

## **Enclosure 1: Mudlogs**



## INTEQ LOG SUITE

Drilling Data Plot

Formation Evaluation

Pressure Data Plot

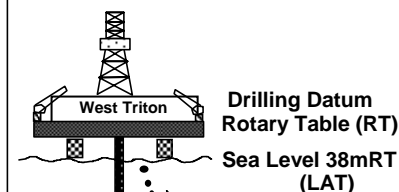
Gas Ratio Plot

## ABBREVIATIONS

NB	New Bit	SG	Swab Gas
RB	Rerun Bit	SVG	Survey Gas
CB	Core Bit	C	Carbide Test
WOB	Weight on Bit	MW	Mud Density sg
RPM	Revs per Minute	V	Funnel Viscosity
FLC	Flow Check	F	Filtrate - API
FLCG	Flow Check Gas	FC	Filter Cake
PR	Poor Returns	PV	Plastic Viscosity
NR	No Returns	YP	Yield Point
LAT	Logged after trip	SOL	Solids %
BG	Background Gas	Sd	Sand %
TG	Trip Gas	Cl	Chlorides
STG	Short trip Gas	RM	Mud Resistivity
CG	Connection Gas	RMF	Filtrate Resistivity
SWG	Swab Gas	TVD	Total Vertical Depth

## LITHOLOGY SYMBOLS

Calcarene	Calcsiltite	Argillaceous Calcsiltite	Calcilutite
Dolomitic Calcarene	Dolomitic Calcilutite	Marl	Limestone
Siltstone	Calcareous Siltstone	Argillaceous Siltstone	Sandstone
Claystone	Calcareous Claystone	Silty Claystone	Calcareous Sandstone



Seabed 76.7mRT

30" x 20" Csg set at 116.0 m  
36" Hole drilled to 119.0 m

13 3/8" Csg set @ 987.0 m  
17-1/2" Hole to 999.0 m

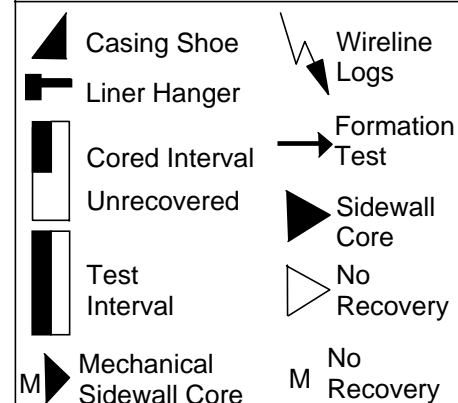
9 5/8" Csg set @ 2800.3 m  
12-1/4" Hole to 2807.0 m

3-1/2" Hole to 3585.0 m

Company	Beach Petroleum Ltd
Well	Fermat-1
Permit	VIC / P46
Region	Ottway Basin
Designation	Exploration
Coordinates	038° 11' 46.92" S 141° 03' 14.14" E
Datum	Rotary Table
Spud Date	14 December 2008
Spud Depth	76.7 mMDRT
RT – Sea Level	76.7 m above LAT
Total Depth	3585.0 mMDRT/ 3580.4 mTVDRT
Contractor	Seadrill
Rig	West Triton
Type	Jack up

## LOG INTERVAL

Depth	76.7m – 3585.0mMDRT
Date	14 December – 06 January 2009
Scale	1 : 500
Data Engineers	Deelip Mahajan, Ilyas A. Khan Alexis Cabanlit, Yeong Chen Wong
Loggers	Amit Saxena, Wayne Talbot, Anil Jaswara





INTEQ

Company : Beach Petroleum Ltd

Well : Fermat-1

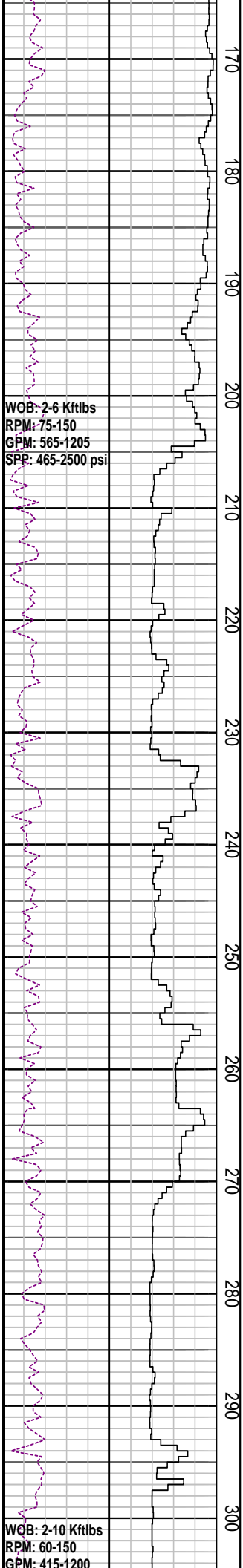
Interval : 68.00 - 3593.20 meters

Created : 09/Jan/2009 5:42:12 PM



## FORMATION EVALUATION LOG

DRILLING PARAM				MD meters	INTERPRETED LITHOLOGY	Oil Show P F G	LITHOLOGY %	CORE	TOTAL GAS	CHROMATOGRAPH						Calcmetry	Lithology Description				
ROP (m/hr)									Total Gas (unit)					Methane ppm							
WEIGHT ON BIT (klbf)									50   100   150   200   250					1 100000							
										1 Ethane ppm 100000											
										1 Propane ppm 100000											
										1 iso-Butane ppm 100000											
										1 n-Butane ppm 100000											
										1 iso-Pentane ppm 100000											
										1 n-Pentane ppm 100000											
RR1: 660 mm(26") x 914mm(36") H/Opener Make: Reed Type: Tricone/Y11c Jets: 3 x 22, 1x16 Depth In: 76.7 m Depth Out: 119.0 m Drilled 42.3m in 3.2 hrs Grade: 1-1-NO-A-E-I-NO				70												Spud Fermat-1 @ 00:00 hrs on 14-Dec-2008					
				80																	
				90												RT-MSL: 38.0 mMDRT Water Depth: 38.7 mMDRT RT-Sea Bed 76.7 mMDRT					
				100												Drill 914mm (36") hole with SW and Hi-Vis Sweeps Returns to seabed					
				110																	
Set 30"x20" Casing at 116.0 m				120																	
14/12/2008				130												Drill 444mm (17-1/2") hole with SW and Hi-Vis Sweep Returns to seabed from 119m-999m					
NB2: 444 mm(17-1/5") Make: Hughes Type: Milltooth/MXL-TOO Jets: 3 x 20 Depth In: 119.0 m Depth Out: 999.0 m Drilled 880m in 21.2 hrs Grade: 2-2-LT-G-E-I-LN-ID				140																	
				150																	
				160																	



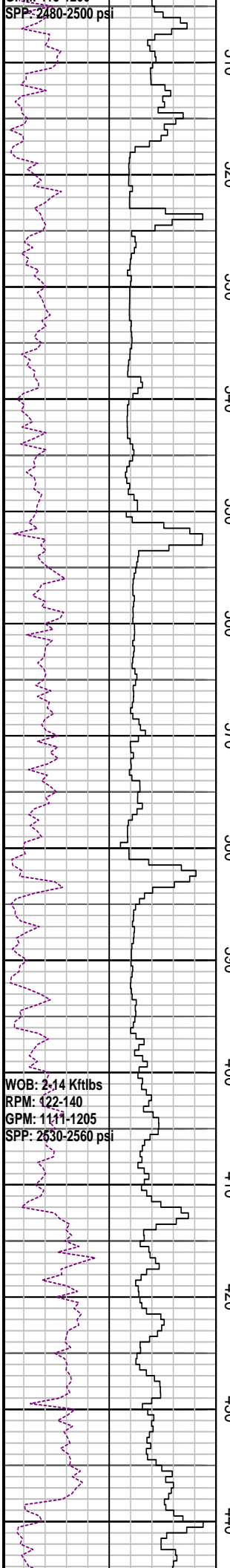
MD: 167.75m	Inc: 1.24°
TVD: 167.74m	Azi: 1.78°

MD: 197.16m	Inc: 0.28°
TVD: 197.14m	Azi: 58.77°

MD: 256.53m	Inc: 0.60°
TVD: 256.51m	Azi: 153.58°

MD: 286.11m	Inc: 2.77°
TVD: 286.08m	Azi: 188.85°

SPP: 2480-2500 psi



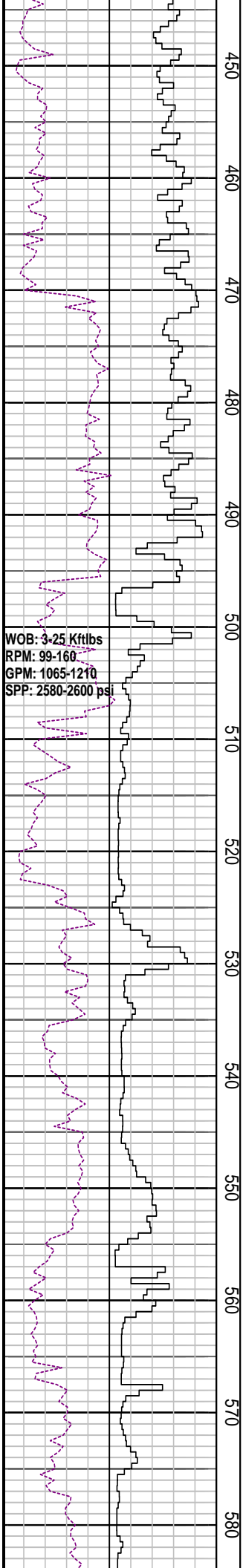
WOB: 2,14 Kftlbs  
RPM: 122-140  
GPM: 1111-1205  
SPP: 2530-2560 psi

MD: 315.55m Inc: 1.66°  
TVD: 315.5m Azi: 227.88°

MD: 345.27m Inc: 0.27°  
TVD: 345.21m Azi: 15.5°

MD: 374.62m Inc: 0.25°  
TVD: 374.56m Azi: 25.51°

MD: 404.16m Inc: 1.88°  
TVD: 404.10m Azi: 211.9



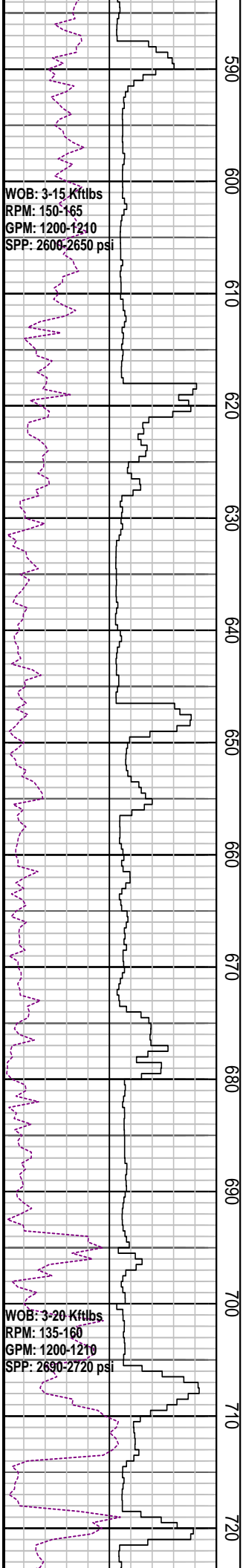
MD: 463.95m Inc: 0.32°  
TVD: 463.88m Azi: 269.03°

MD: 493.39m Inc: 0.43°  
TVD: 493.32m Azi: 249.6°

MD: 523.07m Inc: 0.44°  
TVD: 523.00m Azi: 347.74°

MD: 552.74m Inc: 0.22°  
TVD: 552.67m Azi: 270.06°

MD: 582.42m Inc: 0.09°



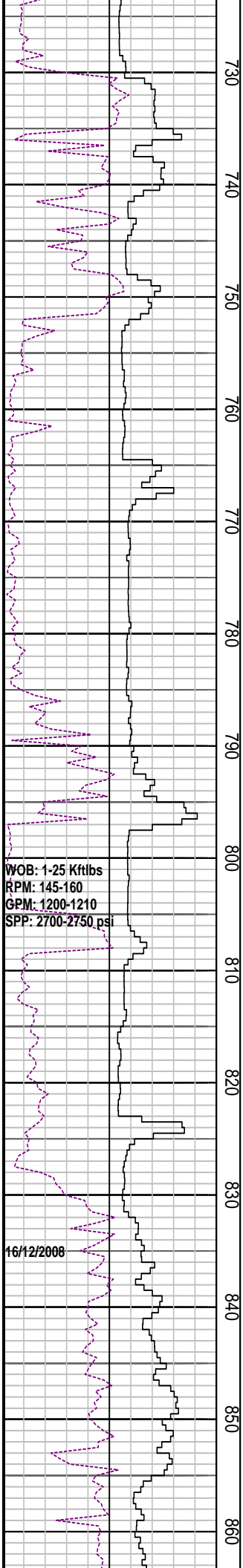
TVD: 582.35m      Azi: 29.68°

MD: 611.99m      Inc: 0.51°  
TVD: 611.92m      Azi: 339.54°

MD: 641.4m      Inc: 0.19°  
TVD: 641.32m      Azi: 327.69°

MD: 670.88m      Inc: 0.49°  
TVD: 670.80m      Azi: 288.55°

MD: 700.49m      Inc: 0.33°  
TVD: 700.41m      Azi: 247.33°



WOB: 1-25 Kftlbs  
RPM: 145-160  
GPM: 1200-1210  
SPP: 2700-2750 psi

16/12/2008

MD: 729.55m Inc: 0.46°  
TVD: 729.47m Azi: 275.90°

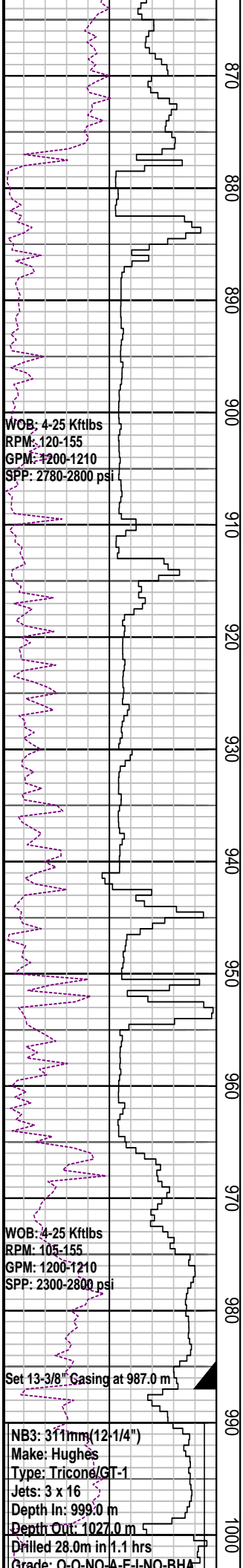
MD: 759.18m Inc: 0.36°  
TVD: 759.10m Azi: 241.87°

MD: 788.76m Inc: 0.65°  
TVD: 788.68m Azi: 163.00°

MD: 818.32m Inc: 0.12°  
TVD: 818.24m Azi: 122.27°

MD: 848.13m Inc: 0.24°  
TVD: 848.05m Azi: 67.63°





MD: 877.69m Inc: 0.5°  
TVD: 877.61m Azi: 112.18°

MD: 906.92m Inc: 0.33°  
TVD: 906.84m Azi: 214.11

MD: 936.44m Inc: 1.52°  
TVD: 936.35m Azi: 212.28°

MD: 966.55m Inc: 2.74°  
TVD: 966.44m Azi: 216.55°

MW: 9.3 ppg FV: 180  
PV: 17 Gel: 11/14/16  
YP: 26 pH: 10.5

MD: 990.90m Inc: 2.28°  
TVD: 990.8m Azi: 226.38°

Drill 311m (12 1/2") hole with KCL  
Polymer mud systems

FIT @ 987.0 m with 9.3 ppg



**SANDSTONE:** clr-trnsl, lt smky gy, fros,  
w/ mn'r yel-wh mky qtz & mn'r musc,  
f-gran, sbang -sbrndd, p srt (bimodal),  
nod & dissem pyr, disagg, n fluor

**SILTSTONE:** ol gy, brn-gy, mod calc,  
com pyr, com lit frag, frm-hd, blk-y-sbfis

MW: 9.5 ppg	FV: 153
PV: 30	Gel: 10/15/17
YP: 42	pH: 9.5

MD: 1023.76m	Inc: 2.63°
TVD: 1023.6m	Azi: 224.84°

**SILTSTONE:** ol gy-brn -lt gy, mod calc,  
com pyr, com lit frag, sft-v hd, blk-y-sbfis

**CLAYSTONE:** ol gy-mod ol brn, mod calc, sli slty, tr wh calc spar incl, tr carb mat, sft, mass-amor

MD: 1053.62m	Inc: 2.63°
TVD: 1053.4m	Azi: 224.67°

**SANDSTONE:** clr-transl, lt smky gy, fros,  
w/ mod abd fspr , f-v crs, sbang-sbrndd,  
p srt (binodal), nod & dissem pyr, tr  
muscl, disagg w/ mntr pyr cmt f-m sd aggr,  
n fluor

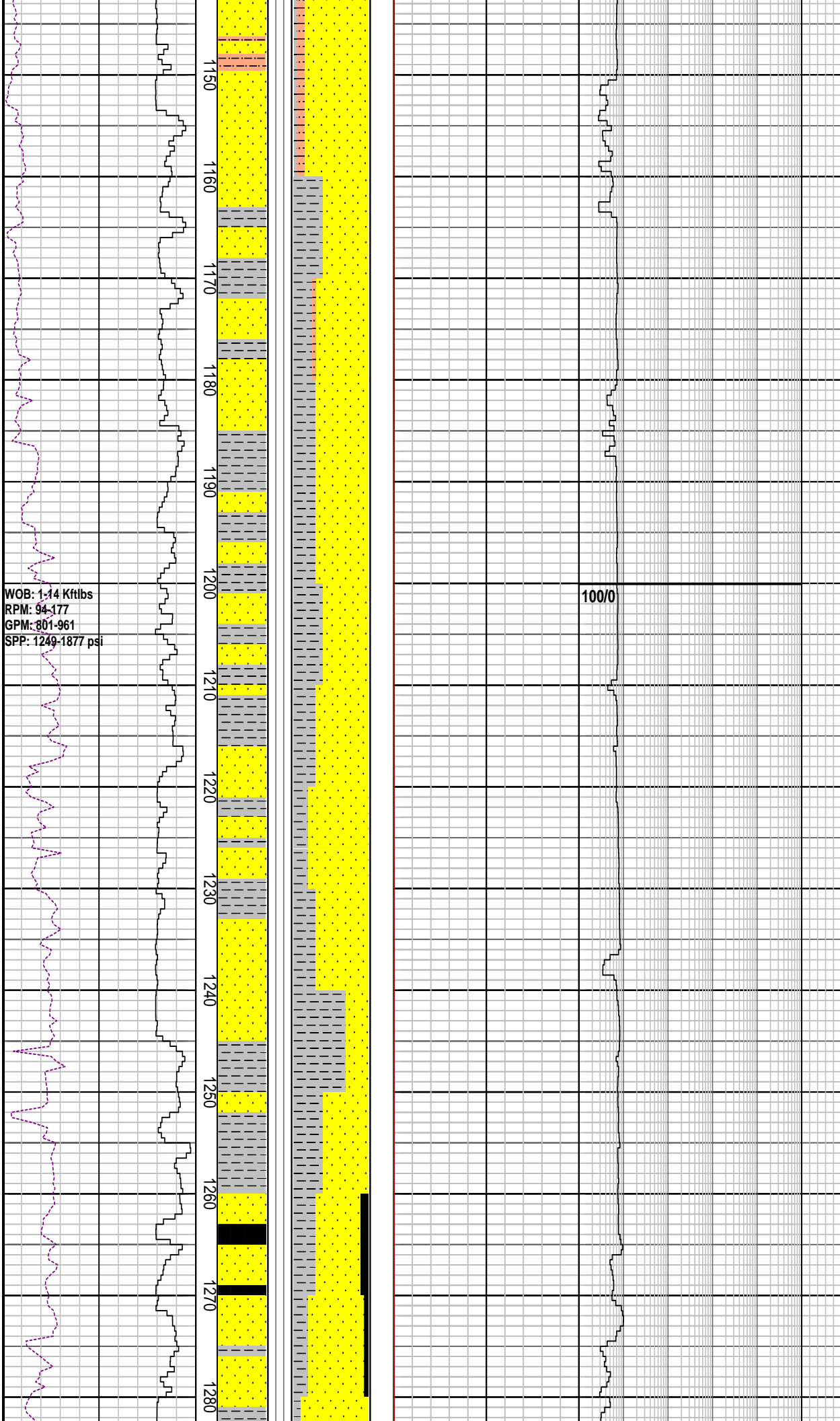
MD: 1083.09m	Inc: 2.60°
TVD: 1082.9m	Azi: 225.86°

**SANDSTONE:** clr-transl, lt smky gy, fros,  
w/ mod abd fspr , f-v crs, sbang-sbrndd,  
p srt (binodal), nod & dissem pyr, tr  
musc, disagg w/ mnr pyr cmt, f-m sd  
agg, n fluor

**SILTSTONE:** dk gy-ol gy, sli calc I.P. loc  
v arg grd slty Clst I.P. sli aren, micr mic,  
tr carb spks, tr lit frag

MD: 1112.27m	Inc: 2.75°
TVD: 1112.0m	Azi: 224.69°

MD: 1141.27m      Inc: 2.61'



TVD: 1141.4m      Azi: 223.95°

CLAYSTONE: dk gy-brn blk, mod slty, sli calc I.P. com carb/c frag, micr mic, tr musc, sft-plas, mass-blky I.P.

MD: 1171.39m      Inc: 2.66°  
TVD: 1171.1m      Azi: 223.80°

SANDSTONE: clr-trnsl, fros, smky gy, f-m gr, mnr crs, tr v crs, sbang-sbrndd, p-mod srt, arg mtrx I.P. dissem & nod pyr, mnr carb mat, tr Fe stn qtz, fri-pred disagg, p-f por

MD: 1200.78m      Inc: 2.64°  
TVD: 1200.4m      Azi: 223.80°

CLAYSTONE: m-dk gy, mod slty, sli calc I.P. com pyr, mnr carb spks, sft-plas, mass-blky I.P.

MD: 1230.79m      Inc: 2.72°  
TVD: 1230.4m      Azi: 225.15°

SANDSTONE: clr-trnsl, fros, smky gy, f-m gr, mnr crs, tr v crs, sbang-sbrndd, p-mod srt, arg mtrx I.P. dissem & nod pyr, mnr carb mat, tr Fe stn qtz, f por, n fluor

MW: 9.65 ppg      FV: 74  
PV: 23      Gel: 9/14/15  
YP: 27      pH: 8.5

COAL: blk, sbbit, dll-sbvlt lstr, plty fract, brit, blky-plty I.P.

WOB: 2-17 Kftlbs  
RPM: 80-130  
GPM: 801-903  
SPP: 1358-1724 psi

WOB: 4-18 Kftlbs  
RPM: 120-148  
GPM: 798-807  
SPP: 1445-1500 psi

1290  
1300  
1310  
1320  
1330  
1340  
1350  
1360  
1370  
1380  
1390  
1400  
1410  
1420

Corbide Run @ 1424.0 m

100/0

100/0

CLAYSTONE: m-dk gy, mod slty, sli cal  
I.P. com pyr, mnr carb spks, sft-plas,  
mass-blky I.P.

MD: 1288.88m	Inc: 2.77°
TVD: 1288.4m	Azi: 225.56°

SANDSTONE: clr-trnsl, fros, smky gy,  
m-crs gr, sbang-sbrndd, mod srt, arg  
mtrx I.P, disse pyr cmt & nod pyr, com  
carb mat, micr mic, tr Fe stn qtz, p por, n  
fluor

MD: 1318.86m	Inc: 2.69°
TVD: 1318.4m	Azi: 226.89°

CLAYSTONE: dk gy-brn blk, mod slty  
grd to arg Slst I.P. mnr carb mat & carb  
micr lam, sft-plas, mass-amor

SANDSTONE: qtz, clr-trnsl, fros, smky  
gy, m-crs gr, ang-sbrndd, rndd I.P. mod  
srt, slty arg mtrx I.P. disse pyr cmt &  
nod pyr, tr carb mat, micr mic, tr fspr, p  
por, n fluor

CLAYSTONE: dk gy-brn blk, sli slty, mn  
carb mat & carb micr lam, sft-plas,  
mass-amor

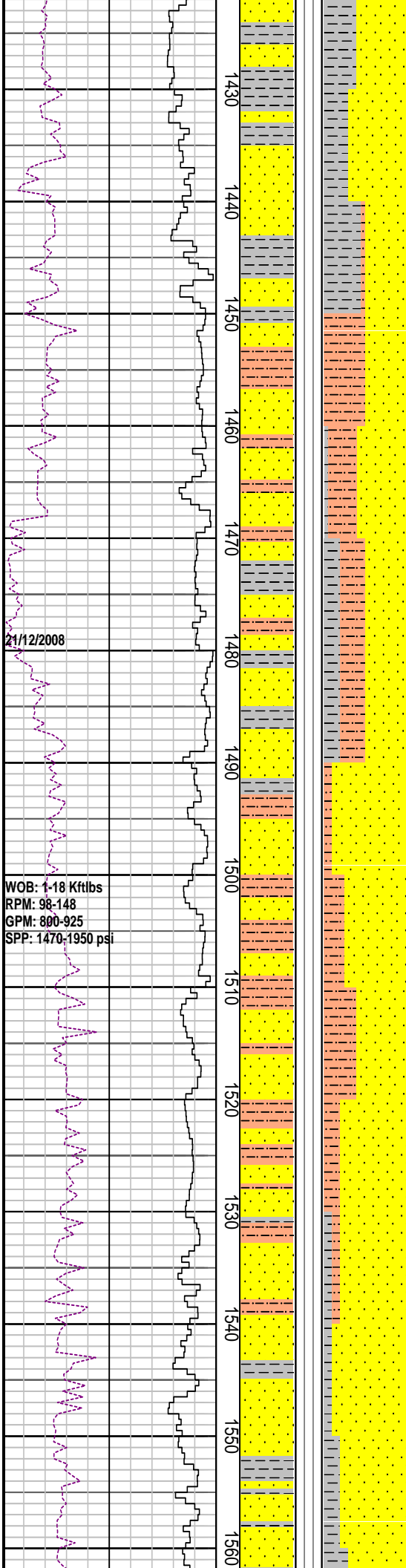
SILTSTONE: dk gy-brn gy, mod calc, loc  
v arg grd slty Clst I.P. micr mic, tr carb  
spks, tr lit frag, sft, blk

SANDSTONE: qtz, clr-trnsl, fros, smky  
gy, m-crs gr, sbang-sbrndd, rndd I.P.  
mod srt, slty arg mtrx I.P. tr nod pyr, tr  
musc, tr carb mat, micr mic, tr fspr, p  
por, n fluor

CLAYSTONE: dk gy-brn gy, sli slty, gd to  
Slst, mn carb mat & carb micr lam,  
sft-plas, mass-amor

MD: 1407.48m	Inc: 2.91°
TVD: 1406.9m	Azi: 229.04°

CLAYSTONE: dk gy-dk brn gy, mod-v



Carbide Run @ 421.0 m  
Actual: 4825 strks  
Theoretical: 4811 strks  
Avg Hole Diameter : 12.29"  
Carbide Gas : 18 units

21/12/2008

WOB: 1-18 Kftlbs  
RPM: 98-148  
GPM: 800-925  
SPP: 1470-1950 psi

100/0

silty arg mtrx, gd to Slst I.P. mnr carl  
mat & carb micr lam, sft-plas,  
mass-amor

MD: 1436.37m Inc: 2.94°  
TVD: 1435.7m Azi: 228.54°

MW: 9.6 ppg FV: 76  
PV: 12 Gel: 9/14/17  
YP: 49 pH: 9.5

SILTSTONE: dk gy-brn gy, mod calc, loc  
arg mtrx, grd slty Clst I.P. micr mic, tr  
carb spks, tr lit frag, sft, blk

MD: 1465.90m Inc: 3.02°  
TVD: 1465.2m Azi: 227.97°

CLAYSTONE: dk gy- brn gy, mod calc,  
silty arg mtrx, gd to Slst I.P. mnr carb  
mat & carb micr lam, sft-plas,  
mass-amor

SANDSTONE: qtz, clr-trnsl, smky gy,  
f-crs gr, ang-sbrnrd, rndd I.P. mod srt,  
silty arg mtrx I.P. tr musc, tr carb mat,  
micr mic, p por, n fluor

MD: 1495.44m Inc: 3.02°  
TVD: 1494.2m Azi: 227.27°

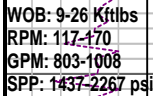
SILTSTONE: dk gy- lt brn gy, mod calc,  
loc arg mtrx, micr mic, tr carb spks, tr lit  
frag, sft, blk

SANDSTONE: qtz, clr-trnsl, lt gy, v f-f gr,  
ang-sbrnrd, mod srt, slty arg mtrx I.P. tr  
carb mat, micr mic, p por, n fluor

MD: 1525.13m Inc: 3.06°  
TVD: 1524.4m Azi: 228.31°

SANDSTONE: qtz, clr-trnsl, fros, f-m gr,  
mnv v crs, sbang-sbrnrd, mod srt, wk  
calc cmt I.P. tr nod pyr, tr glau, com  
carb/c frag, occ crs mlky flt, occ rd lit  
frag, disagg, f por

MD: 1554.71m Inc: 3.12°  
TVD: 1553.9m Azi: 227.55°



MD: 1584.40m	Inc: 3.16°
TVD: 1583.6m	Azi: 227.33°

**SILTSTONE:** pl yel brn, mod sil, mod arg, tr carb frag, tr lit frag, tr musc, sli chlor, hd, blkly

MD: 1614.18m	Inc: 3.15°
TVD: 1613.3m	Azi: 227.26°

**CLAYSTONE:** m dk gy-dk gy, v slty grd  
to arg Slstst I.P. sli aren I.P. tr lit frag, mnr  
carb mat, micr mic, sft-plas, mass-blky

MD: 1643.45m	Inc: 3.22°
TVD: 1642.5m	Azi: 227.15

**SANDSTONE:** qtz, clr-trnsl, fros, f-m gr, mnv crs, sbang-sbrndd, mod srt, loc stg dol/sil cmt, tr nod pyr, com carb mat, mnv crs milky flt, mod hd agg, disagg, v p-f por, n fluor

**CLAYSTONE:** m dk gy-dk gy, slty, sli  
aren I.P. tr lit frag, tr carb mat, micr mic,  
sft-plas, mass-blky

WOB: 9-30 Kftlbs

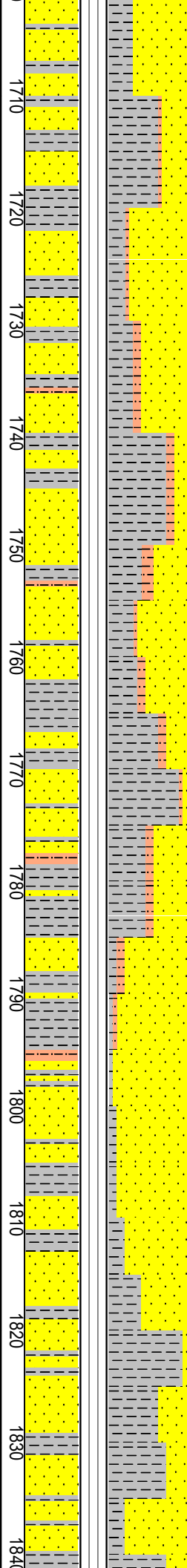
100/0



RPM: 156-221  
GPM: 851-1008  
SPP: 1692-2293 psi

22/12/2008

WOB: 6-19 Kftlbs  
RPM: 170-200  
GPM: 990-1002  
SPP: 2240-2280 psi



100/0

MW: 9.6 ppg FV: 69  
PV: 21 Gel: 10/14/16  
YP: 35 pH: 9.0

SANDSTONE: qtz, clr-trnsl, fros, f-m gr, mnv v crs, sbang-sbrndd, mod srt, loc stg dolcalc cmt, tr nod pyr, com carb mat, mnv crs mlky flt, tr lit frag, disagg, f por, n fluor

MD: 1732.53m Inc: 3.23°  
TVD: 1731.5m Azi: 229.06°

MW: 9.65 ppg FV: 76  
PV: 21 Gel: 10/14/17  
YP: 34 pH: 9.0

SANDSTONE: qtz, clr-trnsl, fros, v f-m, sbang-sbrndd, mod-wl srt, loc dolcalc cmt, occ pyr cmt, tr m nod pyr, tr m mlky qtz flt, mnv hd dol cmt f agg, v p-f por, n fluor

MD: 1761.71m Inc: 3.31°  
TVD: 1760.6m Azi: 229.32°

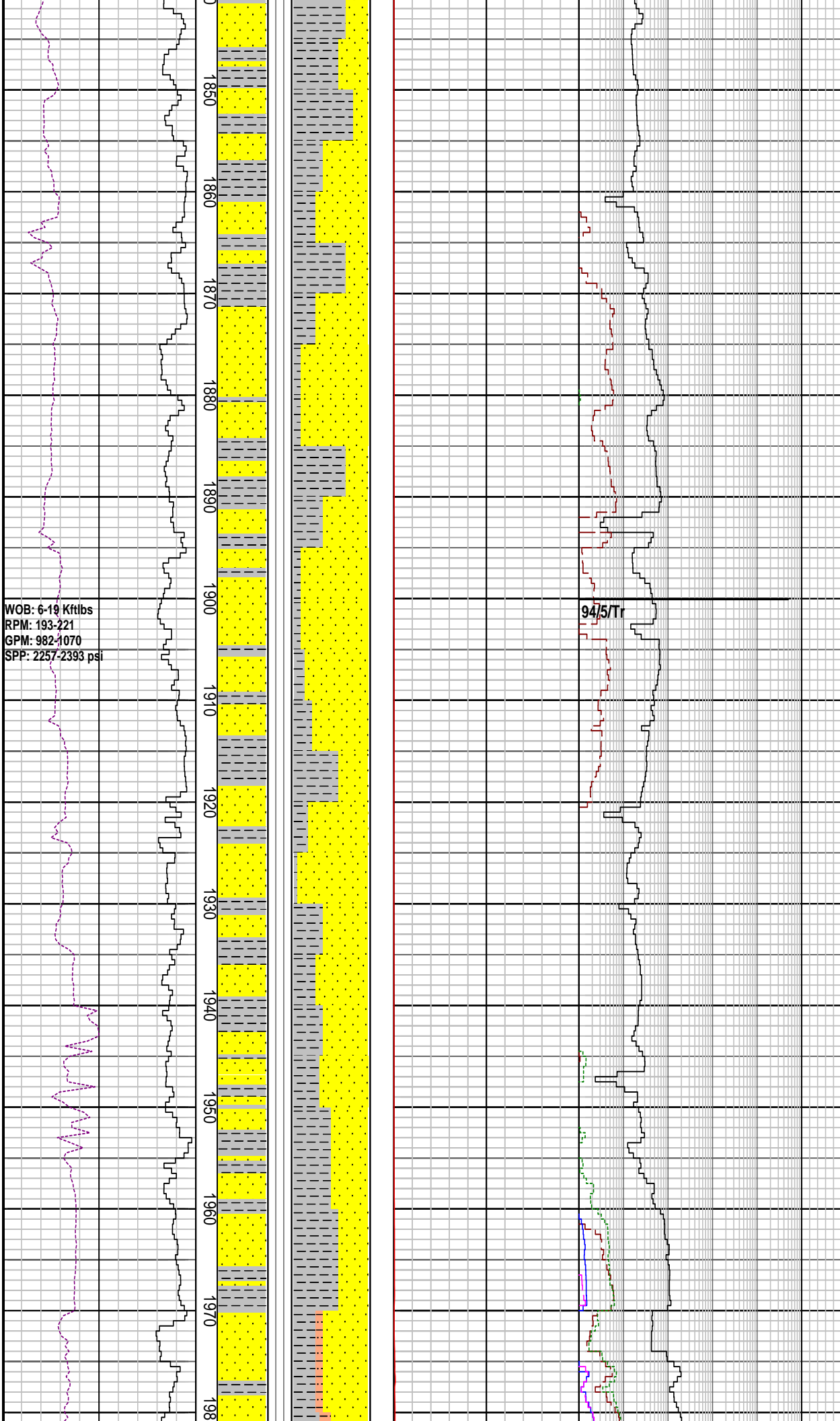
CLAYSTONE: m dk gy-dk gy, slty, sli aren I.P. tr lit frag, tr carb mat, micr mic, sft-plas, mass-blky

MD: 1791.33m Inc: 3.27°  
TVD: 1790.2m Azi: 229.40°

SANDSTONE: qtz, clr-trnsl, fros, v f-m, sbang-sbrndd, mod-wl srt, loc dolcalc cmt, occ pyr cmt, tr m nod pyr, tr m mlky qtz flt, mnv hd dol cmt f agg, v p-f por, n fluor

MD: 1820.98m Inc: 3.35°  
TVD: 1819.8m Azi: 229.44°

CLAYSTONE: m dk gy-dk gy, slty, sli aren I.P. tr lit frag, tr carb mat, micr mic, sft-plas, mass-blky



WOB: 6-19 Kftlbs  
RPM: 193-221  
GPM: 982-1070  
SPP: 2257-2393 psi

94/5/Tt

CLAYSTONE: m dk gy-olv blk, slty grd to Arg Sltst I.P. tr lit frag, tr carb mat, micr mic, sft-plas, mass-blky

SANDSTONE: qtz, clr-trnsl, f-m gr, sbrndd-rndd, wl srt, loc dolcalc cmt, tr nod pyr, mnr kao, tr m mlky qtz flt, disagg p-f por, n fluor

MD: 1880.19m	Inc: 3.46°
TVD: 1878.9m	Azi: 227.97°

CLAYSTONE: m dk gy-ol blk, slty grd to arg Sltst I.P. tr lit frag, tr carb mat, micr mic, sft-plas, mass-blky

SANDSTONE: qtz, clr-trnsl, v f-f gr, com m gr, sbang-sbrndd, wl srt, loc dolcalc cmt, tr sil cmt, tr nod pyr, tr carb mat, tr Fe stn, tr f mlky qtz flt, disagg, p por, n fluor

MW: 9.7 ppg	FV: 52
PV: 15	Gel: 11/16/19
YP: 34	pH: 8.8

MD: 1939.47m	Inc: 3.51°
TVD: 1938.0m	Azi: 227.37°

CLAYSTONE: m dk gy-ol blk, slty grd to arg Sltst, sli calc, mnr carb spk, micr mic, sft-plas, mass-blky

SANDSTONE: qtz, clr-trnsl, v f-m gr, mnr crs gr, sbang-sbrndd, wl srt, loc dolcalc cmt, tr stg sil cmt, tr nod & dissem pyr, com carb mat, tr Fe stn, tr f mlky qtz flt, disagg, tr f mlky qtz flt, disagg, f-g por, n fluor



WOB: 11-31 Kftlbs  
RPM: 218-321  
GPM: 1002-1261  
SPP: 1618-2591 psi

WOB: 9-26 Kftlbs  
RPM: 220-235  
GPM: 1005-1020  
SPP: 2200-2305 psi

23/12/2008

0  
1990  
2000  
2010  
2020  
2030  
2040  
2050  
2060  
2070  
2080  
2090  
2100  
2110  
2120

Carbide Run @ 982.0 m  
Actual: 6500 strks  
Theoretical: 6445 strks  
Avg Hole Diameter : 12.35"  
Carbide Gas : 30 units

Peak Gas:10.2 units

90/4/4/1/1

88/7/3/2/Tr

85/8/4/1/Tr/Tr/Tr

CLAYSTONE: m dk gy- brn gy, slty grd  
to arg Sltst, sli calc, mnr carb spk, micr  
mic, sft-plas, mass-blky

SANDSTONE: qtz, clr-trnsl, v f-m,  
ang-sbrndd f gr, mod-wl srt, loc  
dolcalc/sil cmt, tr stg sil cmt, tr nod &  
dissem pyr, com carb mat, occ hd aggr,  
pred disaggr, p-f por, n fluor

MD: 2028.16m Inc: 3.39°  
TVD: 2026.6m Azi: 229.51°

CLAYSTONE: m dk gy- brn gy, slty grd  
to arg Sltst, sli calc, mnr carb spk, micr  
mic, sft-plas, mass-blky

MD: 2057.35m Inc: 3.37°  
TVD: 2055.7m Azi: 231.70°

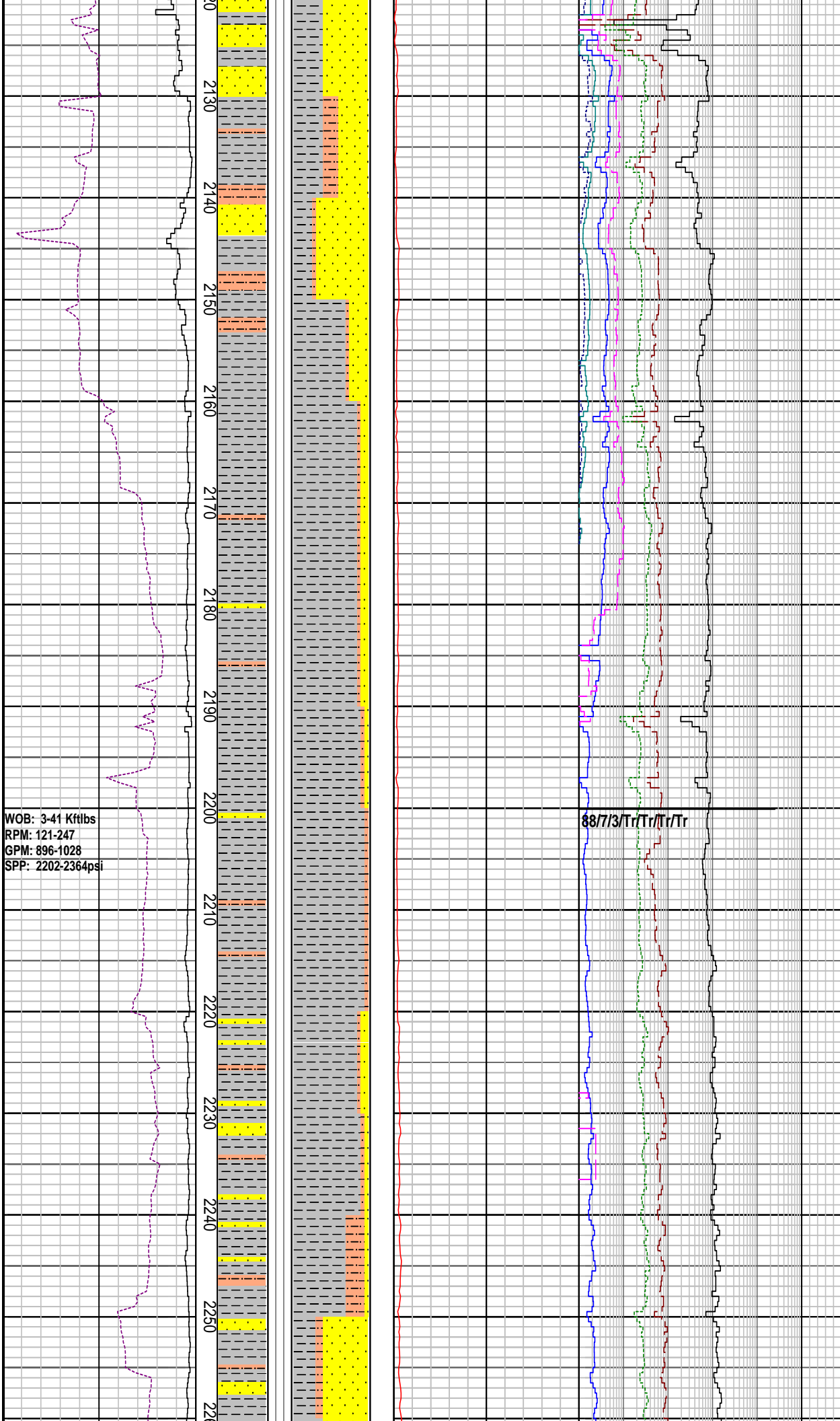
SANDSTONE: qtz, clr-trnsl, v f-m,  
sbang-sbrndd, mod-wl srt, loc dolcalc/sil  
cmt, tr stg sil cmt, tr nod & dissem pyr,  
com carb mat, tr Fe stn, occ hd aggr,  
pred disaggr, p-f por,

MD: 2086.92m Inc: 3.34°  
TVD: 2085.2m Azi: 227.82°

MW: 9.7 ppg FV: 53  
PV: 13 Gel: 11/17/20  
YP: 38 pH: 9.0

SANDSTONE: qtz, dull gy-lt yel brn,  
clr-trnsl, f-m crs, sbang-sbrndd, v wl srt,  
loc dolcalc/sil cmt, tr stg sil cmt, tr nod &  
dissem pyr, tr Fe stn, occ hd aggr,  
pred disaggr, p-f por, n fluor

MD: 2116.75m Inc: 3.44°  
TVD: 2115.0m Azi: 227.04°



WOB: 3-41 Kftlbs  
RPM: 121-247  
GPM: 896-1028  
SPP: 2202-2364psi

SANDSTONE: qtz, trnsp-trnsl, v f-m, sbang-sbrndd, v wl srt, loc dolcalc/sil cmt, tr nod & dissep pyr, com carb mat, tr Fe stn, occ hd aggr, pred disaggr, p-f por, n fluor

MD: 2146.4m Inc: 3.29°  
TVD: 2144.6m Azi: 227.47°

SILTSTONE: dk gy-blk, v hd, sbblky-blky, splin, occ elong, fis I.P.

MD: 2175.52m Inc: 3.42°  
TVD: 2173.2m Azi: 228.06°

CLAYSTONE: m dk gy-lt gy, slty grd to Arg Siltst, sli calc, mnrcarb spk, micr mic, sft-plas, mass-blky

88/7/3/Tr/Tr/Tr

SILTSTONE: dk gy-blk, v hd, sbblky-blky, splin, occ elong, fis I.P.

MW: 9.7 ppg FV: 49  
PV: 14 Gel: 12/10/21  
YP: 31 pH: 9.0

MD: 2235.0m Inc: 3.46°  
TVD: 2233.0m Azi: 227.38°

CLAYSTONE: dk gy- m dk gy, sft- m hd, slty grd to arg Siltst, sli calc, mnrcarb spk, micr mic, mass-blky

MW: 9.7 ppg FV: 49  
PV: 14 Gel: 11/17/20  
YP: 34 pH: 9.0

SANDSTONE: smky qtz, trnsp-trnsl, v f gr, ang-sbrndd, v wl srt, loc dolcalc/sil cmt, tr nod & dissep pyr, com carb mat

24/12/2008

WOB:15-40 Kftlbs  
RPM: 175-250  
GPM: 1019-1021  
SPP: 2210-2440 psi

25-26/12/2008

WOB:15-40 Kftlbs  
RPM: 175-250  
GPM: 1019-1021  
SPP: 2300-2480 psi

2270  
2280  
2290  
2300  
2310  
2320  
2330  
2340  
2350  
2360  
2370  
2380  
2390  
24

Peak Gas:11.7 units

Peak Gas:13.8 units

Peak Gas:31.5 units

Peak Gas:22.0 units

Peak Gas:22.5 units

Peak Gas:11.7 units

92 / 5 / 2 / Tr / Tr / Tr / Tr

91 / 6 / 2 / Tr / Tr

95 / 3 / 1 / Tr / Tr

95 / 3 / 1 / Tr / Tr / Tr / Tr

92 / 4 / 2 / 1 / Tr

91 / 5 / 2 / 1 / Tr / Tr / Tr / Tr

mod hd aggr, pred disaggr, p-f por, n fluor

MD: 2264.44m	Inc: 3.46°
TVD: 2262.0m	Azi: 227.56°

SANDSTONE: smky qtz, trnsp-trnsl, v f gr, sbang-sbrndd, p-wl srt, loc dolcalc/sil cmt, tr nod & dissemin pyr, com carb spks, mod hd aggr, pred disaggr, p-f por, n fluor

SILTSTONE: dk gy-blk, hd-v hd, sbblky-blky, splin, occ elong, fis (Shale), non calc

MD: 2323.6m	Inc: 3.26°
TVD: 2321.5m	Azi: 226.76°

SANDSTONE: smky qtz, trnsp-trnsl, v f gr, occ m-crs gr, sbang-sbrndd, mod-wl srt, loc dolcalc/sil cmt, occ arg, tr nod & dissemin pyr, com carb spks, mod hd aggr, pred disaggr, p-f por, n fluor

CLAYSTONE: pred m dk gy, occ m gy, sft-frm, m hd i.p., blkly-sbblky, v slty, grd to arg Slstst I.P. sli calc, mn carb spk, micr mic

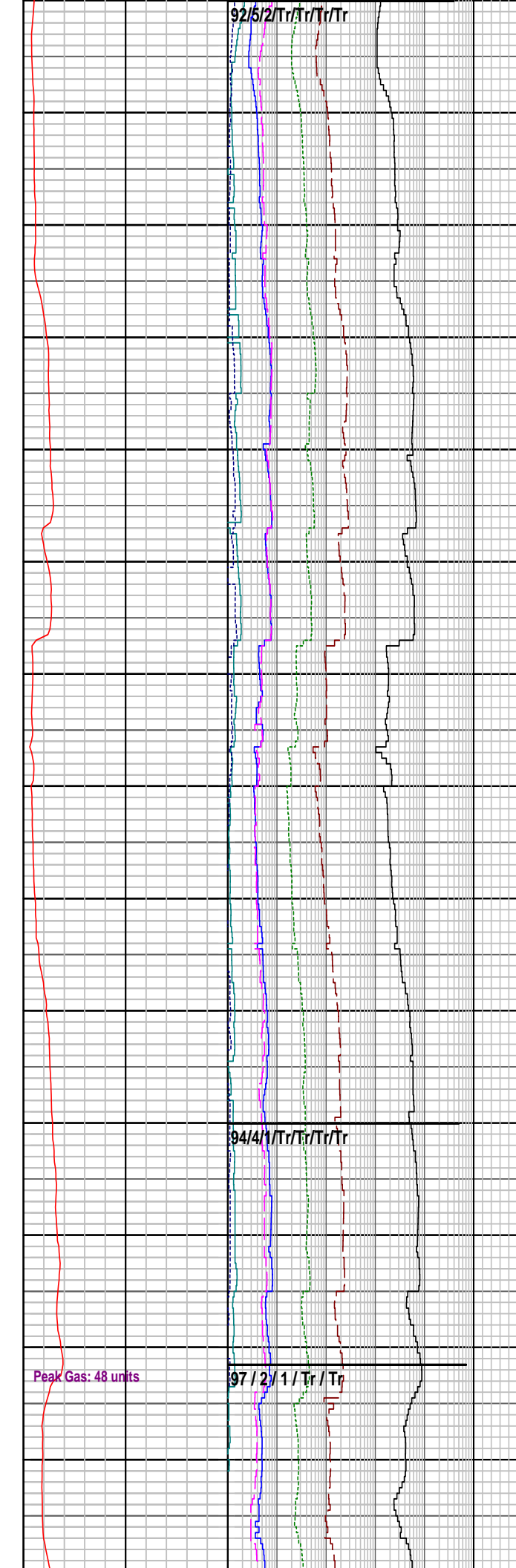
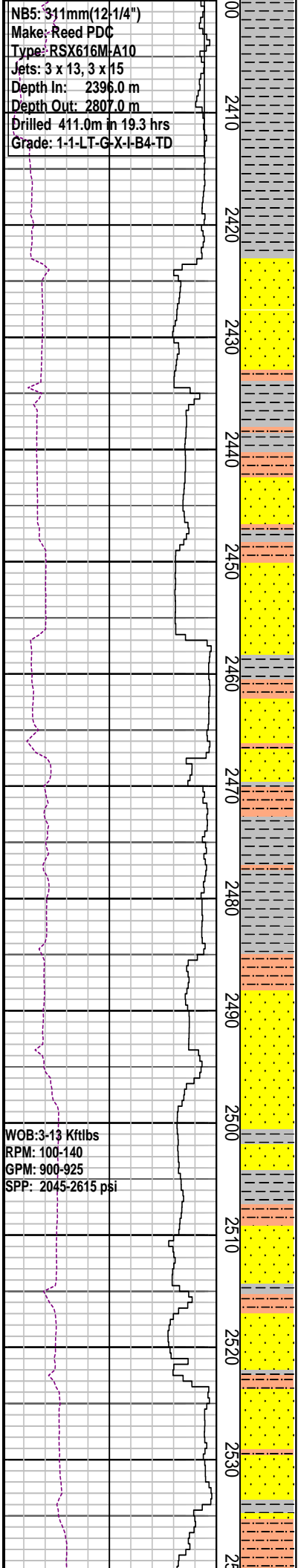
SANDSTONE: qtz, trnsp-trnsl, occ med gy, v f gr, occ m-crs gr, sbang-sbrndd, mod srt, v slty, loc dolcalc/sil cmt, occ arg, tr nod & dissemin pyr, com carb spks, com hd aggr, pred dis

MD: 2382.7m	Inc: 3.36°
TVD: 2380.5m	Azi: 228.47°

Trip for BHA @2396.0m  
Made up mud motor to correct angle.

NB5: 311mm(12-1/4")  
Make: Reed PDC  
Type: RSX616M-A10  
Jets: 3 x 13, 3 x 15  
Depth In: 2396.0 m  
Depth Out: 2807.0 m  
Drilled 411.0m in 19.3 hrs  
Grade: 1-1-LT-G-X-I-B4-TD

WOB: 3-13 Kftlbs  
RPM: 100-140  
GPM: 900-925  
SPP: 2045-2615 psi



Peak Gas: 48 units

92/5/2/Tr/Tr/Tr

94/4/1/Tr/Tr/Tr

97/2/1/Tr/Tr

MW: 9.8 ppg FV: 57  
PV: 14 Gel: 11/17/23  
YP: 32 pH: 8.5

MD: 2412.78m Inc: 2.64°  
TVD: 2410.5m Azi: 231.04°

SANDSTONE: m gy-m dk gy, frm-hd, occ v hd, v f gr, sbang-sbrndd, mod srt, v slty, grdg to aren Sltst I.P., calc/sil cmt, arg com carb spks, tr mic, tr glauc, com hd agg, pred disag

MD: 24419m Inc: 1.53°  
TVD: 2439.6m Azi: 213.64°

SILTSTONE: pred dk gy-blk, occ med gy, hd-v hd, sbblky-blky, fis, grdg to Shale I.P., loc aren, com carb spks, calc, tr mic

SLIDE: 2455m-2465m

SLIDE: 2469m-2484m

MD: 2471.6m Inc: 0.59°  
TVD: 2469.3m Azi: 128.12°

CLAYSTONE: dk gy-m dk gy, sft-frm, m hd I.P. blky-sbblky, v slty mtrx, grd to arg Sltst, sli calc, mnr carb spk, micr mic

MD: 2491.42m Inc: 1.38°  
TVD: 2489.1m Azi: 68.51°

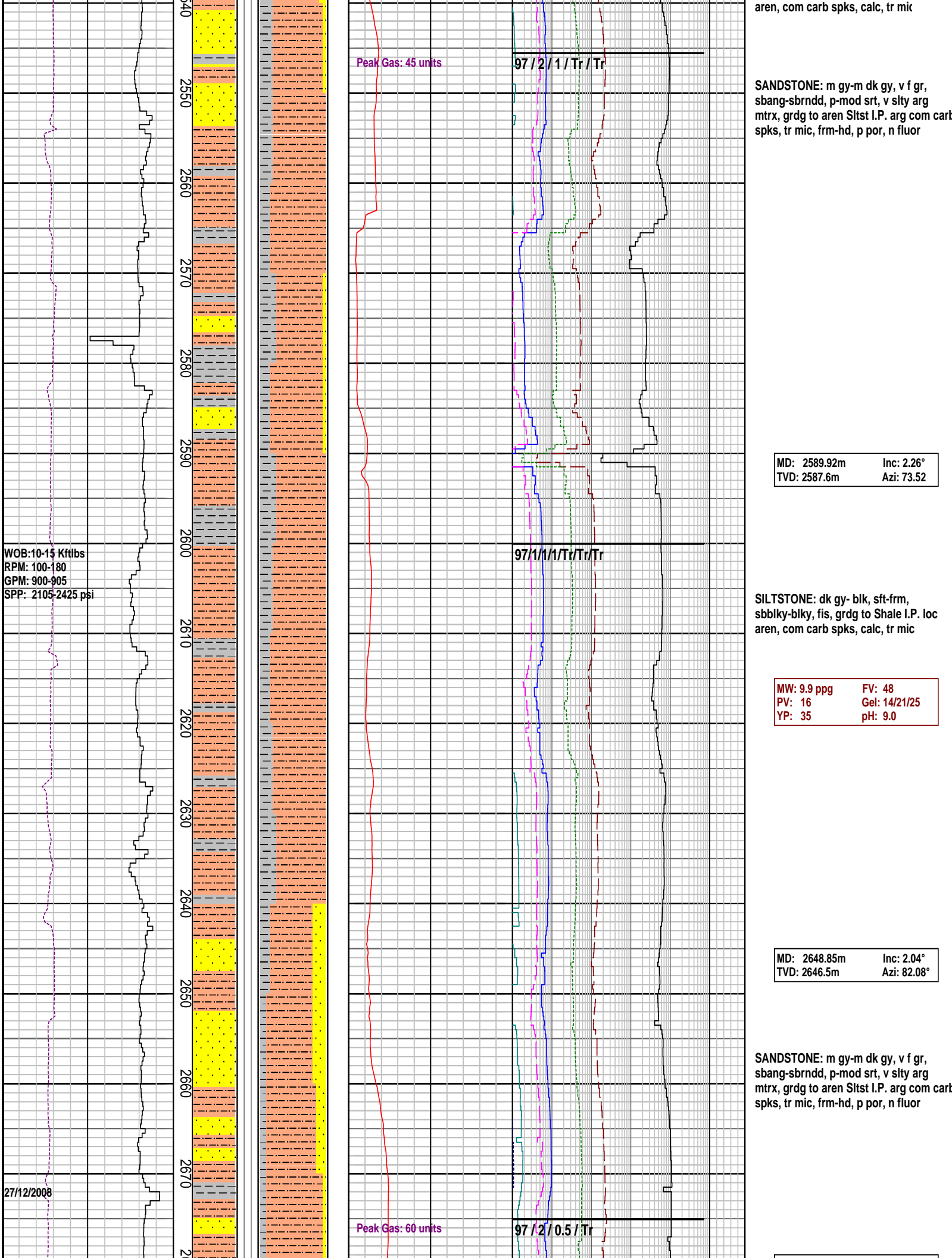
MD: 2500.84m Inc: 1.41°  
TVD: 2498.6m Azi: 68.97°

SANDSTONE: m gy-m dk gy, frm-hd, v f gr, sbang-sbrndd, p-mod srt, v slty arg mtrx, grdg to aren Sltst I.P. calc/sil cmt, arg com carb spks, tr mic, tr glauc, com hd agg, pred disag

SLIDE: 2523m-2538m

MD: 2530.68m Inc: 2.33°  
TVD: 2528.4m Azi: 71.51°

SILTSTONE: dk gy- lt gy, sft-frm, sbblky-blky, fis, grdg to Shale I.P. loc





MD: 2678.97m Inc: 2.06°  
TVD: 2676.6m Azi: 86.66°

SLIDE: 2692m-2701m

SILTSTONE: dk gy- blk, hd-v hd, sbblky-blky, fis, grdg to Shale I.P. loc aren, tr carb spks, calc, tr mic

SLIDE: 2706m-2709m

MD: 2708.38m Inc: 2.64°  
TVD: 2706.0m Azi: 86.80°

SANDSTONE: m gy-m dk gy, v f gr, sbang-sbrndd, p-mod srt, v silty arg mtrx, loc dolcalc/sil cmt, grdg to aren Slstst I.P. arg com carb spks, tr mic, frm-hd, p por, n fluor

MD: 2737.95m Inc: 2.76°  
TVD: 2735.5m Azi: 86.66°

SLIDE: 2740m-2748m

MD: 2767.46m Inc: 3.28°  
TVD: 2765m Azi: 73.78°

MD: 2783.95m Inc: 3.22°  
TVD: 2781.4m Azi: 72.75°

SILTSTONE: m dk gy- dk gy, blk, hd-v hd, sbblky-blky, fis, occ grdg to Shale, loc aren, tr carb spks, calc, tr mic

Increased mud weight to 10.3 ppg

FIT @ 2800.3 m with 10.3 ppg  
EMW: 16.0 ppg @ 2720 psi

Drill 216 mm (8-1/2") hole with KCL Polymer mud systems

MD: 2816.25m Inc: 3.18°  
TVD: 2813.7m Azi: 78.94°

LIMESTONE: sltst, gy brn dolc, brn

WOB: 10-20 Kftlbs  
RPM: 100-180  
GPM: 895-900  
SPP: 2150-2385 psi

Set 9-5/8" Casing at 2800.3 m

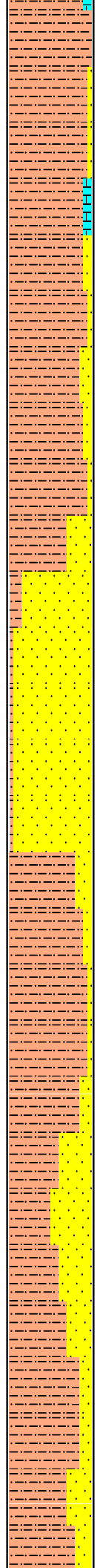
WOB: 14-23 Kftlbs  
RPM: 0-81  
GPM: 897-902  
SPP: 2028-2550 psi

NB6: 216mm(8-1/2")  
Make: Security  
Type: PDC/SE3653Z

Jets: 6 x 14  
Depth In: 2807.0 m  
Depth Out: 3585.0 m  
Drilled: 778.0m in 42.4 hrs  
Grade: 1-1-CT-N-X-I-NO-TD

WOB: 1-14 Kftlbs  
RPM: 15-139  
GPM: 189-901  
SPP: 700-2725ps

2820  
2830  
2840  
2850  
2860  
2870  
2880  
2890  
2900  
2910  
2920  
2930  
2940  
2950



Peak Gas: 105 units

94/3/2/Tr/Tr/Tr/Tr

92/4/2/Tr/Tr/Tr/Tr

LIMESTONE: cist, gy brn-dsky brn micr, sli dol, mod arg, tr f calc sd, tr carb Styl, hd, brit I.P. blkly-plty, n por, n fluor

SANDSTONE: Lith Aren, dk yel brn-brn gy, v f-f gr, sbang, mod srt, mod strng calc cmt, slty, arg mtrx, carb spks, fri, disagg, v p por, n fluor

MD: 2845.87m Inc: 3.21°  
TVD: 2843.3m Azi: 82.42°

SILTSTONE: m dk gy- dk gy, occ blk, hd-v hd, sbblkly-blky, fis, occ grdg to Shale, loc aren, com carb spks, calc, tr dol, tr mic

MD: 2875.23m Inc: 3.12°  
TVD: 2872.6m Azi: 85.48°

SANDSTONE: qtz, clr-trnsl, fros, f-pred m-crs, ang-sbrndd, mod srt, loc wk dolcalc cmt, tr carb frg, tr glau/chl, tr musc, occ lim stnd Qtz, fri-disagg, gd por, n fluor

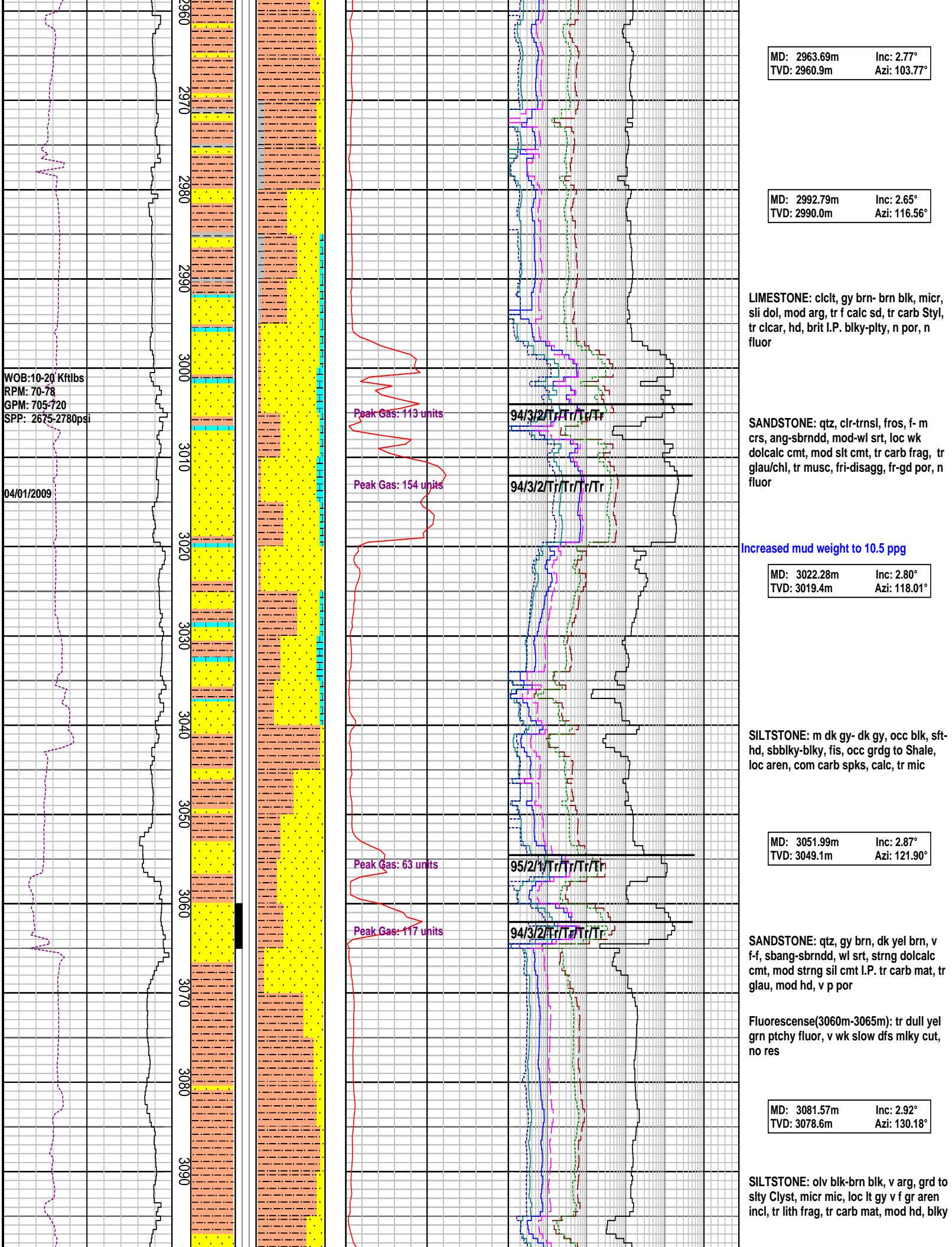
MD: 2904.72m Inc: 3.04°  
TVD: 2902.0m Azi: 88.56°

SILTSTONE: m dk gy- dk gy, occ blk, hd-v hd, sbblkly-blky, fis, occ grdg to Shale, loc aren, com carb spks, calc, tr mic

MW: 10.4 ppg FV: 46  
PV: 15 Gel: 11/19/23  
YP: 37 pH: 9.2

MD: 2934.24m Inc: 2.89°  
TVD: 2931.5m Azi: 94.43°

SANDSTONE: qtz, clr-trnsl, fros, f- m crs, ang-sbrndd, mod srt, loc wk dolcalc cmt, tr carb frag, tr glau/chl, tr musc, occ lim stnd Qtz, fri-disagg, fr-gd por, n fluor





WOB: 8-21 Kftlbs  
RPM: 76-147  
GPM: 540-767  
SPP: 1890-3145psi

WOB: 11-22 Kftlbs  
RPM: 78-99  
GPM: 718-736  
SPP: 2550-2946psi

3100  
3110  
3120  
3130  
3140  
3150  
3160  
3170  
3180  
3190  
3200  
3210  
3220  
3230

92/3/3/Tr/Tr/Tr/Tr

MD: 3111.25m Inc: 3.1°  
TVD: 3108.3m Azi: 139.57°

SANDSTONE: qtz, m dk gy, lt olv gy, dk yel brn, v f-f, sbang-sbrndd, wl srt, strng dolcalc cmt, mod strng sil cmt I.P. tr carb mat, tr musc, mod hd, v p por, n fluor

MD: 3140.79m Inc: 3.39°  
TVD: 3137.8m Azi: 147.97°

Gas trap agitator problem from 3151m to 3173m

MW: 10.6 ppg FV: 47  
PV: 22 Gel: 13/23/28  
YP: 35 pH: 8.8

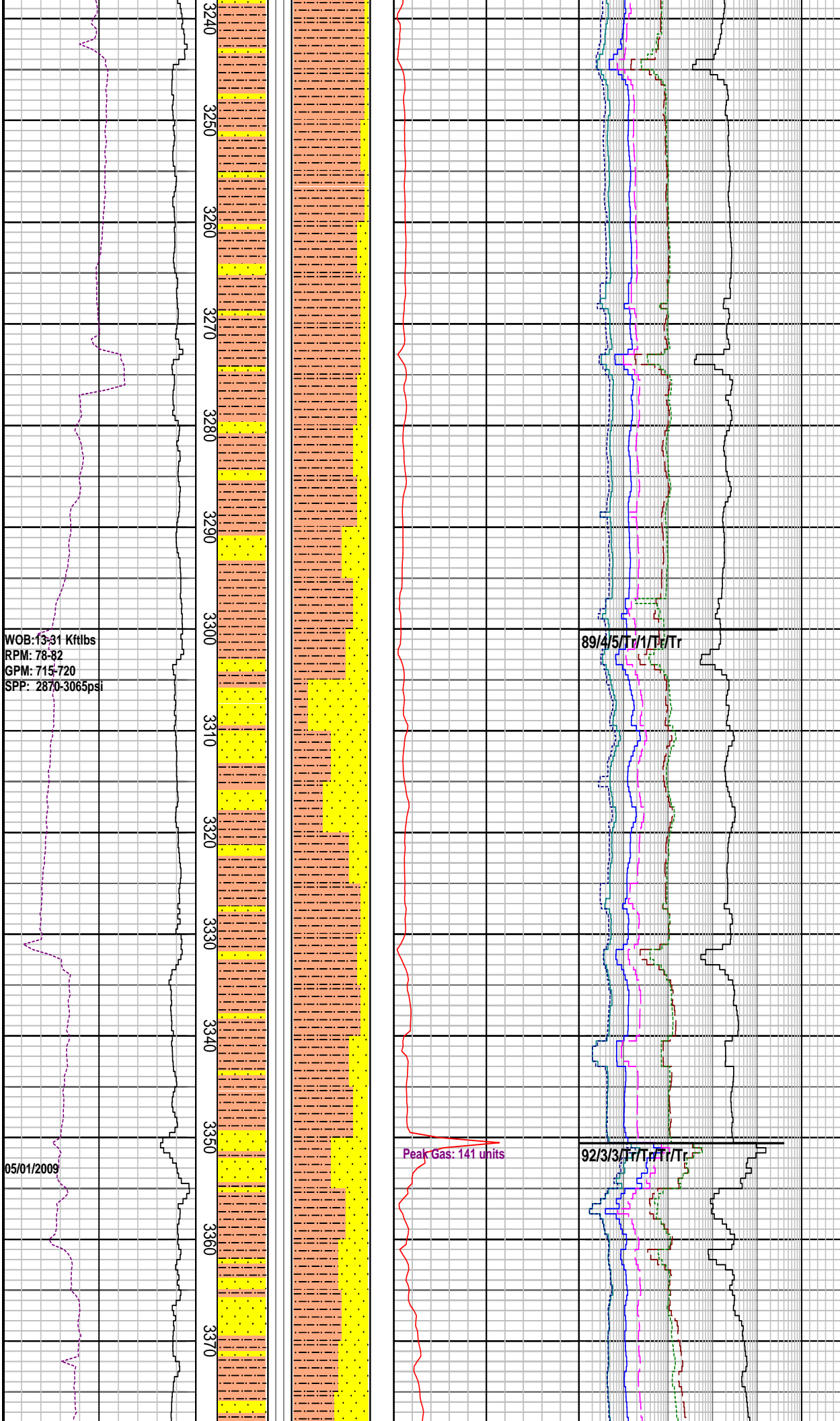
MD: 3170.28m Inc: 3.47°  
TVD: 3167.2m Azi: 152.03°

SILTSTONE: m dk gy-dk gy, v arg, grd to slty Clyst, com v f gr aren incl, tr carb mat, tr dis pyr, micr mic, tr chl, frm, mass-blky

MD: 3199.75m Inc: 3.55°  
TVD: 3196.6m Azi: 146.04°

SANDSTONE: Lith Aren, m gy, olv gy, occ lt grnsh gy, v f-f, slty I.P. sbang, wl srt, wk calc cmt, arg mtrx, tr carb mat, tr biot, fri-mod hd, v p por, n fluor

MD: 3229.40m Inc: 3.69°  
TVD: 3226.2m Azi: 146.49°



SILTSTONE: m dk gy-dk gy, loc arg mtrx, grd to Clyst, com v f gr aren incl, tr carb mat, tr dis pyr, micr mic, tr chl, frm, mass-blky

MD: 3259.28m Inc: 3.79°  
TVD: 3256.0m Azi: 146.43°

MD: 3288.9m Inc: 3.91°  
TVD: 3285.6m Azi: 148.34°

SANDSTONE: qtz, clr-trnsl, occ lt grnsh gy, v f-crs, slty I.P. sbang, wl srt, wk calc cmt, arg mtrx, tr dol, tr carb mat, tr biot, fri-mod hd, p por, n fluor

MD: 3318.10m Inc: 4.02°  
TVD: 3314.7m Azi: 150.54°

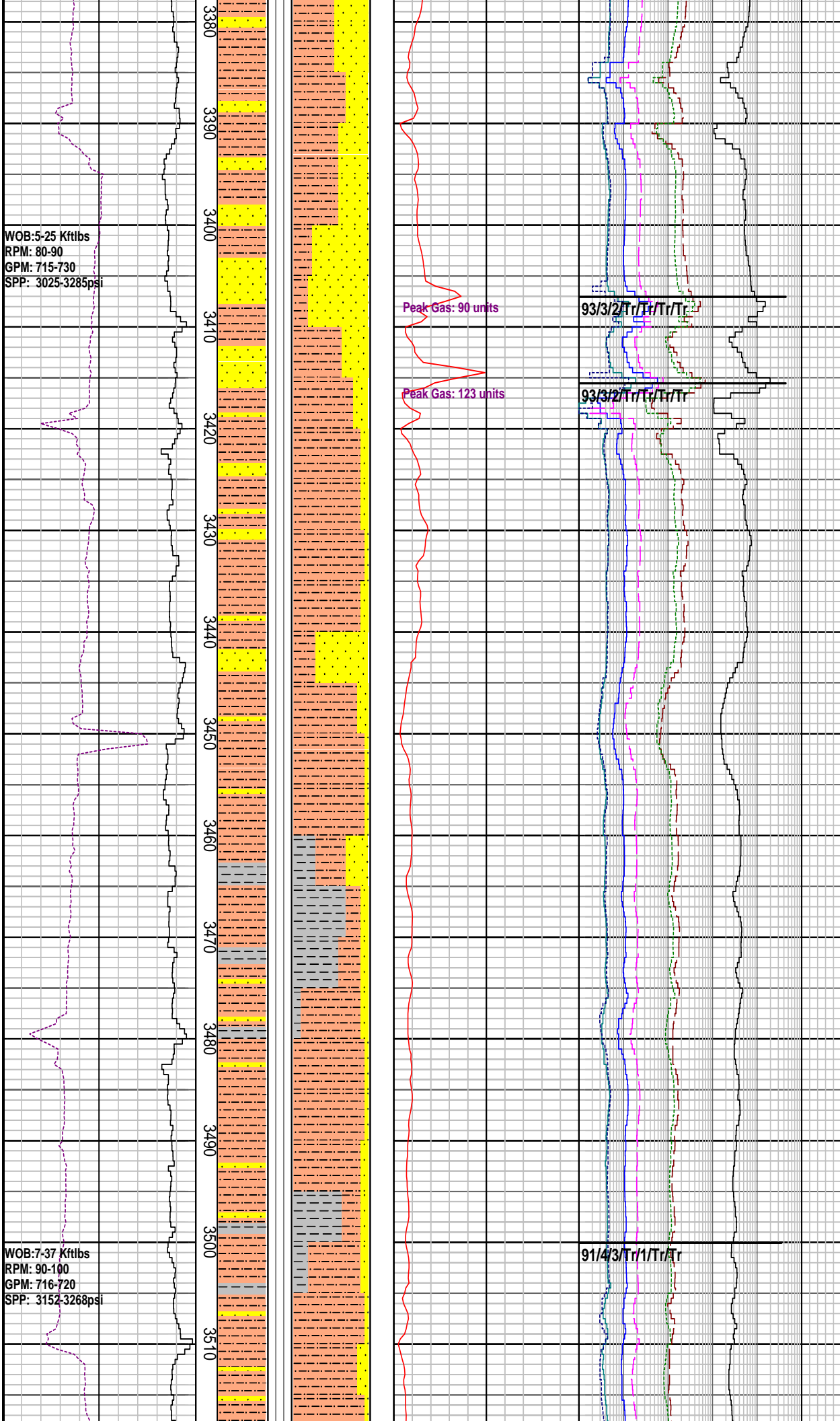
MW: 10.6 ppg FV: 54  
PV: 16 Gel: 11/19/23  
YP: 36 pH: 9.0

SILTSTONE: m dk gy-ol blk, v arg, grd to slty Clyst, com v f gr aren incl, tr carb mat, tr c, micr mic, tr chl, frm, mass-blky

MD: 3347.40m Inc: 4.21°  
TVD: 3343.9m Azi: 152.14°

SANDSTONE: qtz, clr-trnsl, occ lt gy, v f-crs, slty I.P. ang-rnnd, wl srt, wk calc cmt, arg mtrx, tr dol, tr carb mat, p por, n fluor

MD: 3376.87m Inc: 4.20°



MD: 3376.97m Inc: 4.39°  
TVD: 3373.4m Azi: 156.43°

SANDSTONE: qtz, lt gy-v lt gy, m-crs, slty I.P. sbang-sbrndd, p-mod srt, v wk calc cmt, arg mtrx, tr dol, tr fspr, tr carb mat, p por, n fluor

MD: 3406.76m Inc: 4.66°  
TVD: 3403.1m Azi: 160.95°

MD: 3436.14m Inc: 5.16°  
TVD: 3432.4m Azi: 162.03°

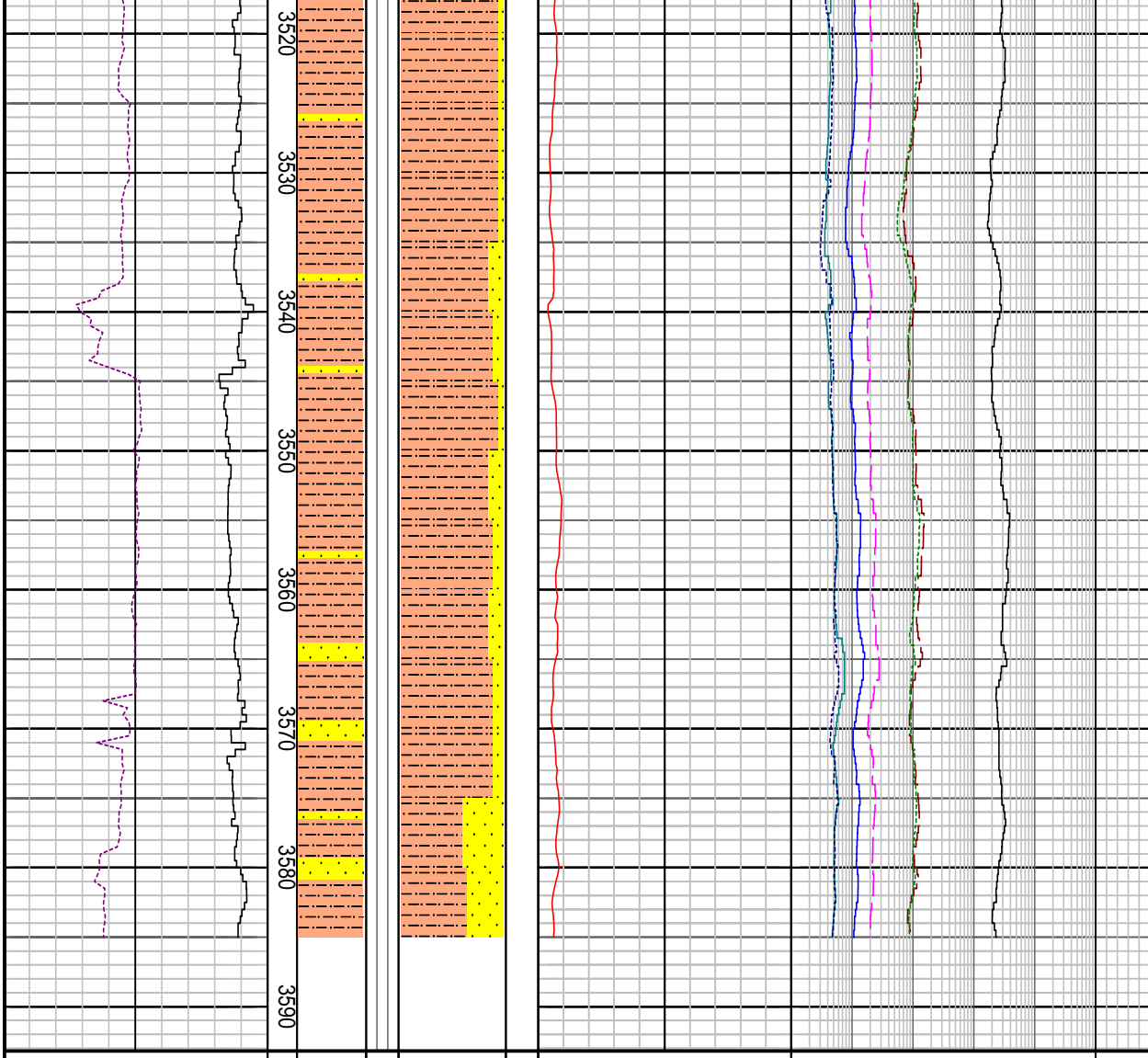
SILTSTONE: dk gy- gysh blk, v arg, grd to slty Clyst, com v f gr aren incl, tr carb mat, micr mic, tr chl, frm, blk

MD: 3465.57m Inc: 5.58°  
TVD: 3461.7m Azi: 159.59°

CLAYSTONE: dk gy-gy blk, slty I.P. micr mic, tr carb spks, slty/aren incl, mod hd, hd I.P. blkly-plty

MD: 3495.57m Inc: 6.02°  
TVD: 3491.6m Azi: 157.91°

SANDSTONE: qtz, clr-trnsl, fros, f-crs, sbang-sbrndd, p srt, loc m-wk calc cmt, tr v crse mlky qtz flt, tr nod pyr, tr fri mat, fri-disag, p por, no fluor,



MD: 3525.24m      Inc: 6.42°  
TVD: 3521.0m      Azi: 158.39°

SILTSTONE: m dk gy- gysh blk, occ olv blk, v arg, grd to slty Clyst, com v f gr aren incl, tr carb mat, micr mic, tr chl, frm, blkly

MD: 3555.17m      Inc: 6.99°  
TVD: 3550.8m      Azi: 159.59°

SANDSTONE: qtz, clr-trnsl, lt gy, lt grnsh gy, v f-f, sbang-sbrnidd, mod srt, tr lith frag, loc m-wk calc cmt, tr nod pyr, pred disag, p por, no fluor,

Run E-Logs  
1. PEX-RES-HNGS-MSCIP  
2. MDT-GR  
3. CHECK SHOT  
4. CST  
LOGGERS DEPTH : 3586.5m

Reached TD @ 3585.0m,  
06-Jan-2009

FORMATION EVALUATION LOG

DRILLING PARAM					MD meters 1:500	Oil Show P F G	LITHOLOGY %	CORE	TOTAL GAS					CHROMATOGRAPH					Calcmetry	Lithology Description
ROP (m/hr)									Total Gas (unit)					Methane ppm						
200   160   120   80   40									50   100   150   200   250	1	Methane ppm				100000					
WEIGHT ON BIT (klbf)										1	Ethane ppm				100000					
10   20   30   40   50										1	Propane ppm				100000					
										1	iso-Butane ppm				100000					
										1	n-Butane ppm				100000					
										1	iso-Pentane ppm				100000					
										1	n-Pentane ppm				100000					