 v hd,sbblky-sbfiss,15% CLY,
 tr carb mat.

CLAYSTONE:grn gry,olv gry,
 sft,amorph-sbblky,10% vf-
 f qrtz grs,tr glauc.

ARGILLACEOUS SILTSTONE:brn
 blk,tr brn blk,amorph-sft
 to frm,sbblky,tr glauc.

SURVEY @ 2134.78m
 Incl:14.54° AZI:10.50°
 TVD:2132.72m

SANDSTONE:clr,lt gry,trnsl,
 25% vf,60% f,10% crs,5%
 v crs lse qrtz grs,10% clay
 mtx,sbrnd-sbang(shttd),pr
 srt,sbsph-sph,tr lith frag &
 calcite cryst,fr inf por,no
 flour.

CLAYSTONE:med gry,grn gry,
 v sft-sft,amorph-sbblky,
 tr glauc,carb spks,lith frags,
 pyr.

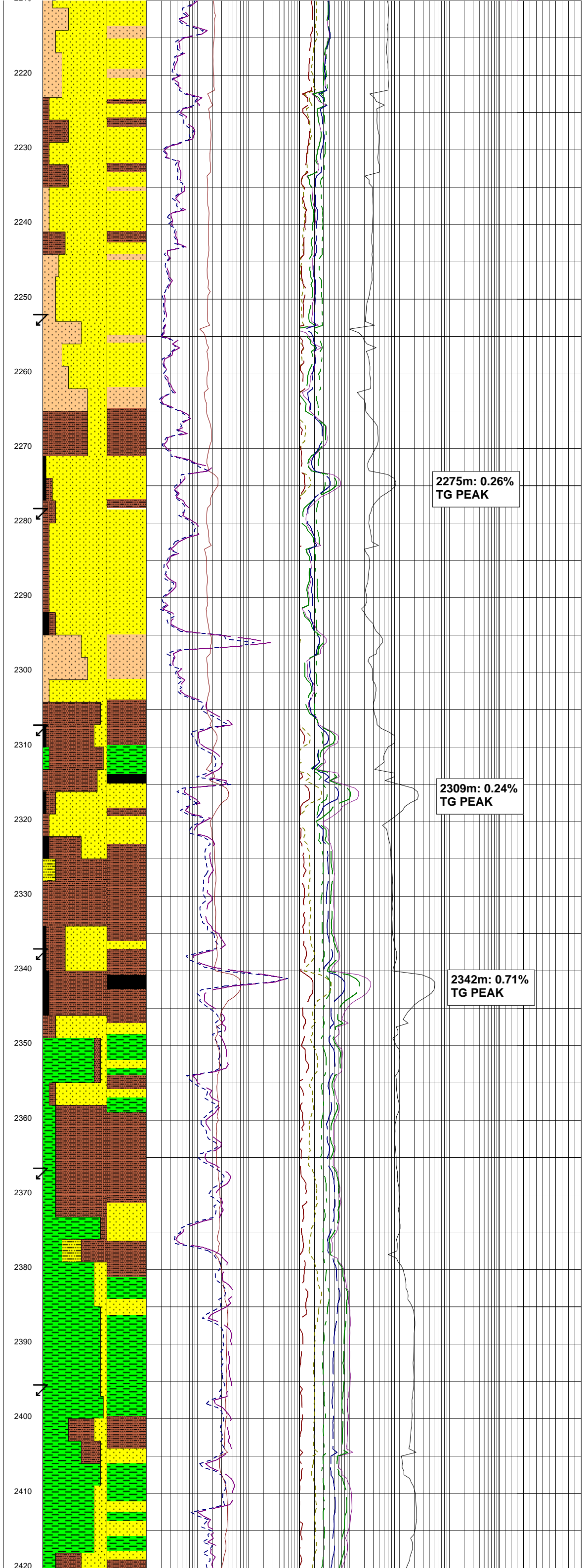
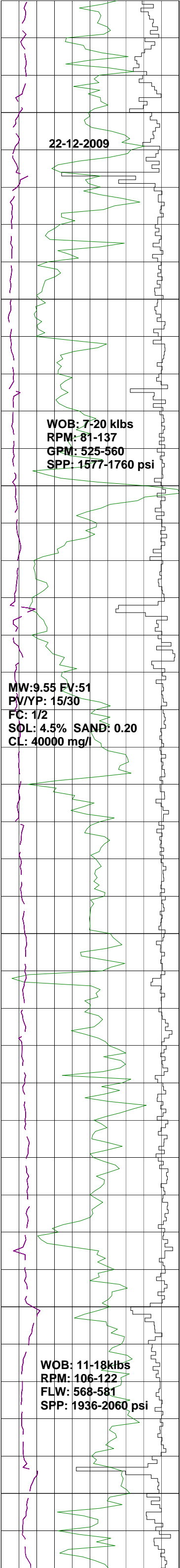
SURVEY @ 2164.31m
 Incl:17.43° AZI:9.42°
 TVD:2161.07m

SILTSTONE:brn gry,olv gry,
 sft-frm,sbblky-blky,10%
 CLY,15% vf sand occur as lams &
 rr shttd crs clr qrtz crsytals,
 tr carb spks,lith frags.micmic.

SANDSTONE:lt gry,lt olv gry,
 sft,sbblky,70% vf,30% f qrtz
 grs,sbrnd,mod-wl srt,sbsph,
 tr weathered out felds,lith
 frags,lams,5% rock flour,
 pr inf vis por,no fluor.

SURVEY @ 2193.36m
 Incl:20.15° AZI:7.83°
 TVD:2188.54m

SILTSTONE:brn gry,olv gry,brn
 blk,sft-frm,sbblky-blky,5%
 CLY,5% vf sand occ in lams,tr
 micmic,lith frags,carb spks



micmic,lttn frags,carb spks, f lams.

SANDSTONE:lt olv gry,clr, lse-fri,80% vf,15% f,5% crs qrtz grs,crs frac occurs as lse clr qrtz crystals,10% wh cly mtx,sbrnd-sbang(shttd),wl srt,sbsph,tr lith frags,pyr, glauc,dol,80% rock flour,pr inf vis por,no fluor.

ARGILLACEOUS SILTSTONE: brn blk,olv gry,sft,sbblky,20% cly,tr carb spks,pyr aggs, micmic.

SANDSTONE:lt gry,lt olv gry,clr, v sft-fri,amorph-sbblky,10% wh cly mtx,90% vf,10% crs grns, crs frac occurs lse trans qrtz grs,sbrnd-sbang(shttd),pr-mod srt,sbsph,tr lith frags,95% rock flour,pr-fr inf vis por no show.

SURVEY @ 2250.02m
Incl:26.59° AZI:5.77°
TVD:2240.45m

SILTSTONE:brn blk,brn gry,frm sbblky-blky,10% CLY,tr carb spks,micmic,lith frags,loc arg.

ARGILLACEOUS SILTSTONE: brn blk,olv gry,sft-frm,sbblky 20% cly,carb spks,tr pyr aggs micmic.

SURVEY @ 2278.27m
Incl:29.06° AZI:6.68°
TVD:2265.44m

SANDSTONE:lt gry,lt olv gry,clr, lse-frm,sbblky,10% wh cly mtx 95% f,5% crs grtz grns,crs frac occurs lse clr qrtz grs sbrnd-sbang(shttd),pr srt sbsph,tr glauc,lith frags,95% rock flour,fr inf vis por no flour.

SURVEY @ 2307.32m
Incl:31.70° AZI:6.12°
TVD:2290.50m

SILTSTONE:brn blk,olv gry, sft-frm,sbblky,10% CLY tr micmic,lith frag,f lams.

ARGILLACEOUS SILTSTONE: brn blk,olv gry,sft-frm sbblky,20% cly,tr micmic thin coal lams.

SURVEY @ 2336.99m
Incl:34.05° AZI:2.98°
TVD:2315.41m

SANDSTONE:lt gry,clr,opq,pred lse,i/p fri,50% f-30% med to 20% crs grs,ang(shttd)-sbrnd, pr srt,sbsph-sbelg,cly mtx washing out,fr inf vis por, no fluor.

SURVEY @ 2366m
Incl:36.34° AZI:359.97°
TVD:2339.59m

ARGILLACEOUS SILTSTONE:lt brn gry,lt gry,v sft-frm, amorph-sbblky,25% cly,tr carb & coal mat as lam.

CLAYSTONE:olv gry,brn gry, sft-stky to frm,amorph-sbblky,25% cly,tr carb mat as spks & coal mat as lam.

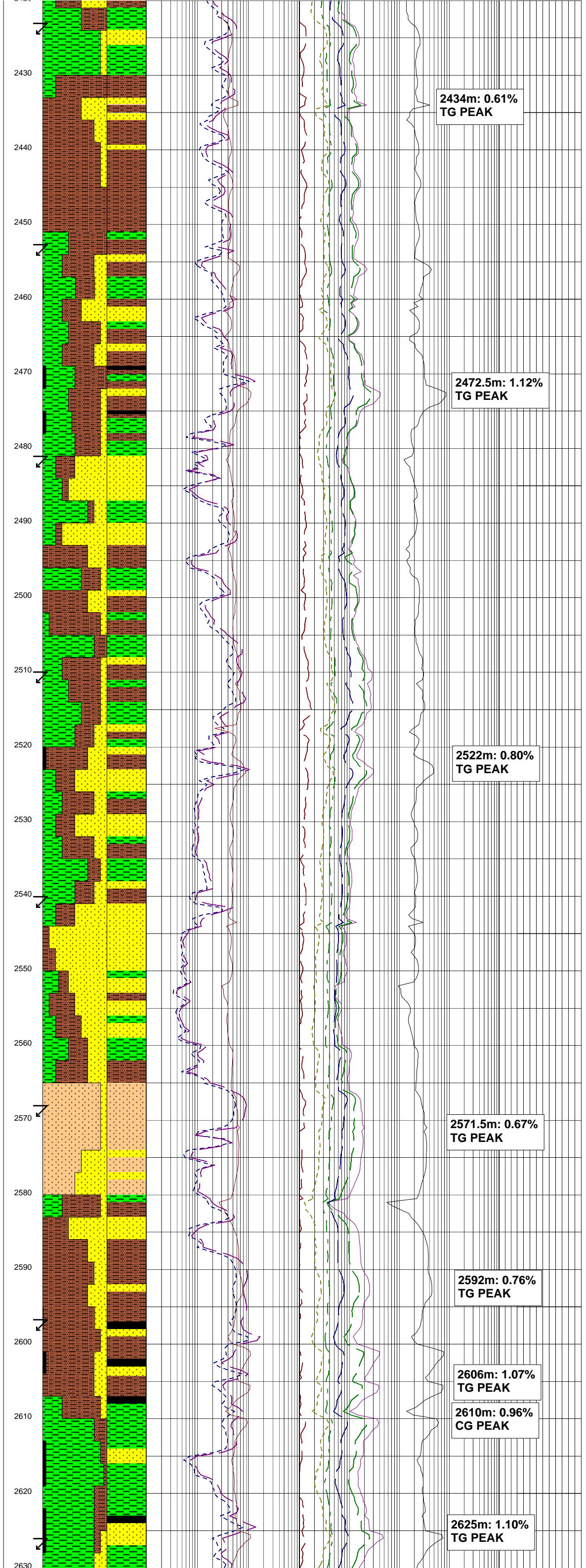
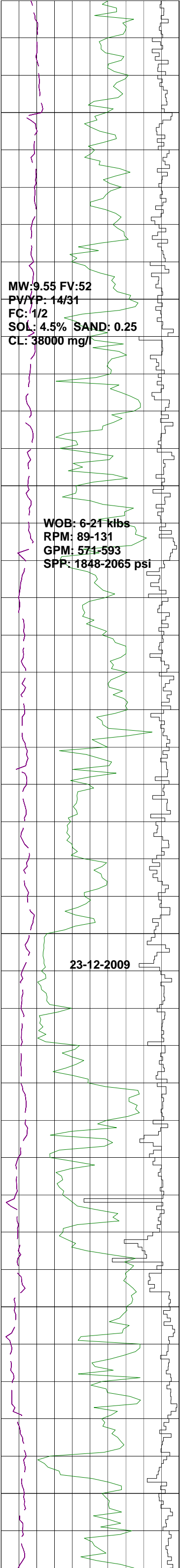
SANDSTONE:lt gry,fri,f grs, sbang-sbrnd,wl srt,sbsph-sbelg,no vis mtx,gd inf vis por,no fluor.

SURVEY @ 2395.13m
Incl:37.77° AZI:356.94°
TVD:2362.38m

CLAYSTONE:olv gry,brn gry, frm,sbfiss-sbblky,mnr carb mat as spks & thn lam,tr micmic, i/p as lam.

SANDSTONE:lt gry,fri-disagg i/p,vf-f grs,sbang-sbrnd,wl srt,sbsph-sbelg,no vis mtx, go inf vis por, no fluor.

CLAYSTONE:olv gry,brn gry,pl



yeishn brn,frm,frm,sbbiky,tr carb mat,tr micmic.

SURVEY @ 2423.37m
Incl:39.84° AZI:355.17°
TVD:2384.39m

ARGILLACEOUS SILTSTONE:lt brn gry,lt gry,brn blk,v sft-frm,sbbiky,25% cly,tr carb & coal mat as lam.

SANDSTONE:lt gry,fri,vf-f grs, sbang-sbrnd,wl srt,sbsph-sbelg no vis mtx,go inf vis por,no fluor, thn beds in SILTSTONE 10% rock flour.

SURVEY @ 2452.17m
Incl:42.32° AZI:354.45°
TVD:2406.10m

CLAYSTONE:olv gry,brn gry, v sft-sft,amorph-sbbiky,tr carb mat,tr micmic.

ARGILLACEOUS SILTSTONE:lt brn gry,lt gry,brn blk,v sft-frm,sbbiky,25% cly,tr carb & coal mat as lam.

COAL:brn blk,olv gry,sft-frm sbfiss-conch,tr f dissemin pyr.

SURVEY @ 2481.68m
Incl:43.11° AZI:354.88°
TVD:2427.78m

CARBIDE LAG CHECK @ 2494M
THEOR STKS: 5187
ACT STKS: 5202
OPEN HOLE OG: 0.75%

SANDSTONE:lt gry,clr,fri 70% vf-30%,10% f gr qtz, sbrnd,wl srt,sbsph,tr lith frag,pr inf vis por,no fluor, 80% rock flour.

SURVEY @ 2511.39m
Incl:42.92° AZI:354.47°
TVD:2449.50m

CLAYSTONE:lt olv gry,lt brn gry,vsft-sft,sbbiky,tr micmic lith frags.

ARGILLACEOUS SILTSTONE: brn gry,olv gry,brn blk,v sft-frm,sbbiky,2% cly,tr micmic,f carb lam,f dissemin pyr.

SURVEY @ 2540.16m
Incl:43.10° AZI:354.54°
TVD:2470.54m

SANDSTONE:lt gry,trans,fri 20% vf,70% f,5% med,5% crs gr qtz,sbrnd-sbang (shhdd) mod-wl srt,sbsph-sbelg 20% rock flour,gd inf vis por no fluor.

CLAYSTONE:lt olv gry,lt brn gry,i/p vl gry,v sft-sft,carb spks,amorph,tr carb.

SURVEY @ 2568.35m
Incl:43.01° AZI:353.48°
TVD:2491.14m

ARGILLACEOUS SILTSTONE: brn gry,olv gry,brn blk,v lt gry i/p,sft-frm,sbbiky-blky, 20% cly,tr carb spks,micmic.

SILTSTONE:olv gry,brn gry brn blk,sft-frm,sbbiky-blky 20% cly,tr carb lam,micmic lith frag,loc arg.

SANDSTONE:lt gry,lt olv gry,lse-fri,10% wh cly mtx,40% vf,50% f 10% med clr-opq qtz grn,sbrnd-sbang(shhdd),mod srt,sbsph,20% rock flour,pr inf vis por, no fluor.

SURVEY @ 2596.31m
Incl:42.88° AZI:354.12°
TVD:2511.60m

COAL:blk,brn blk,frm, sbfiss-conch,brt.

CLAYSTONE:brn gry,olv gry, lt gry,sft-frm,sbfiss-sbbiky,tr carb spks.

SURVEY @ 2626.30m
Incl:43.28° AZI:355.27°
TVD:2533.51m

2434m: 0.61%
TG PEAK

2472.5m: 1.12%
TG PEAK

2522m: 0.80%
TG PEAK

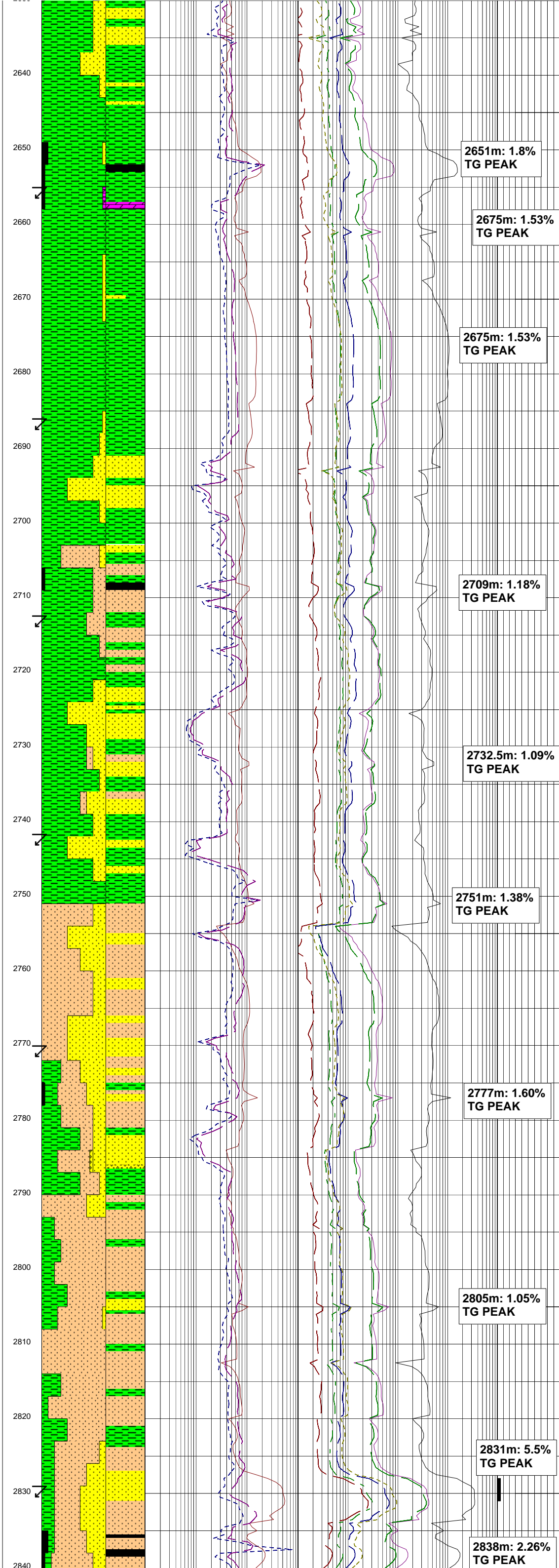
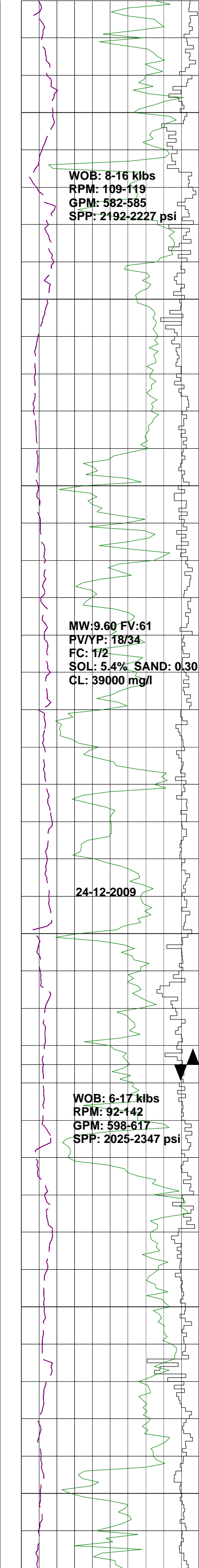
2571.5m: 0.67%
TG PEAK

2592m: 0.76%
TG PEAK

2606m: 1.07%
TG PEAK

2610m: 0.96%
CG PEAK

2625m: 1.10%
TG PEAK



SANDSTONE:lt gry,fri,10%
wh clay mtx,f grs,sbrnd-
sbang,wl srt,sbsph,gd inf
vis por,no fluor,10% rock
flour masking.

CLAYSTONE:brn gry,olv gry,
lt gry,sft-frm,sbfiss-sbblky,
tr carb mat.

COAL:blk,brn blk,frm,splntry-
sbfiss,ea.

DOLOMITE:mott olv gry,frm
splntry-sbfiss,ea.

CLAYSTONE:brn gry,olv gry,sft-
frm,sbfiss-sbblky,tr carb
mat,rr pyr as replacement.

SURVEY @ 2655.72m
Incl:43.09° AZI:355.70°
TVD:2554.96m

SANDSTONE:lt gry,olv gry,frm-
lse(dissagg)30% vf-f grs,
sbang-sbrnd,mod-wl srt,sbsph,
10% calc CLY,mod wl sil cmt,
tr red brn & grn lith frags,
fr-gd inf vis por,no fluor.

SURVEY @ 2686.98m
Incl:42.76° AZI:356.30°
TVD:2575.68m

SANDSTONE:clr,opq,lt gry,mod
yel brn,med dk gry,lse,i/p
fri aggs when finer fracs,20% vf,
30% f,20% med,30% crs grs,
sbang-sbrnd to i/p rnd,pr srt,
sbsph-sbelg,fr vis & inf por,
no fluor.

COAL:blk,brn blk,sft-frm,
blky-sbfiss,conch frac i/p,
ea-brt.

SURVEY @ 2712.30m
Incl:43.19° AZI:356.38°
TVD:2596.37m

SILTSTONE:olv gry,lt olv gry,
sft-frm,sbblky-blky,10% clay,
tr carb mat,tr pyr.

CLAYSTONE:brn gry,brnish blk,
sft-frm,sbfiss-sbblky,tr carb
mat,i/p as lam.

SANDSTONE:clr,opq,lt gry
frm-lse,30% vf,55% f,5%
v crs qtz grns,crs frac occ
lse clr & opq qtz grns sbang-
sbrnd (shttd),mod srt,sbsph-
sbelg,10% cly,mod wl sil cmt,tr
lith frag, gd vis & inf por,no fluor.

SURVEY @ 2741.97m
Incl:43.47° AZI:355.92°
TVD:2617.96m

CLAYSTONE:brn gry,brnish blk,
olv gry,lt gry,sft-frm,sbblky-
sbfiss,10% vf sand as lam,2%
carb mat as spks & f lam,tr
mic,lith frags.

WIPER TRIP @ 2753mMDRT
to 340mm(9.625") CSG shoe

SILTSTONE:brn blk,brn gry,
olv blk,frm-mod hd,sbblky-
sbfiss,10% cly,1% carb
mat as spks & lam,tr mica.

SURVEY @ 2770.22m
Incl:42.94° AZI:365.2°
TVD:2638.55m

CLAYSTONE:brn blk,brn gry,
lt gry,sft-frm,sbblky-sbfiss,
tr carb mat as spks & f lam.

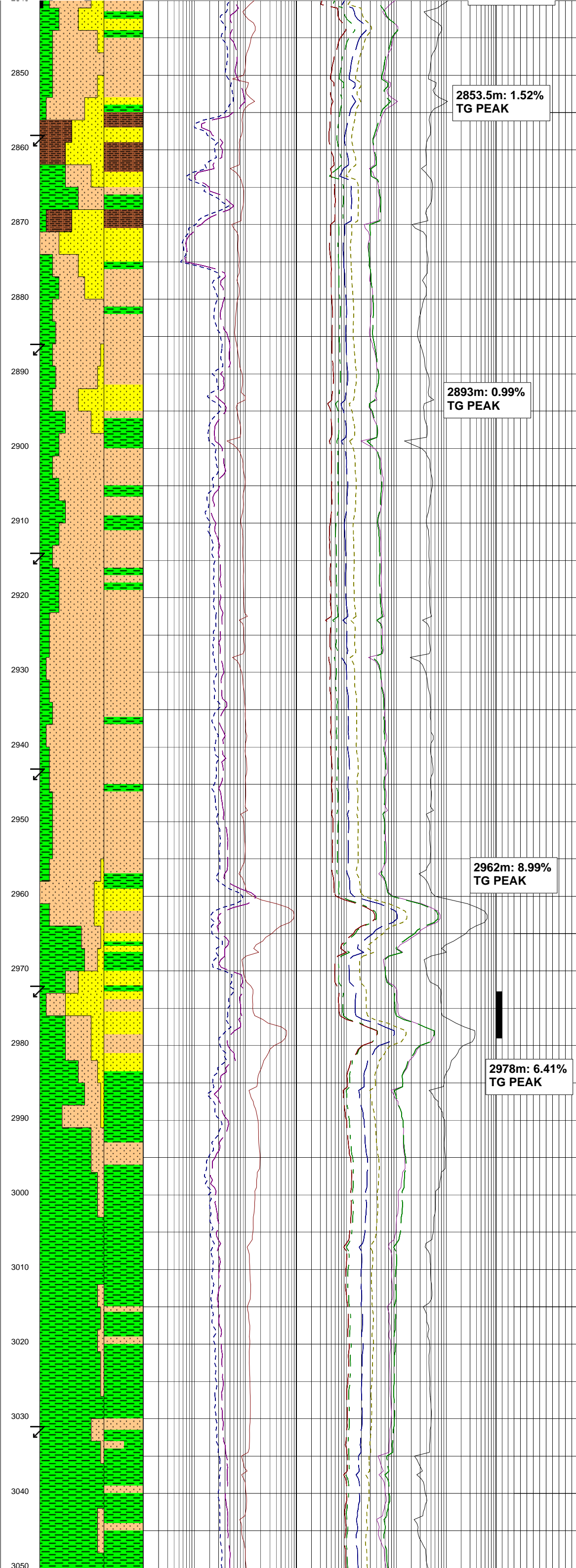
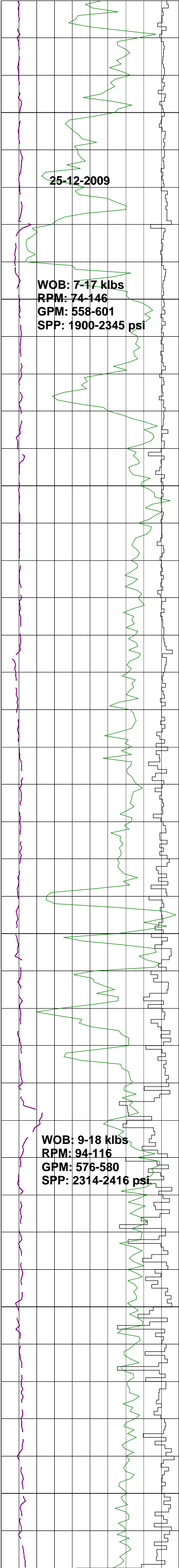
GLAUCONITIC SANDSTONE:
grn gry,lt grn gry,lt olv gry,fri
30% glauc,40% vf,60% f qtz
grs,sbrnd-rnd,wl srt,sbshp-
shp,pr inf vis por,no fluor.

CLAYSTONE:brn blk,brn gry,
olv gry,lt gry,sft-frm,
sbblky-sbfiss,tr carb mat as
spks & f lam.

SURVEY @ 2828.79m
Incl:42.74° AZI:355.8°
TVD:2681.39m

SANDSTONE:lt gry,lt olv gry,
frm-mod hd,10% wh cly,20% wh
cly,20% vf,70% f,10% med grs
qrtz crystals,sbrnd,mod srt,
sbsph,fr inf vis por,tr lith frags,
brt coal lam,mod sil cmt,fluor.

FLUOR:2828m-2830m,
40% dll-mod yel agg fluor,
slw strmg dll yel-bluish
wh cut fluor,dll yel r/r fluor.



SILTSTONE:brn blk,brn gry
olv blk,i/p med dk gry
frm-mod hrd,sbblky-sbfiss
10% CLY,tr carb spks,mic
pyr,agg.

SANDSTONE:lt gry,lt olv gry,frm-
mod hrd,10% wh CLY,20% vf,80%
f qtz,sbrnd,mod srt,sbsph,f
inf vis por,tr lith frags,br
coal lam,mod sil cmt,no
fluor.

COAL:blk,frm,sbfiss-conch,tr
f dissemin pyr,lith frags.

SURVEY @ 2857.71m
Incl:43.48° AZI:356.2°
TVD:2702.5m

SANDSTONE:lt gry,lt olv gry,frm-
mod hrd,10% wh CLY,10% vf,65% f
20% med,5% crs clr qtz grns
sbrnd,mod srt,sbsph,mod sil cmt
tr lith frags,thn coal lam
glauc,gd inf vis por,no fluor.

SANDY SILTSTONE:br blk,olv
gry brn gry,frm-mod hrd,sbblky-
sbfiss,10% CLY,,20% vf sand,tr
carb spks & lam,mic.

CLAYSTONE:brn blk,brn gry
sft-frm,sbblky,tr f carb lam
lith frags.

SURVEY @ 2886.29m
Incl:43.02° AZI:355.1°
TVD:2723.32m

SILTSTONE:br blk,brn gry,olv
blk,frm-mod hd,sbblky-
sbfiss,10% cly,10% vf sand in
lam,tr carb spks,mic,f dissemin pyr.

SURVEY @ 2914.35m
Incl:43.18° AZI:355.6°
TVD:2743.81m

CLAYSTONE:brn blk,brn gry,sft-
frm,sbblky-sbfiss,10% slt in
lam,tr f carb lam,lith frags.

SILTSTONE:br blk,brn gry,olv
blk,frm-mod hrd,sbblky-
sbfiss,10% CLY,10% vf sand in
lam,tr carb spks,mic.

CLAYSTONE:brn blk,brn gry,sft-
frm,sbblky-sbfiss,10% slt in
lam,tr f carb lam.

SURVEY @ 2942.96m
Incl:43.00° AZI:355.8°
TVD:2764.70m

SANDSTONE:olv gry,lt gry,
fri,f grs,20% vf,10% wh cly
mtx,pr sil cmt,sbang-sbrnd,
mod-wl srt,sbsph,tr lith
grs,gd vis por,no fluor.

SURVEY @ 2972.3m
Incl:43.13° AZI:356.1°
TVD:2786.13m

FLUOR:2973m-2979m,
Aggs w/ mod brt yel overall
fluor,c/c:brt blu wh slw
strmg-blmg,yel flm to dll
yel thk r/r.

SANDSTONE:olv gry,lt gry,
med lt gry,f grs,20% vf,10% wh
cly mtx,pr sil cmt,sbang-
sbrnd,mod-wl srt,sbsph,tr
lith grs,gd vis por,fluor.

SILTSTONE:med dk gry,olv
blk,frm-mod hd,sbblky-
sbfiss,15% CLY,tr carb spks,
1% micmic.

CLAYSTONE:brnish blk,brnish
gry,sft-frm,sbblky-sbfiss,
tr carb mat & occ lams.

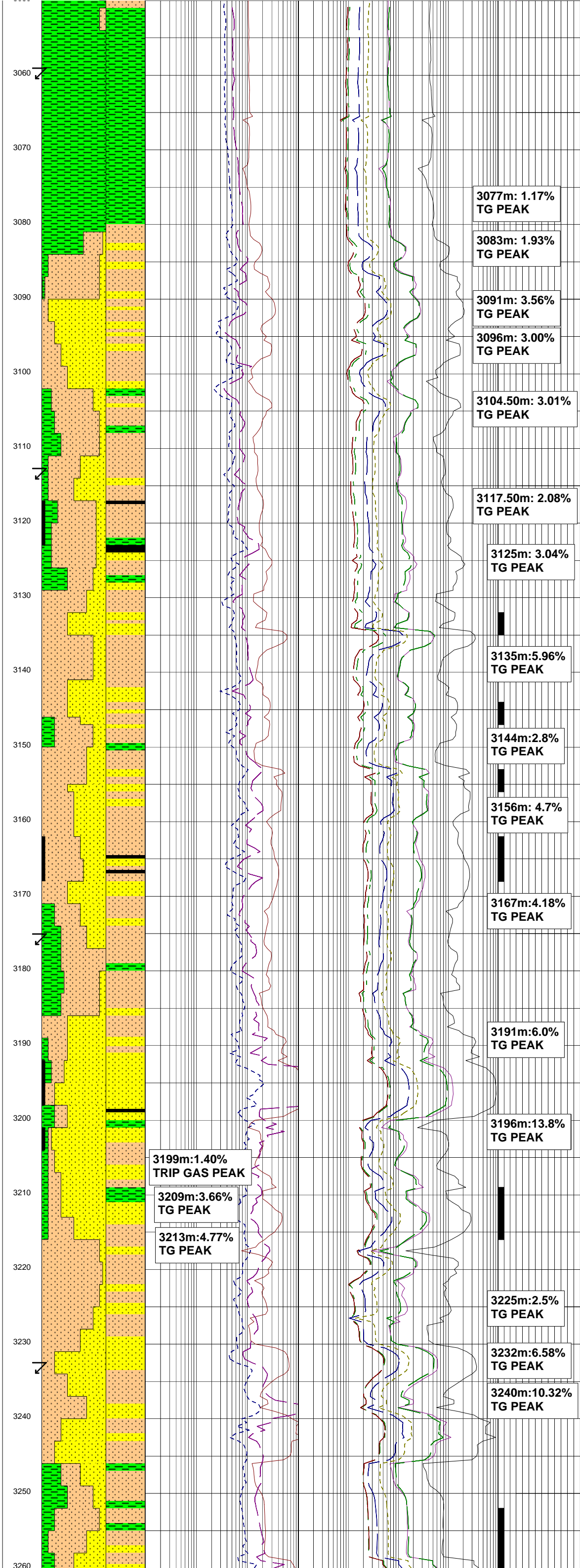
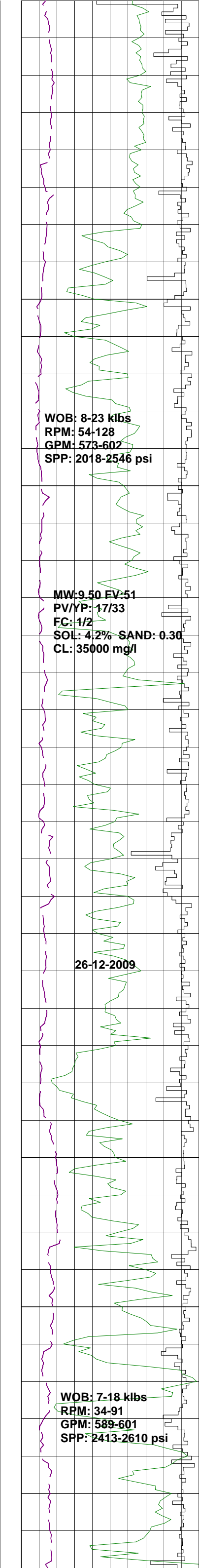
SILTSTONE:brn gry,frm,
sbblky-sbfiss,15% CLY,tr
carb spks,tr micmic,tr lith
frags.

CLAYSTONE:brnish blk,olv
blk,olv gry,frm sbblky-
sbfiss,tr carb spks,tr
micmic,tr lith frags.

SURVEY @ 3031.32m
Incl:43.35° AZI:358.1°
TVD:2829.13m

SILTSTONE:brnish gry,olv
frey,frm,sbblky-sbfiss,
15% CLY,tr carb spks,tr
micmic,tr lithic frags.

CLAYSTONE:brnish blk,olv
blk,olv gry,frm sbblky-
shfiss 10% SLT tr carb snks



CLAYSTONE:brnsh blk,olv gry,frm sbblky-sbfiss,10% SLT,tr carb spks, tr micmic.

SURVEY @ 3059.74m
Incl:43.12° AZI:357.4°
TVD:2849.84m

CLAYSTONE:brn blk,olv blk,olv gry,frm,sbblky-sbfiss,10% slt tr mic.

COAL:blk,sft-brit,conch i/p brt,inbed SANDSTONE.

SANDSTONE:med lt gry,opq,clr yel gry,fri-lse,10% wh cly 40% f,20% med,20% crs,20% v crs,ang (shtttd)-sbang-sbrnd pr-mod srt,pr-fr sil cmt,tr lith frags,1% carb/coal, gd vis por,tr fluor.

SILTSTONE:olv gry,brn blk,sft-frm,sbblky-sbfiss,15% cly,1% carb lam,tr micmic,tr lith frags.

SANDSTONE:lt gry,opq,clr,yel gry,lt olv gry,fri-mod hd,10% wh cly mtx,10% vf,75% f,10% med 5% crs,sbrnd-sbang (shtttd),pr-mod srt,sbsph,pr-mod sil cmt tr lith frags,2% carb/coal, gd vis por,no fluor,20% rck flr

CLAYSTONE:brn gry,olv gry sft-frm,sbblky-blky,10% slt lam,tr micmic,f carb lam.

SURVEY @ 3116.75m
Incl:42.91° AZI:356.5°
TVD:2891.52m

FLUOR:3132m-3135m, 3144m-3147m,Aggs w/ mod brt yel overall fluor,c/c:brt blu wh slw strmg-blmg,yel flm to dll yel thk r/r.

SANDSTONE:lt gry,opq,clr,yelsh gry,lt olv gry,frm-fri,10% wh cly mtx,20% vf,60% f,10% med,5% crs,5% v crs qtz grs msty sbang (shtttd)-sbrnd mod-wl srt,sbsph-sbelg,pr-mod sil cmt,tr lith frags,tr carb spks,gd inf vis por,tr fluor,20% rck flr.

FLUOR:3153m-3156m, 3162m-3168m,aggs w/ dll-mod brt yel overall fluor,c/c:dll blu wh slw strmg, dll pl yel thk r/r

SILTSTONE:olv gry,brnsh blk,sft-frm,sbblky-sbfiss,10% cly,1% carb lam & spks,tr micmic,tr lith frags pyr agg,30% rck flr.

SURVEY @ 3175.85m
Incl:42.94° AZI:355.9°
TVD:2934.80m

CLAYSTONE:brnsh blk,olv gry,sft-frm,sbblky-sbfiss,10% slt,1% carb spks & lam,tr micmic.

COAL:blk,sft-brit,conch i/p brt,inbed SANDSTONE.

SANDSTONE:lt gry,yelsh gry,lt olv gry,clr,frm-fri,10% wh cly mtx,10% vf,60% f,20% med 10% crs qtz grs,mstly sbrnd i/p, sbang(shtttd),mod-wl srt,sbsph-sbelg,pr sil cmt,tr carb spks,lith frags,gd inf vis por, no fluor,40% rck flr.

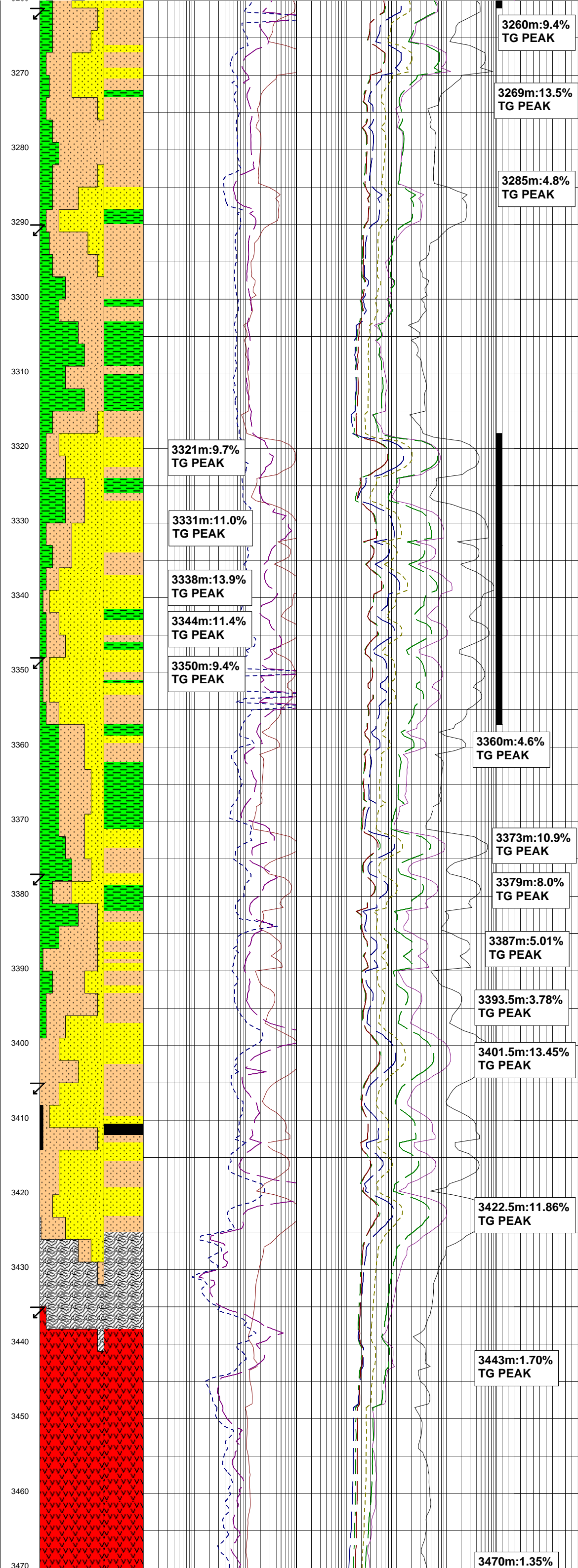
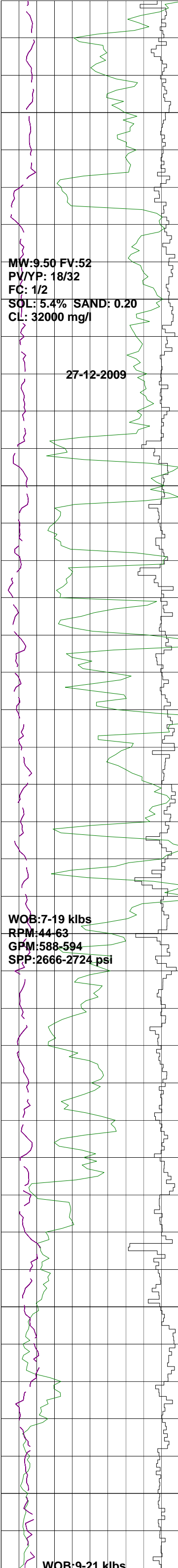
SILTSTONE:lt gry,olv gry,brnsh blk,frm-mod hrd,sbblky-blky 15% cly,tr carb spks,tr micmic.

SANDSTONE:pred lse qrtz, lt gry,lt olv gry,clr,10% cly mtx,10% f grs,30% med, 30% crs,30% v crs grs,sbrnd-sbang to ang(shtttd),pr srt, sbsph-sbelg,fr sil cmt,tr carb spks,fr vis inf por, no fluor,10% rck flour.

SURVEY @ 3232.85m
Incl:42.61° AZI:354.9°
TVD:2976.64m

FLUOR:3255m-3261m;aggs ovrlI dll yel fluor,slw strmg dll yel-blsh wh c/c dll yel-blsh wh flm r/r.

SURVEY @ 3261.40m



SURVEY @ 3261.40m
Incl:42.02° AZI:354.70°
TVD:2997.75m

SANDSTONE:lt gry,clr,10% wh
cly mtx,60% f grs,30% med,5%
crs,5% v crs grs pred lse qtz
grs,sbrnd-sbang (shtttd),pr-
mod srt,sbsph-sbelg,pr-mod
sil cmt,2% lith frags,1% carb
coal frags,fr-gd inf vis por
5% fluor,40% rck flr.

CLAYSTONE:brnsh blk,brnsh gry
olv gry,sft-frm,sbblky-sbfiss
tr carb spks,tr micmic.

SILTSTONE:lt gry,mott,brnsh
blk,sft-frm,sbblky-blky,15%
cly,tr carb spks,micmic.

SURVEY @ 3290.95m
Incl:42.18° AZI:356.00°
TVD:3019.67m

SANDSTONE:lt gry,clr,10% wh
cly mtx,50% f,20% med,20% crs
10% v crs qtz grs,crs & v crs
predom lse shtttd qtz grs,
sbrnd-sbang-ang (shtttd),pr srt
sbsph-sbelg,pr sil cmt,gd inf
vis por,fluor,40% rck flr.

SILTSTONE:brns blk,olv blk
frm-mod hrd,sbblky-blky,10%
cly,tr carb spks,micmic.

CLAYSTONE:brns blk,brnsh gry
olv gry,sft-frm,sbblky-sbfiss
tr carb spks,micmic.

SANDSTONE:lt gry,clr,10% wh
cly mtx,20% f,20% med,30% crs
30% v crs qtz grs,predom lse
sbrnd-sbang-ang (shtttd),pr srt
sbsph-sbelg,pr sil cmt,gd inf
vis por,fluor,40% rck flr.

FLUOR:3318m-3357m;aggs
ovrll dll-mod yel fluor
slw strmg dll yel-blsh wh
c/c dll yelsh grn-blsh wh
flm-thk r/r.

SURVEY @ 3348.87m
Incl:42.01° AZI:356.20°
TVD:3062.65m

CLAYSTONE:brn blk,brn gry,
olv gry,sft-frm,sbblky-
sbfiss,tr carb spks,micmic.

SURVEY @ 3377.12m
Incl:41.91° AZI:356.10°
TVD:3083.66m

SANDSTONE:lt gry,clr,10% wh
cly mtx,35% vf,50% f grs,10%
med,5% crs qrtz grs,crs frac
occurs as lse clr qrtz grs,
sbrnd-sbang(shtttd),mod srt,
sbsph,pr-mod sil cmt,tr lith
frags,carb spks,fr-gd inf vis
por,no fluor,20% rock flour.

SANDSTONE:lt gry,fri-lse,20%
vf,80% f grs,sbrnd,mod-wl srt,
sbsph,10% wh cly mtx,pr sil cmt,
gd inf vis por,no fluor,10%
rck flour.

SURVEY @ 3405.96m
Incl:41.76° AZI:356.1°
TVD:3105.15m

COAL:blk,brnish blk,sbfiss,brt-ea.

SILTSTONE:olv gry,olv,blk,
mott,sft-frm,sbblky-blky,15%
cly,tr carb spks,micmics.

SURVEY @ 3435.8m
Incl:41.85° AZI:357.1°
TVD:3127.41m

METAMORPHICS:multicolour,v
dusky rd,lt grnish gry,lt gry,
blky,sil & calc,alt SILTS &
CLYST,micro flow patterns &
intre beding evident.

VOLCANICS:mott gryish grn,
gryish purple,mott dusky bly gry,
blkish rd,frm-hd,blky,calcite
veining,chloritic mott.

VOLCANICS:med blu gry,gryish
purple,mott dusky bly gry,
blkish rd,frm-hd,blky,1% calcite
veining,tr chloritic mott.

