GEOSEARCH LOGGING INC.

Scale 1:240 (5"=100') Imperial
Measured Depth Log

Well Name:	Windoes 2242H		
Location:	Harrison County, WV		
License Number:	47-033-05373	Region:	Appalachia
Spud Date:	11/22/2010	Drilling Completed:	12/14/2010
Surface Coordinates:	Lat: 39.1272778 Long: -80.2332417		
Bottom Hole Coordinates:	Lat: 39.121236 Long: -80.22178		
Ground Elevation (ft):	1,320'	K.B. Elevation (ft):	1,336'
Logged Interval (ft):	2,680' To: 11,240	Total Depth (ft):	11,240
Formation:	Marcellus		
Type of Drilling Fluid:	Air Drilling, Oil Based mud		

Printed by MUD.LOG from WellSight Systems 1-800-447-1534 www.WellSight.com

OPERATOR

Company: XTO Energy
Address: 600 E. Exchange Ave.
Fort Worth, TX 76164

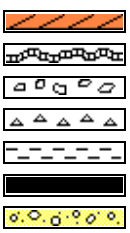
GEOLOGIST

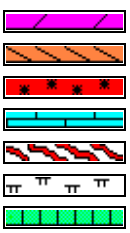
Name: Kelley Hartley, Daniel Blake, and Noah Sluiter
Company: Geosearch Logging, Inc.
Address: PO Box 6005
Edmond, OK 73083-6005
(405)-340-5545

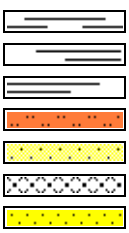
Comments

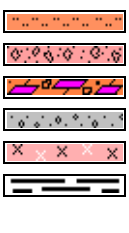
2 Manned Logging Services
Loggers on Location: 11/26/2010
Start Logging Date: 11/28/2010
OBM Start Date: 12/01/2010
Released Logging Date: 12/14/2010
Drilling Contractor: UDI #209
PC 193, ML 126, Hasp: V-42, H-33

ROCK TYPES


Anhy
Bent
Brec
Cht
Clyst
Coal
Congl


Dol
Gyp
Igne
Lmst
Meta
Mrlst
Salt


Shale
Shcol
Shgy
Sltst
Ss
Till
Sandstn


Siltstn
Granwash
Dolowash
Cement
Granite
Hotshale

ACCESSORIES

MINERAL
- Anhy
- Arggrn
- Arg
- Bent
- Bit
- Brecfrag
- Calc
- Carb
- Chtdk
- Chtlt
- Dol
- Feldspar
- Ferrpel
- Ferr
- Glau
- Gyp
- Hvymin
- Kaol
- Marl
- Minxl
- Nodule
- Phos
- Pyr
- Salt
- Sandy
- Silt
- Sil
- Sulphur
- Tuff

FOSSIL
- Algae
- Amph
- Belm
- Bioclst
- Brach
- Bryozoa
- Cephal
- Coral
- Crin
- Echin
- Fish
- Foram
- Fossil
- Gastro
- Oolite
- Ostra
- Pelec
- Pellet
- Pisolite
- Plant
- Strom

STRINGER
- Anhy
- Arg
- Bent
- Coal
- Dol
- Gyp
- Ls
- Mrst
- Sltstrg
- Ssstrg

TEXTURE
- BS Boundst
- C Chalky
- CX Cryxln
- E Earthy
- FX Finexln
- GS Grainst
- L Lithogr
- MX Microxln
- MS Mudst
- PS Packst
- WS Wackest

OTHER SYMBOLS

POROSITY TYPE
- E Earthy
- Fenest
- F Fracture
- Inter
- Moldic
- Organic
- P Pinpoint
- V Vuggy

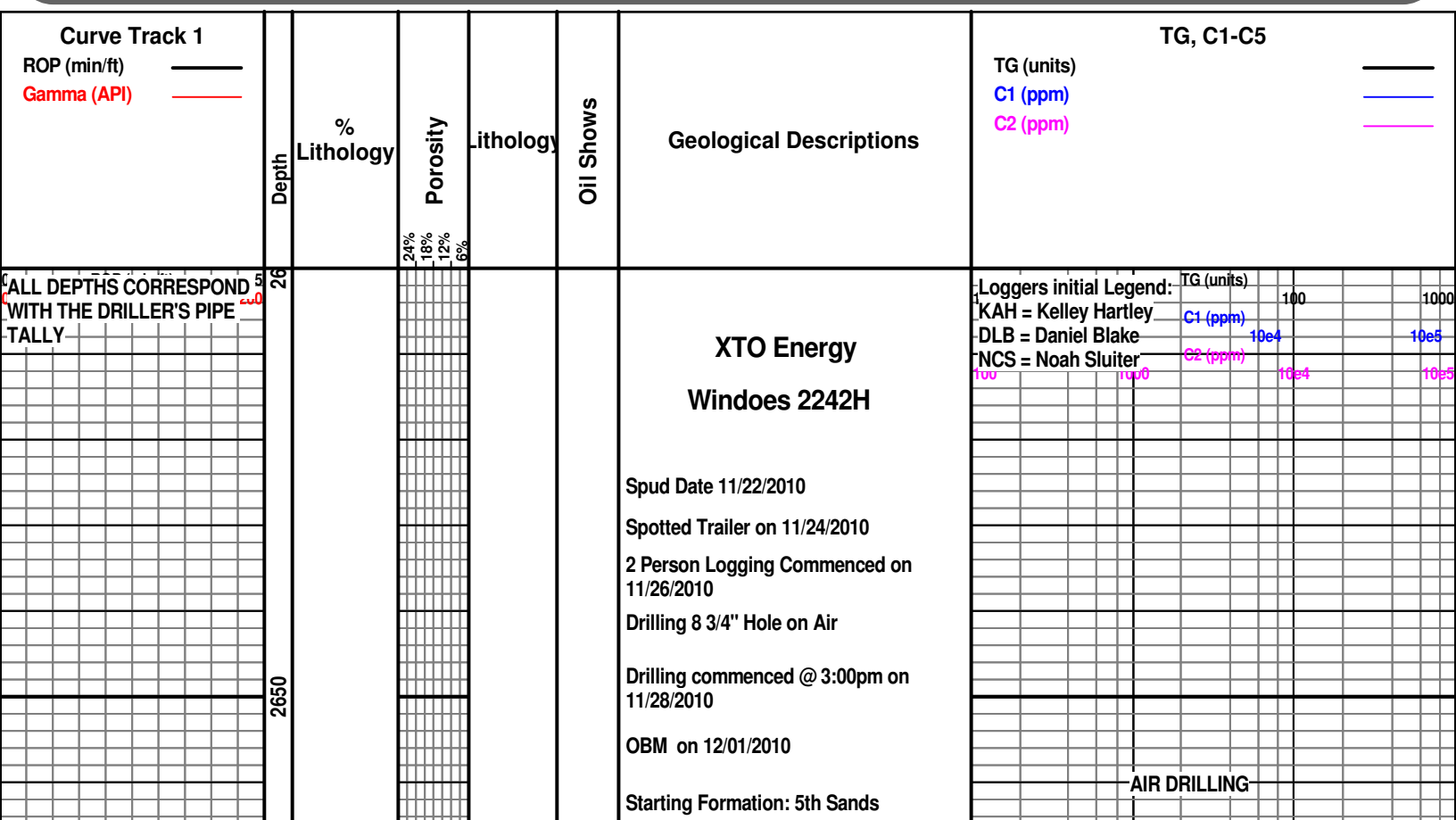
SORTING
- W Well
- M Moderate
- P Poor

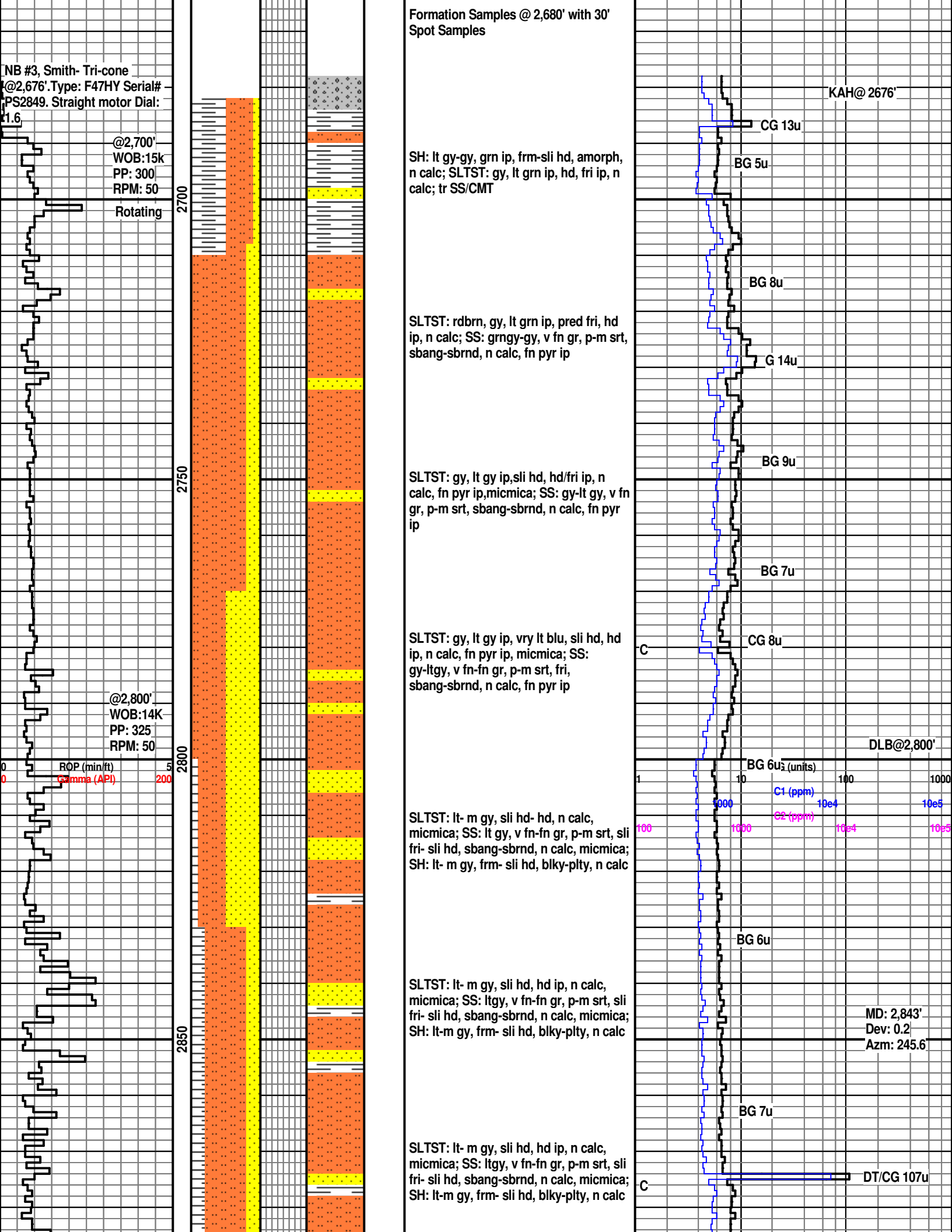
ROUNDING
- R Rounded
- r Subrnd
- a Subang
- A Angular

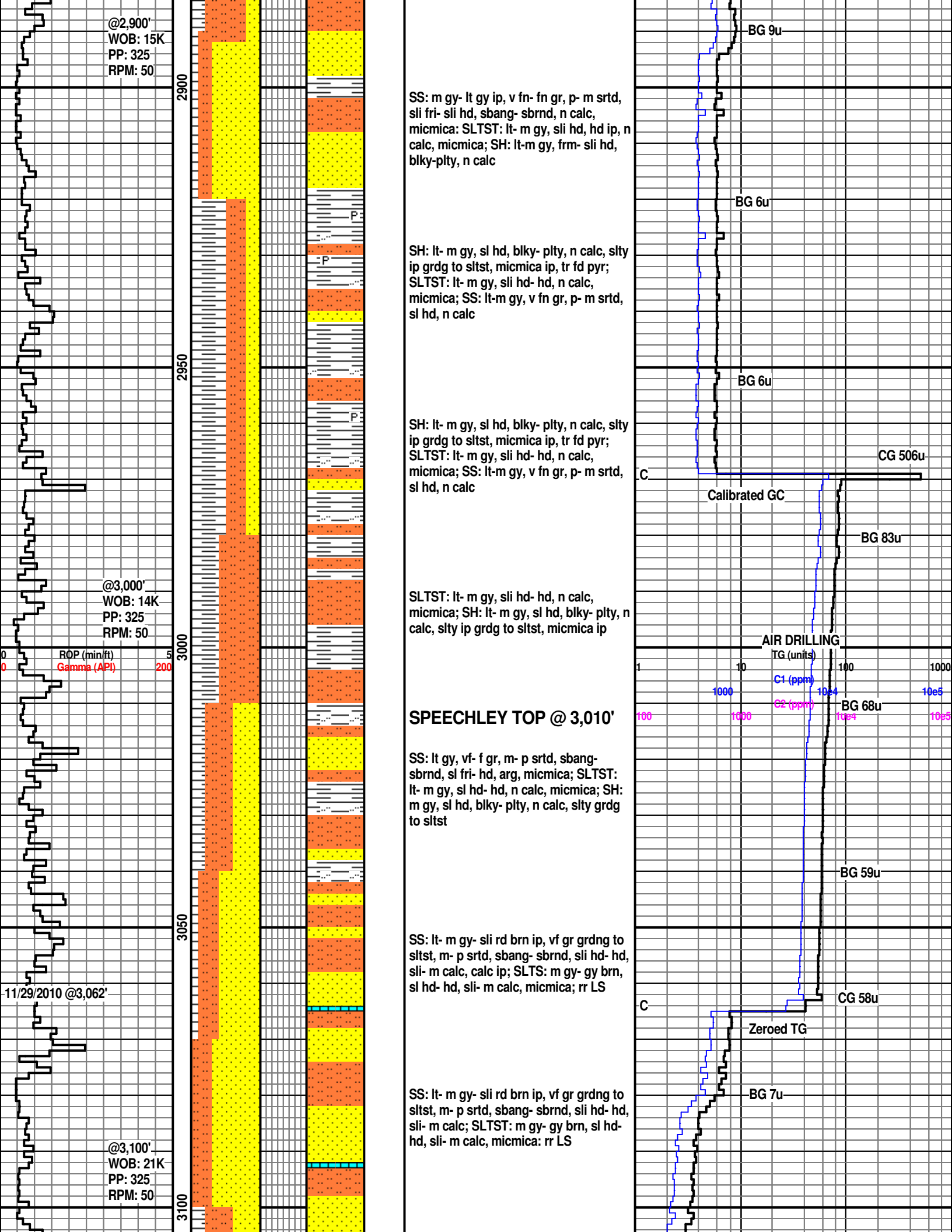
OIL SHOWS
- Even
- Spotted
- Ques
- D Dead
- Poor
- Fair
- Good
- Excelent
- Csgshoe

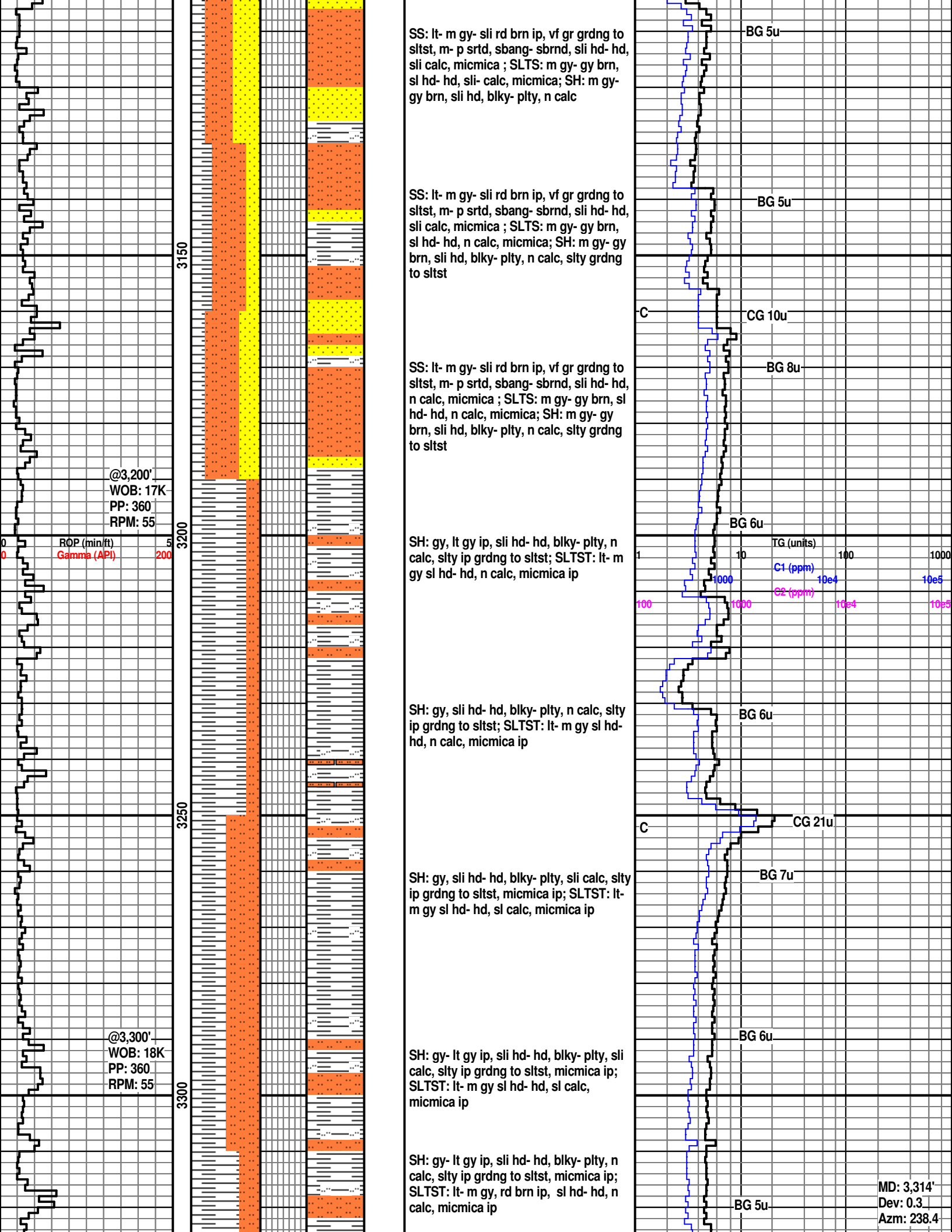
INTERVALS
- Core
- Dst

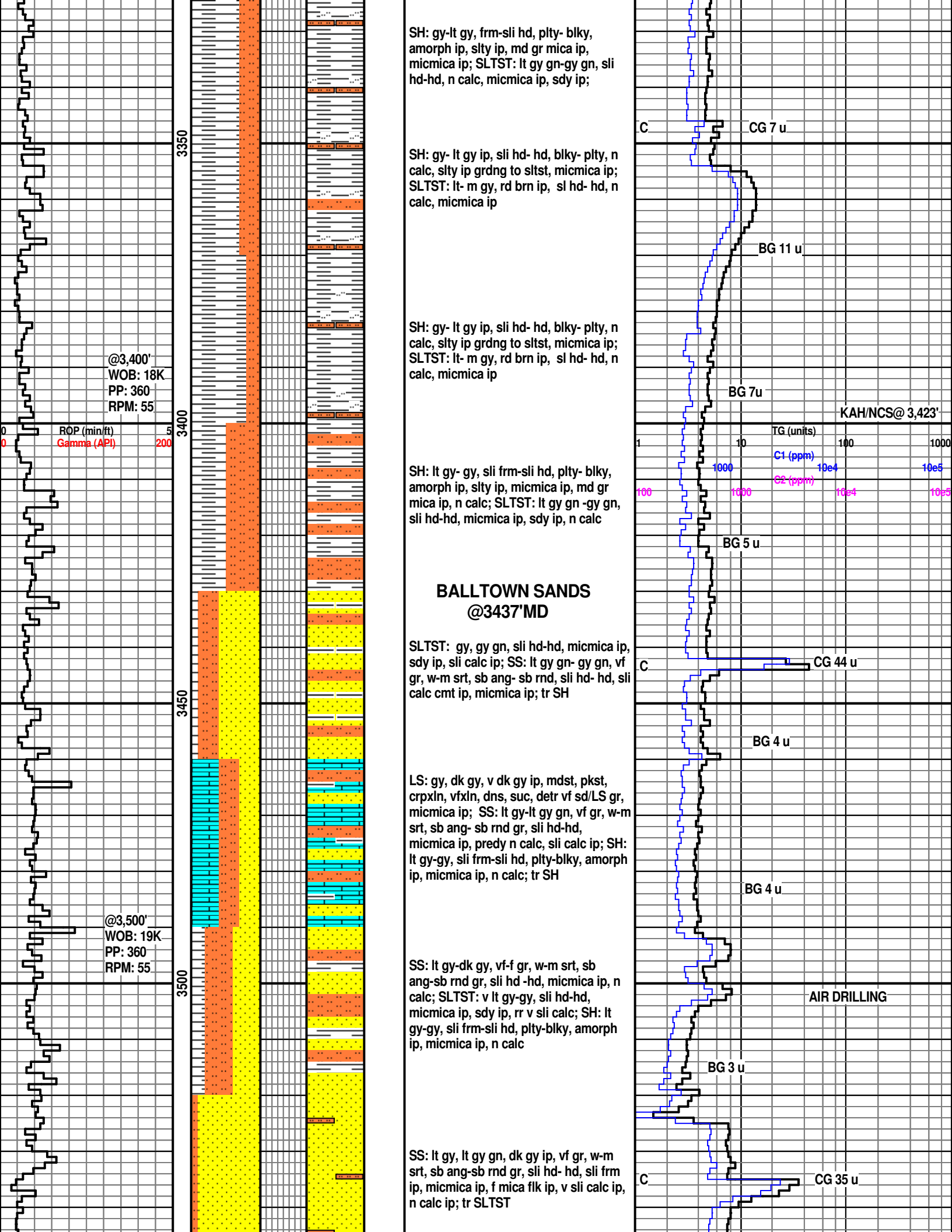
EVENTS
- Rft
- Sidewall

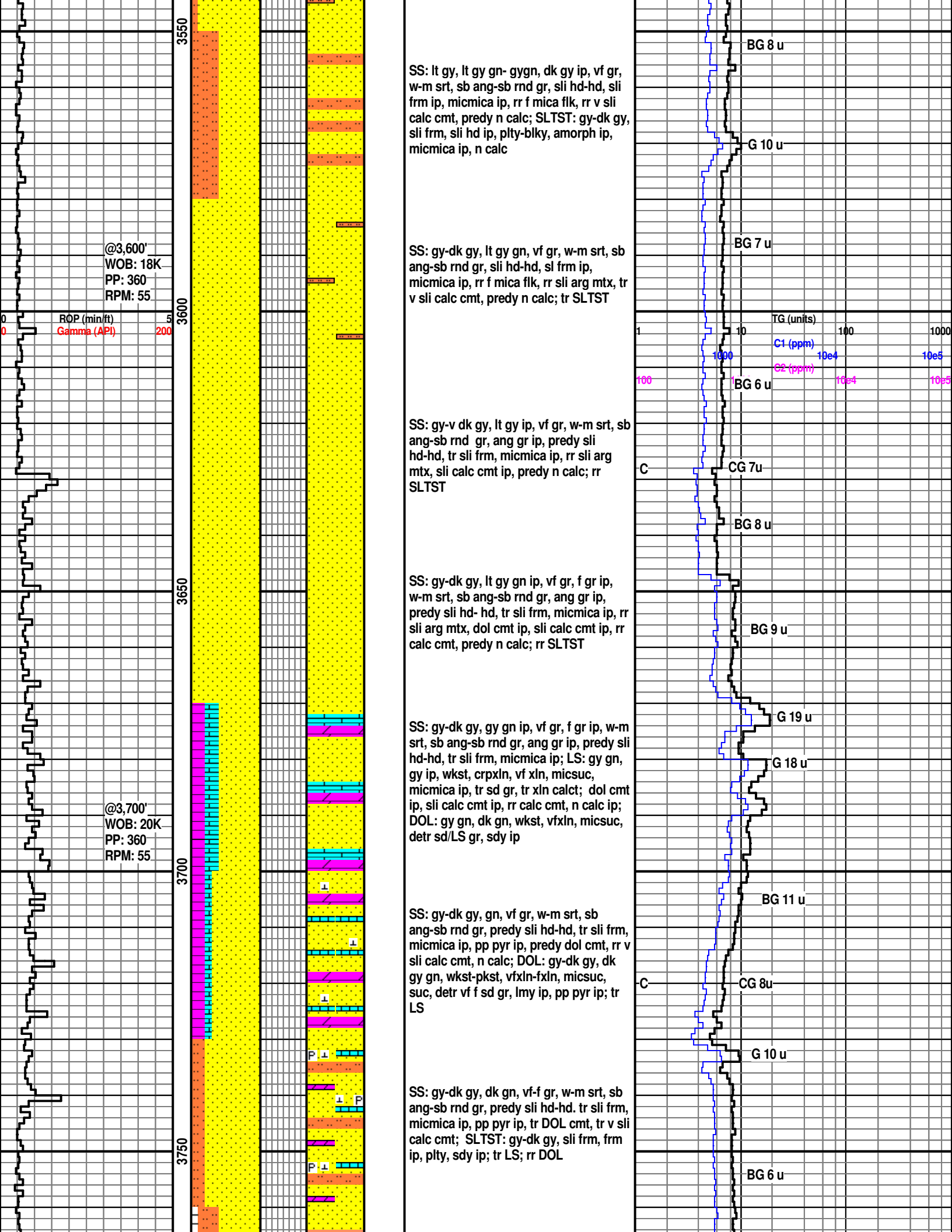


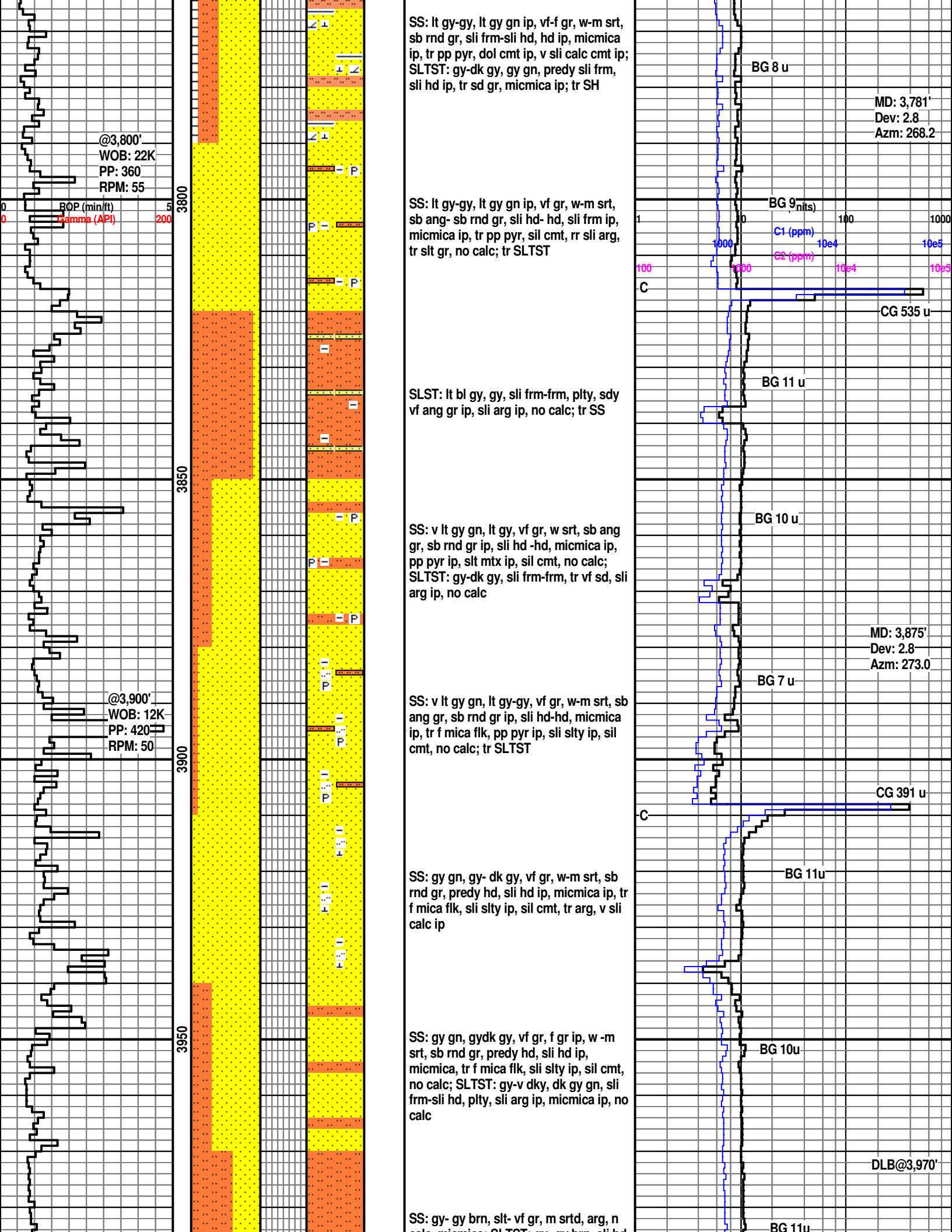

Formation Samples @ 2,680' with 30' Spot Samples
NB #3, Smith- Tri-cone @2,676'.Type: F47HY Serial# PS2849. Straight motor Dial: 1.6
@2,700'
WOB:15k
PP: 300
RPM: 50
Rotating
@2,800'
WOB:14K
PP: 325
RPM: 50
2700
2750
2800
2850
ROP (min/ft)
Gamma (API)
0
5
0
200
KAH@ 2676'
CG 13u
BG 5u
BG 8u
G 14u
BG 9u
BG 7u
CG 8u
DLB@2,800'
BG 6u
BG 6u
BG 7u
DT/CG 107u
C
C
(units)
1
10
100
1000
C1 (ppm)
1000
10e4
10e5
C2 (ppm)
100
1000
10e4
10e5
SH: lt gy-gy, grn ip, frm-sli hd, amorph, n calc; SLTST: gy, lt grn ip, hd, fri ip, n calc; tr SS/CMT
SLTST: rdbrn, gy, lt grn ip, pred fri, hd ip, n calc; SS: grngy-gy, v fn gr, p-m srt, sbang-sbrnd, n calc, fn pyr ip
SLTST: gy, lt gy ip,sli hd, hd/fri ip, n calc, fn pyr ip,micmica; SS: gy-lt gy, v fn gr, p-m srt, sbang-sbrnd, n calc, fn pyr ip
SLTST: gy, lt gy ip, vry lt blu, sli hd, hd ip, n calc, fn pyr ip, micmica; SS: gy-ltgy, v fn-fn gr, p-m srt, fri, sbang-sbrnd, n calc, fn pyr ip
SLTST: lt- m gy, sli hd- hd, n calc, micmica; SS: lt gy, v fn-fn gr, p-m srt, sli fri- sli hd, sbang-sbrnd, n calc, micmica; SH: lt- m gy, frm- sli hd, blky-plty, n calc
SLTST: lt- m gy, sli hd, hd ip, n calc, micmica; SS: ltgy, v fn-fn gr, p-m srt, sli fri- sli hd, sbang-sbrnd, n calc, micmica; SH: lt-m gy, frm- sli hd, blky-plty, n calc
SLTST: lt- m gy, sli hd, hd ip, n calc, micmica; SS: ltgy, v fn-fn gr, p-m srt, sli fri- sli hd, sbang-sbrnd, n calc, micmica; SH: lt-m gy, frm- sli hd, blky-plty, n calc
MD: 2,843'
Dev: 0.2
Azm: 245.6


@2,900'
WOB: 15K
PP: 325
RPM: 50
2900
SS: m gy- lt gy ip, v fn- fn gr, p- m srtd, sli fri- sli hd, sbang- sbrnd, n calc, micmica: SLTST: lt- m gy, sli hd, hd ip, n calc, micmica; SH: lt-m gy, frm- sli hd, blky-plty, n calc
BG 9u
BG 6u
P
P
SH: lt- m gy, sl hd, blky- plty, n calc, slty ip grdg to sltst, micmica ip, tr fd pyr; SLTST: lt- m gy, sli hd- hd, n calc, micmica; SS: lt-m gy, v fn gr, p- m srtd, sl hd, n calc
2950
BG 6u
P
SH: lt- m gy, sl hd, blky- plty, n calc, slty ip grdg to sltst, micmica ip, tr fd pyr; SLTST: lt- m gy, sli hd- hd, n calc, micmica; SS: lt-m gy, v fn gr, p- m srtd, sl hd, n calc
CG 506u
C
Calibrated GC
BG 83u
@3,000'
WOB: 14K
PP: 325
RPM: 50
SLTST: lt- m gy, sli hd- hd, n calc, micmica; SH: lt- m gy, sl hd, blky- plty, n calc, slty ip grdg to sltst, micmica ip
3000
AIR DRILLING
TG (units)
1
10
100
1000
C1 (ppm)
1000
10e4
10e5
C2 (ppm)
100
1000
10e4
10e5
BG 68u
ROP (min/ft)
0
5
Gamma (API)
0
200
SPEECHLEY TOP @ 3,010'
SS: lt gy, vf- f gr, m- p srtd, sbang- sbrnd, sl fri- hd, arg, micmica; SLTST: lt- m gy, sl hd- hd, n calc, micmica; SH: m gy, sl hd, blky- plty, n calc, slty grdg to sltst
BG 59u
3050
SS: lt- m gy- sli rd brn ip, vf gr grdng to sltst, m- p srtd, sbang- sbrnd, sli hd- hd, sli- m calc, calc ip; SLTS: m gy- gy brn, sl hd- hd, sli- m calc, micmica; rr LS
11/29/2010 @3,062'
CG 58u
C
Zeroed TG
SS: lt- m gy- sli rd brn ip, vf gr grdng to sltst, m- p srtd, sbang- sbrnd, sli hd- hd, sli- m calc; SLTST: m gy- gy brn, sl hd- hd, sli- m calc, micmica: rr LS
BG 7u
@3,100'
WOB: 21K
PP: 325
RPM: 50
3100


3150
3200
3250
3300
@3,200'
WOB: 17K
PP: 360
RPM: 55
@3,300'
WOB: 18K
PP: 360
RPM: 55
0
ROP (min/ft)
5
0
Gamma (API)
200
SS: lt- m gy- sli rd brn ip, vf gr grdng to sltst, m- p srtd, sbang- sbrnd, sli hd- hd, sli calc, micmica ; SLTS: m gy- gy brn, sl hd- hd, sli- calc, micmica; SH: m gy- gy brn, sli hd, blky- plty, n calc
SS: lt- m gy- sli rd brn ip, vf gr grdng to sltst, m- p srtd, sbang- sbrnd, sli hd- hd, sli calc, micmica ; SLTS: m gy- gy brn, sl hd- hd, n calc, micmica; SH: m gy- gy brn, sli hd, blky- plty, n calc, slty grdng to sltst
SS: lt- m gy- sli rd brn ip, vf gr grdng to sltst, m- p srtd, sbang- sbrnd, sli hd- hd, n calc, micmica ; SLTS: m gy- gy brn, sl hd- hd, n calc, micmica; SH: m gy- gy brn, sli hd, blky- plty, n calc, slty grdng to sltst
SH: gy, lt gy ip, sli hd- hd, blky- plty, n calc, slty ip grdng to sltst; SLTST: lt- m gy sl hd- hd, n calc, micmica ip
SH: gy, sli hd- hd, blky- plty, n calc, slty ip grdng to sltst; SLTST: lt- m gy sl hd- hd, n calc, micmica ip
SH: gy, sli hd- hd, blky- plty, sli calc, slty ip grdng to sltst, micmica ip; SLTST: lt- m gy sl hd- hd, sl calc, micmica ip
SH: gy- lt gy ip, sli hd- hd, blky- plty, sli calc, slty ip grdng to sltst, micmica ip; SLTST: lt- m gy sl hd- hd, sl calc, micmica ip
SH: gy- lt gy ip, sli hd- hd, blky- plty, n calc, slty ip grdng to sltst, micmica ip; SLTST: lt- m gy, rd brn ip, sl hd- hd, n calc, micmica ip
BG 5u
BG 5u
C
CG 10u
BG 8u
BG 6u
TG (units)
1
10
100
1000
C1 (ppm)
1000
10e4
10e5
C2 (ppm)
100
1000
10e4
10e5
BG 6u
C
CG 21u
BG 7u
BG 6u
BG 5u
MD: 3,314'
Dev: 0.3
Azm: 238.4


3350
3400
3450
3500
@3,400'
WOB: 18K
PP: 360
RPM: 55
@3,500'
WOB: 19K
PP: 360
RPM: 55
0
ROP (min/ft)
5
0
Gamma (API)
200
SH: gy-lt gy, frm-sli hd, plty- blky, amorph ip, slty ip, md gr mica ip, micmica ip; SLTST: lt gy gn-gy gn, sli hd-hd, n calc, micmica ip, sdy ip;
C
CG 7 u
SH: gy- lt gy ip, sli hd- hd, blky- plty, n calc, slty ip grdng to sltst, micmica ip; SLTST: lt- m gy, rd brn ip, sl hd- hd, n calc, micmica ip
BG 11 u
SH: gy- lt gy ip, sli hd- hd, blky- plty, n calc, slty ip grdng to sltst, micmica ip; SLTST: lt- m gy, rd brn ip, sl hd- hd, n calc, micmica ip
BG 7u
KAH/NCS@ 3,423'
TG (units)
1
10
100
1000
C1 (ppm)
1000
10e4
10e5
C2 (ppm)
100
1000
10e4
10e5
SH: lt gy- gy, sli frm-sli hd, plty- blky, amorph ip, slty ip, micmica ip, md gr mica ip, n calc; SLTST: lt gy gn -gy gn, sli hd-hd, micmica ip, sdy ip, n calc
BG 5 u
BALLTOWN SANDS
@3437'MD
SLTST: gy, gy gn, sli hd-hd, micmica ip, sdy ip, sli calc ip; SS: lt gy gn- gy gn, vf gr, w-m srt, sb ang- sb rnd, sli hd- hd, sli calc cmt ip, micmica ip; tr SH
C
CG 44 u
BG 4 u
LS: gy, dk gy, v dk gy ip, mdst, pkst, crpxln, vfxln, dns, suc, detr vf sd/LS gr, micmica ip; SS: lt gy-lt gy gn, vf gr, w-m srt, sb ang- sb rnd gr, sli hd-hd, micmica ip, predy n calc, sli calc ip; SH: lt gy-gy, sli frm-sli hd, plty-blky, amorph ip, micmica ip, n calc; tr SH
BG 4 u
SS: lt gy-dk gy, vf-f gr, w-m srt, sb ang-sb rnd gr, sli hd -hd, micmica ip, n calc; SLTST: v lt gy-gy, sli hd-hd, micmica ip, sdy ip, rr v sli calc; SH: lt gy-gy, sli frm-sli hd, plty-blky, amorph ip, micmica ip, n calc
AIR DRILLING
BG 3 u
SS: lt gy, lt gy gn, dk gy ip, vf gr, w-m srt, sb ang-sb rnd gr, sli hd- hd, sli frm ip, micmica ip, f mica flk ip, v sli calc ip, n calc ip; tr SLTST
C
CG 35 u


3550
3600
3650
3700
3750
@3,600'
WOB: 18K
PP: 360
RPM: 55
ROP (min/ft)
Gamma (API)
0
5
0
200
@3,700'
WOB: 20K
PP: 360
RPM: 55
SS: lt gy, lt gy gn- gygn, dk gy ip, vf gr, w-m srt, sb ang-sb rnd gr, sli hd-hd, sli frm ip, micmica ip, rr f mica flk, rr v sli calc cmt, predy n calc; SLTST: gy-dk gy, sli frm, sli hd ip, plty-blky, amorph ip, micmica ip, n calc
SS: gy-dk gy, lt gy gn, vf gr, w-m srt, sb ang-sb rnd gr, sli hd-hd, sl frm ip, micmica ip, rr f mica flk, rr sli arg mtx, tr v sli calc cmt, predy n calc; tr SLTST
SS: gy-v dk gy, lt gy ip, vf gr, w-m srt, sb ang-sb rnd gr, ang gr ip, predy sli hd-hd, tr sli frm, micmica ip, rr sli arg mtx, sli calc cmt ip, predy n calc; rr SLTST
SS: gy-dk gy, lt gy gn ip, vf gr, f gr ip, w-m srt, sb ang-sb rnd gr, ang gr ip, predy sli hd- hd, tr sli frm, micmica ip, rr sli arg mtx, dol cmt ip, sli calc cmt ip, rr calc cmt, predy n calc; rr SLTST
SS: gy-dk gy, gy gn ip, vf gr, f gr ip, w-m srt, sb ang-sb rnd gr, ang gr ip, predy sli hd-hd, tr sli frm, micmica ip; LS: gy gn, gy ip, wkst, crpxln, vf xln, micsuc, micmica ip, tr sd gr, tr xln calct; dol cmt ip, sli calc cmt ip, rr calc cmt, n calc ip; DOL: gy gn, dk gn, wkst, vfxln, micsuc, detr sd/LS gr, sdy ip
SS: gy-dk gy, gn, vf gr, w-m srt, sb ang-sb rnd gr, predy sli hd-hd, tr sli frm, micmica ip, pp pyr ip, predy dol cmt, rr v sli calc cmt, n calc; DOL: gy-dk gy, dk gy gn, wkst-pkst, vfxln-fxln, micsuc, suc, detr vf f sd gr, lmy ip, pp pyr ip; tr LS
SS: gy-dk gy, dk gn, vf-f gr, w-m srt, sb ang-sb rnd gr, predy sli hd-hd. tr sli frm, micmica ip, pp pyr ip, tr DOL cmt, tr v sli calc cmt; SLTST: gy-dk gy, sli frm, frm ip, plty, sdy ip; tr LS; rr DOL
BG 8 u
G 10 u
BG 7 u
TG (units)
1
10
100
1000
C1 (ppm)
1000
10e4
10e5
C2 (ppm)
100
10e4
10e5
BG 6 u
C
CG 7u
BG 8 u
BG 9 u
G 19 u
G 18 u
BG 11 u
C
CG 8u
G 10 u
BG 6 u


@3,800'
WOB: 22K
PP: 360
RPM: 55
0
ROP (min/ft)
5
0
Gamma (API)
200
3800
3850
3900
3950
@3,900'
WOB: 12K
PP: 420
RPM: 50
SS: lt gy-gy, lt gy gn ip, vf-f gr, w-m srt, sb rnd gr, sli frm-sli hd, hd ip, micmica ip, tr pp pyr, dol cmt ip, v sli calc cmt ip; SLTST: gy-dk gy, gy gn, predy sli frm, sli hd ip, tr sd gr, micmica ip; tr SH
BG 8 u
MD: 3,781'
Dev: 2.8
Azm: 268.2
SS: lt gy-gy, lt gy gn ip, vf gr, w-m srt, sb ang- sb rnd gr, sli hd- hd, sli frm ip, micmica ip, tr pp pyr, sil cmt, rr sli arg, tr slt gr, no calc; tr SLTST
BG 9 units
1
10
100
1000
C1 (ppm)
1000
10e4
10e5
C2 (ppm)
100
1000
10e4
10e5
C
CG 535 u
SLST: lt bl gy, gy, sli frm-frm, plty, sdy vf ang gr ip, sli arg ip, no calc; tr SS
BG 11 u
SS: v lt gy gn, lt gy, vf gr, w srt, sb ang gr, sb rnd gr ip, sli hd -hd, micmica ip, pp pyr ip, slt mtx ip, sil cmt, no calc; SLTST: gy-dk gy, sli frm-frm, tr vf sd, sli arg ip, no calc
BG 10 u
MD: 3,875'
Dev: 2.8
Azm: 273.0
BG 7 u
SS: v lt gy gn, lt gy-gy, vf gr, w-m srt, sb ang gr, sb rnd gr ip, sli hd-hd, micmica ip, tr f mica flk, pp pyr ip, sli slty ip, sil cmt, no calc; tr SLTST
CG 391 u
C
BG 11u
SS: gy gn, gy- dk gy, vf gr, w-m srt, sb rnd gr, predy hd, sli hd ip, micmica ip, tr f mica flk, sli slty ip, sil cmt, tr arg, v sli calc ip
SS: gy gn, gydk gy, vf gr, f gr ip, w -m srt, sb rnd gr, predy hd, sli hd ip, micmica, tr f mica flk, sli slty ip, sil cmt, no calc; SLTST: gy-v dky, dk gy gn, sli frm-sli hd, plty, sli arg ip, micmica ip, no calc
BG 10u
DLB@3,970'
SS: gy- gy brn, slt- vf gr, m srtd, arg, n
BG 11u

calc, micmica; SLTST: gy- gy brn, sli hd- hd, arg, n calc, micmica

BG 11u

@4,000'
WOB: 15K
PP: 350
RPM: 80

CG 66u

4000

0 ROP (min/ft) 5
0 Gamma (API) 200

AIR DRILLING

1 C 10 100 1000
C1 (ppm) 1000 10e4 10e5
C2 (ppm) 100 1000 10e4 10e5

SS: gy- gy brn, slt- vf gr, m srtd, arg, n calc, micmica; SLTST: gy- gy brn, sli hd- hd, arg, n calc, micmica; SH: gy- gy brn, sli hd- hd, blky- plty, n calc, slty grdg to sltst

BG 9u

SS: gy- gy brn, slt- vf gr, m srtd, arg, n calc, micmica; SLTST: gy- gy brn, sli hd- hd, arg, n calc, micmica; SH: gy- gy brn, sli hd- hd, blky- plty, n calc, slty grdg to sltst

4050

BG 8u

MD: 4,065'
Dev: 3.2
Azm: 262.7

SS: gy- gy brn, slt- vf gr, m srtd, arg, n calc, micmica; SLTST: gy- gy brn, sli hd- hd, arg, n calc, micmica; SH: gy- gy brn, sli hd- hd, blky- plty, n calc, slty grdg to sltst

BG 10u

@4,100'
WOB: 4K
PP: 350
RPM: 80

DT/CG 535u

C

4100

SLTST: gy- gy brn, sli hd- hd, arg, n calc, micmica; SH: gy- gy brn, sli hd- hd, blky- plty, n calc, slty grdg to sltst

BG 28u

SH: lt- m gy- gy brn, sli hd- hd, blky- plty, n calc, slty ip grdng to sltst; SLTST: lt- m gy- gy brn, sl hd- hd, n calc

4150

BG 11u

SLTST: grdtnl w/ vf ss ip, gy- gy brn, sli rd ip, sli hd- hd, arg, n calc, micmica; SH: gy- gy brn, sli hd- hd, blky- plty, n calc, slty grdg to sltst

BG 9u

CG 65u

C

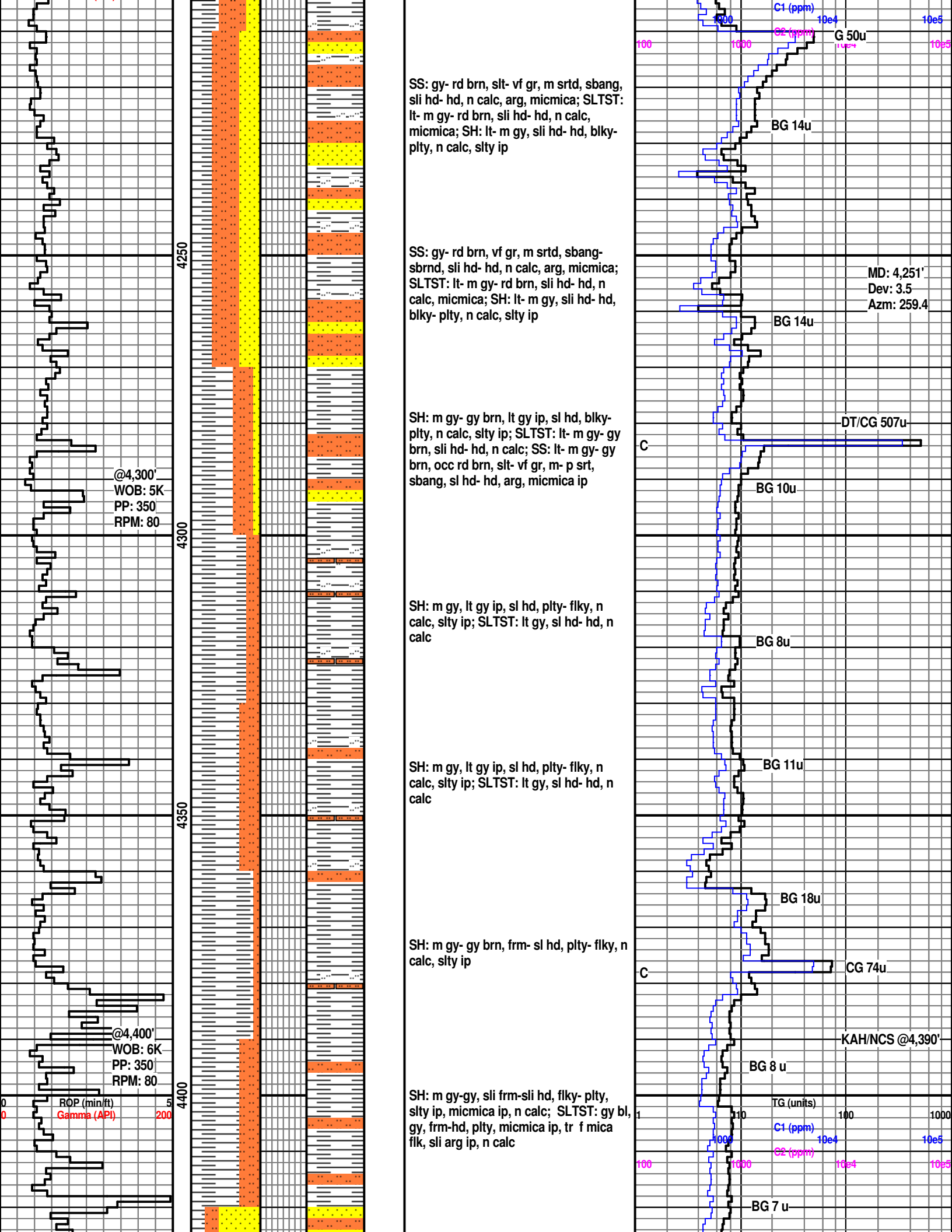
@4,200'
WOB: 8K
PP: 350
RPM: 80

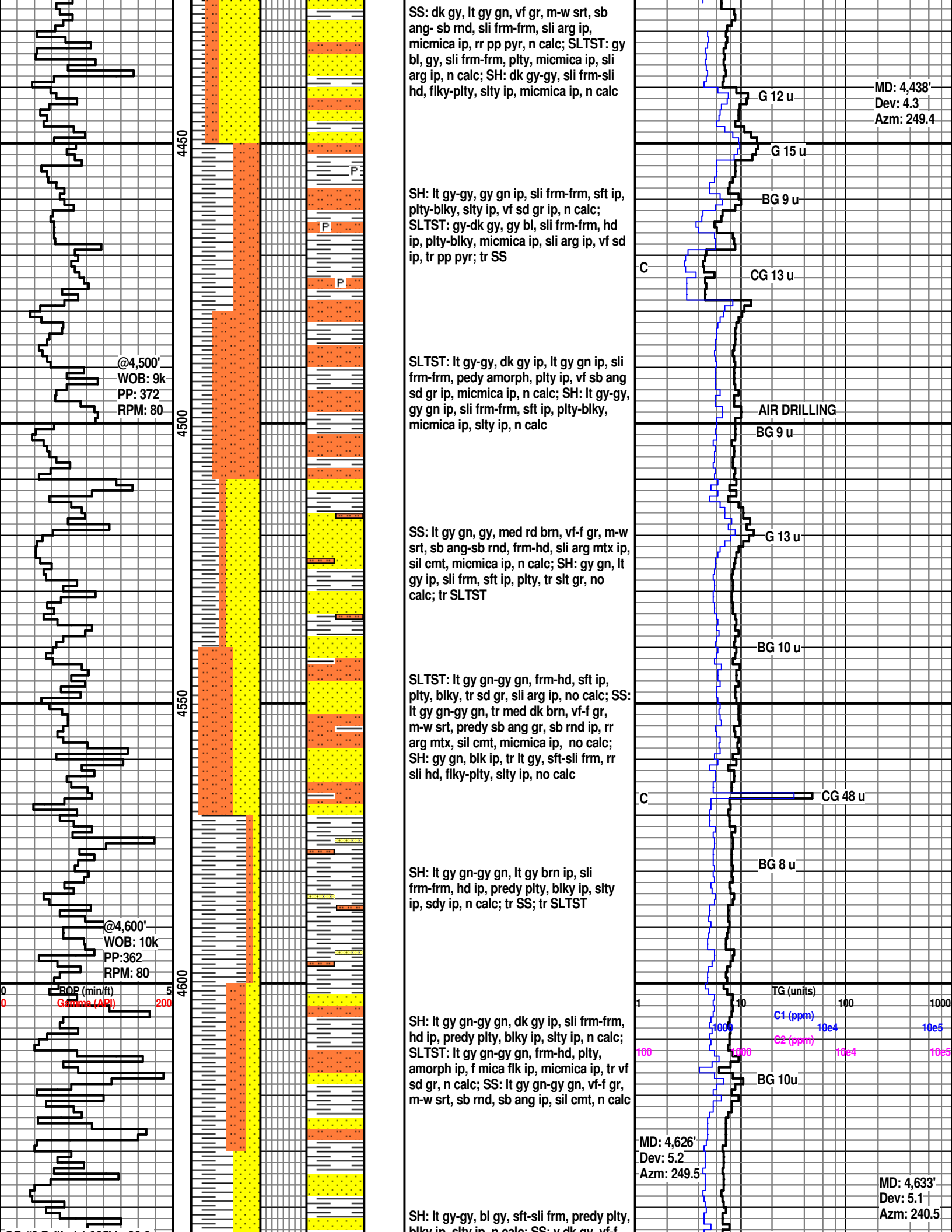
SS: gy- rd brn, slt- vf gr, m srtd, sbang, sli hd- hd, n calc, arg, micmica; SLTST: lt- m gy- rd brn, sli hd- hd, n calc, micmica; SH: lt- m gy, sli hd- hd, blky- plty, n calc, slty ip

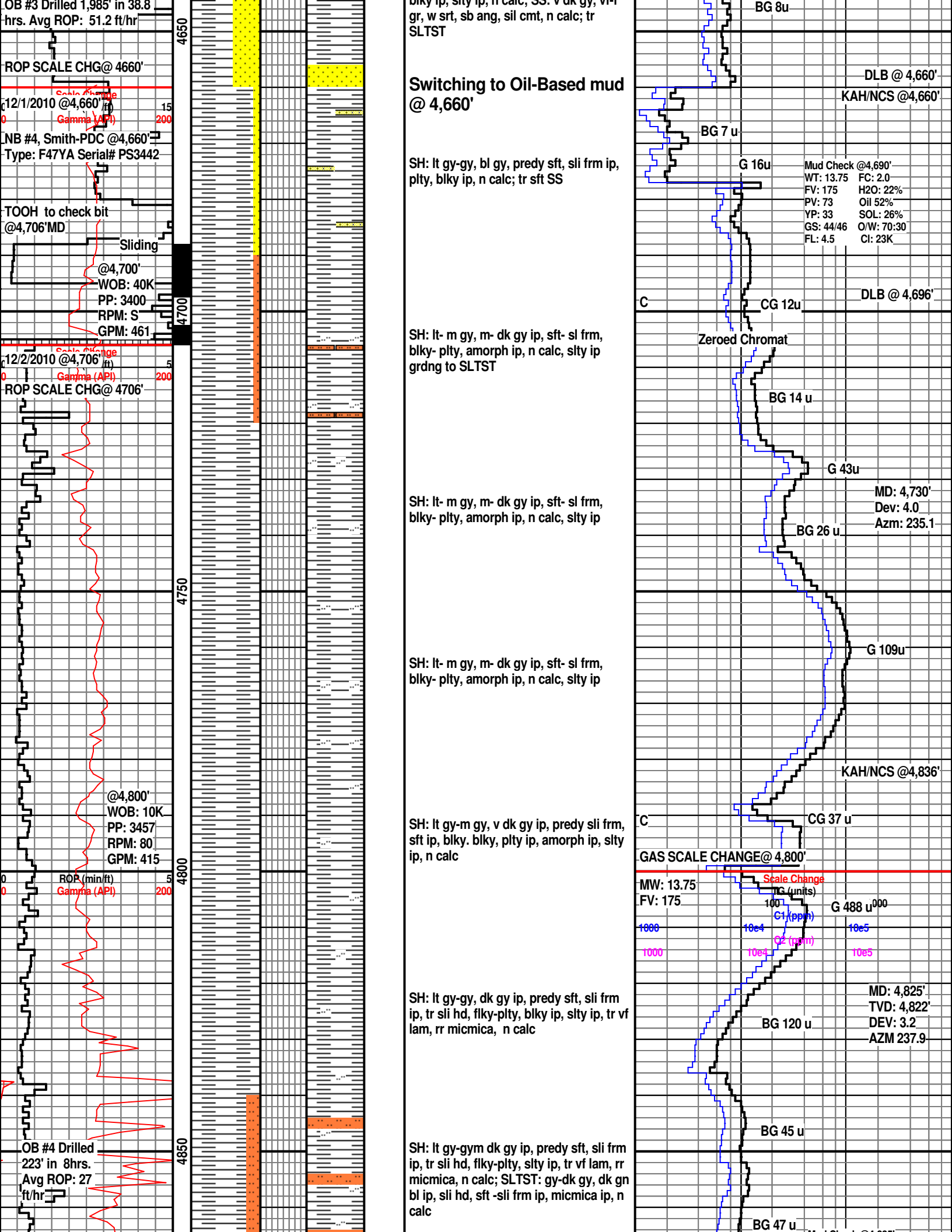
4200

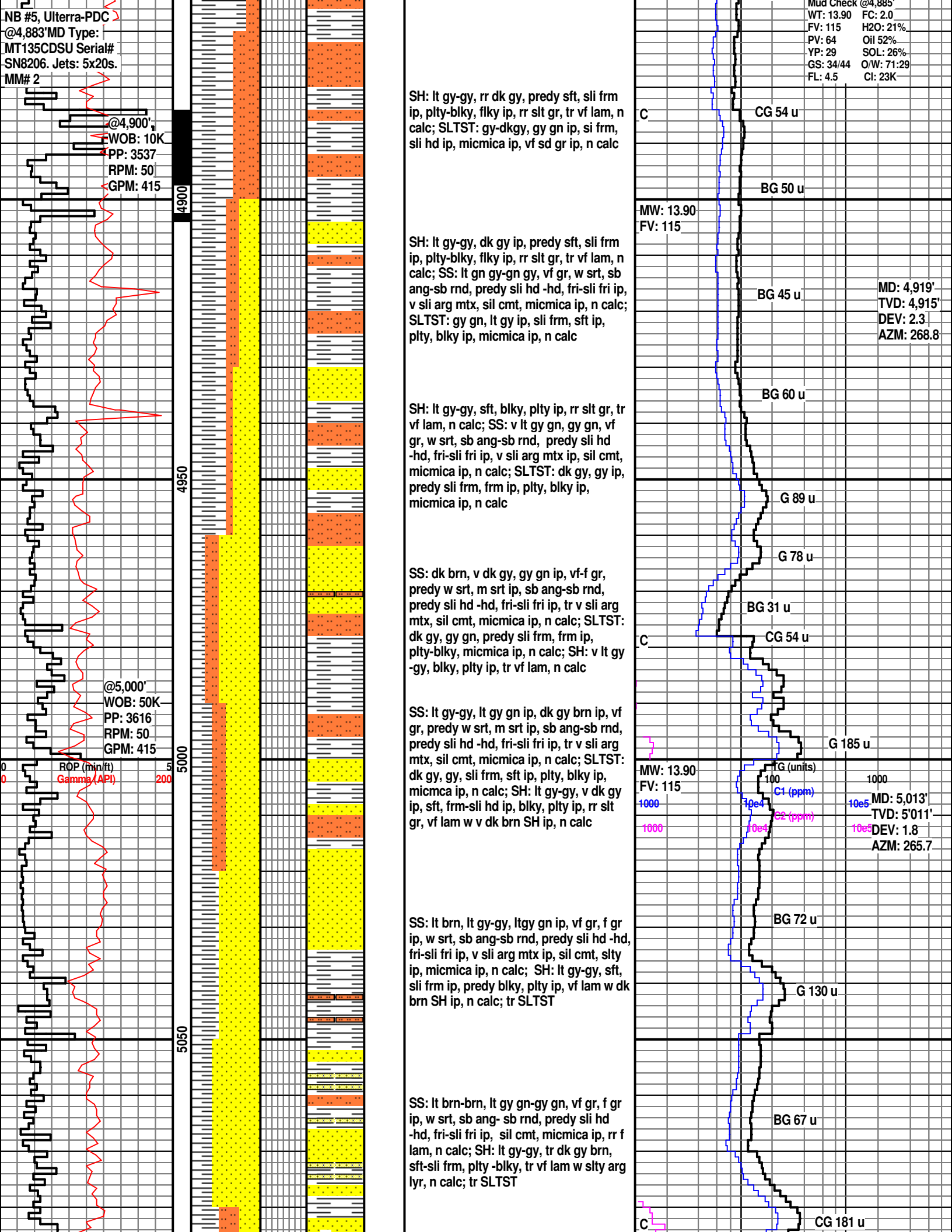
0 ROP (min/ft) 5
11/30/2010 @4,201' 200

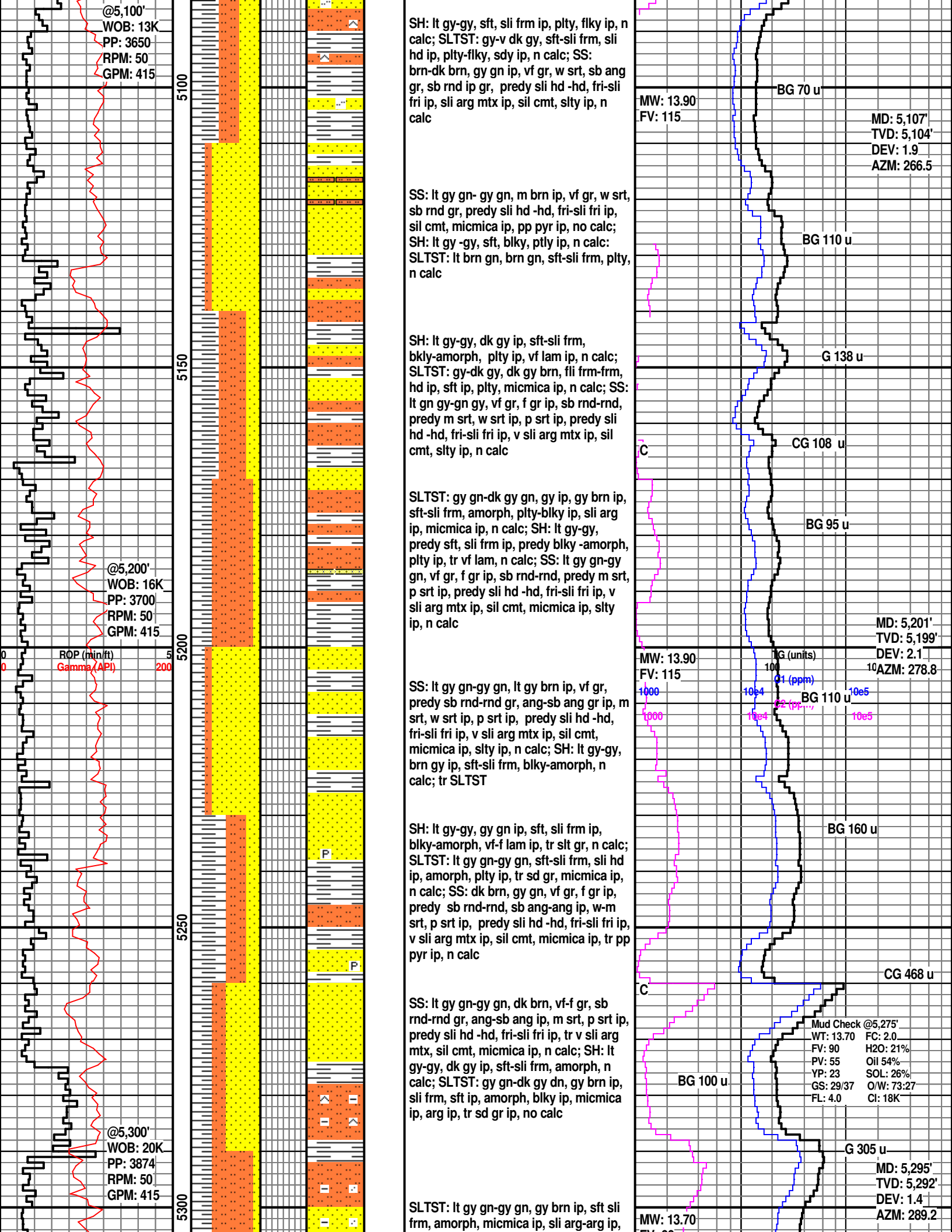
TG (units)
1 10 100 1000

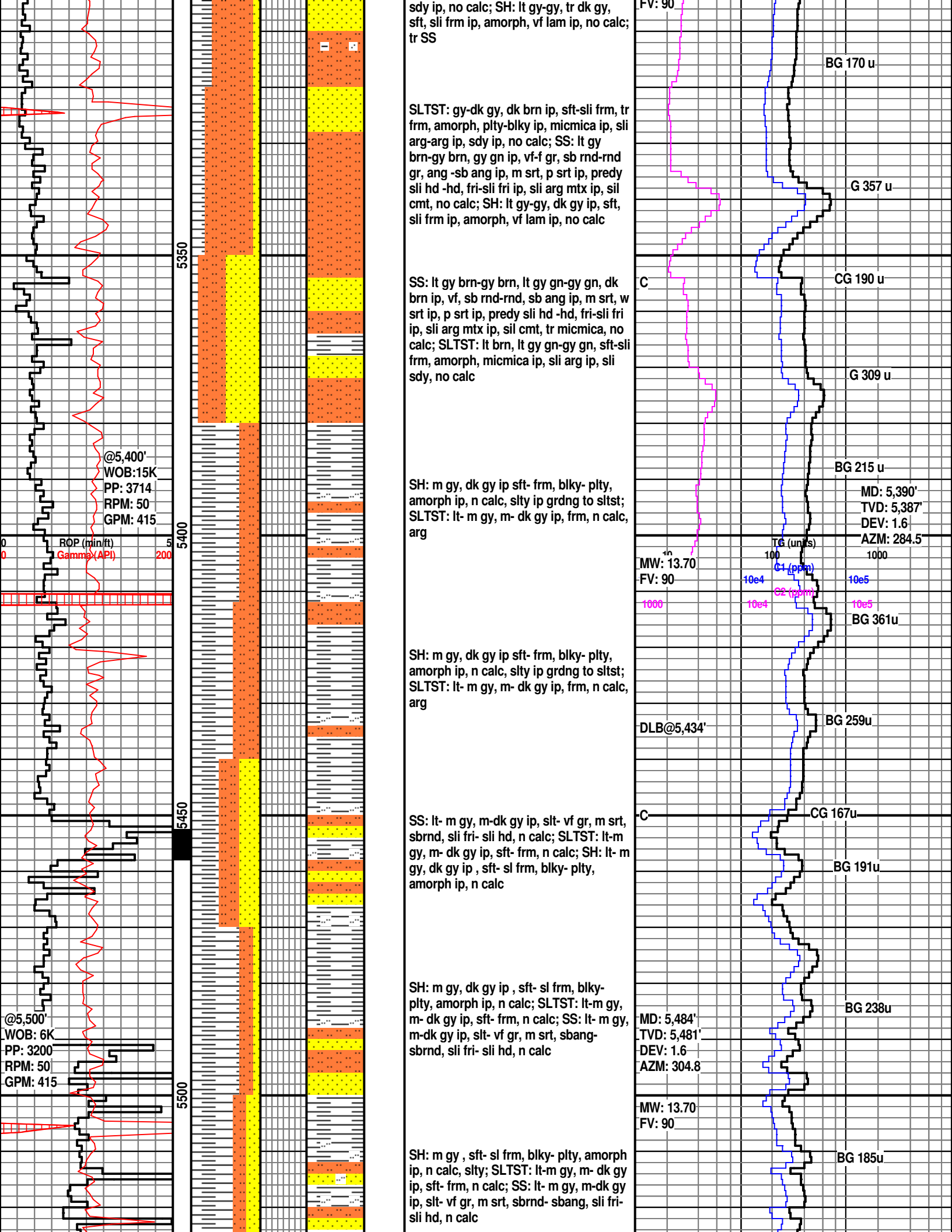

4250
4300
4350
4400
@4,300'
WOB: 5K
PP: 350
RPM: 80
@4,400'
WOB: 6K
PP: 350
RPM: 80
ROP (min/ft)
Gamma (API)
SS: gy- rd brn, slt- vf gr, m srtd, sbang, sli hd- hd, n calc, arg, micmica; SLTST: lt- m gy- rd brn, sli hd- hd, n calc, micmica; SH: lt- m gy, sli hd- hd, blky- plty, n calc, slty ip
SS: gy- rd brn, vf gr, m srtd, sbang- sbrnd, sli hd- hd, n calc, arg, micmica; SLTST: lt- m gy- rd brn, sli hd- hd, n calc, micmica; SH: lt- m gy, sli hd- hd, blky- plty, n calc, slty ip
SH: m gy- gy brn, lt gy ip, sl hd, blky- plty, n calc, slty ip; SLTST: lt- m gy- gy brn, sli hd- hd, n calc; SS: lt- m gy- gy brn, occ rd brn, slt- vf gr, m- p srt, sbang, sl hd- hd, arg, micmica ip
SH: m gy, lt gy ip, sl hd, plty- flky, n calc, slty ip; SLTST: lt gy, sl hd- hd, n calc
SH: m gy, lt gy ip, sl hd, plty- flky, n calc, slty ip; SLTST: lt gy, sl hd- hd, n calc
SH: m gy- gy brn, frm- sl hd, plty- flky, n calc, slty ip
SH: m gy-gy, sli frm-sli hd, flky- plty, slty ip, micmica ip, n calc; SLTST: gy bl, gy, frm-hd, plty, micmica ip, tr f mica flk, sli arg ip, n calc
C1 (ppm)
C2 (ppm)
G 50u
BG 14u
MD: 4,251'
Dev: 3.5
Azm: 259.4
BG 14u
DT/CG 507u
C
BG 10u
BG 8u
BG 11u
BG 18u
C
CG 74u
KAH/NCS @4,390'
BG 8 u
TG (units)
BG 7 u

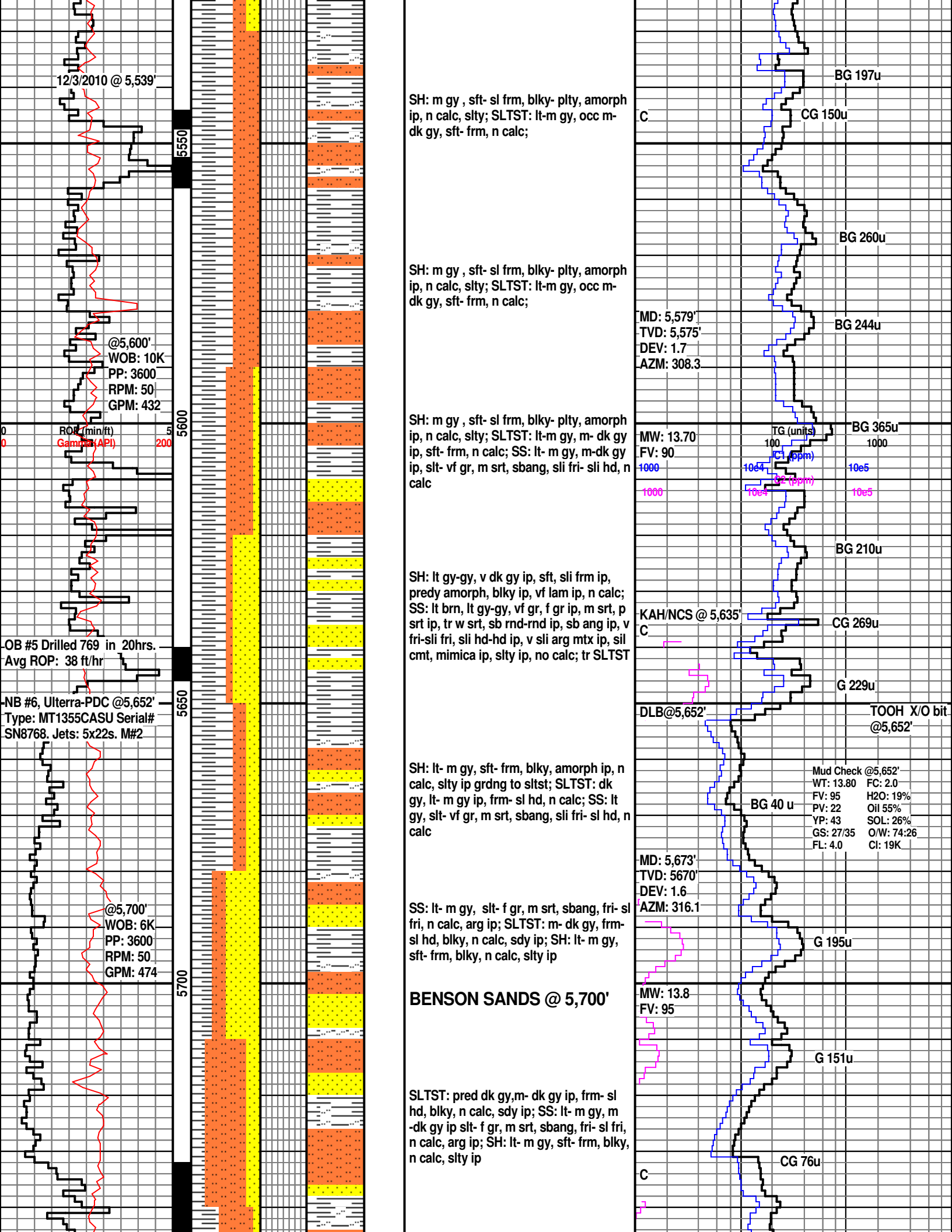

4450
4500
4550
4600
P
P
P
@4,500'
WOB: 9k
PP: 372
RPM: 80
@4,600'
WOB: 10k
PP:362
RPM: 80
0
ROP (min/ft)
5
0
Gamma (API)
200
SS: dk gy, lt gy gn, vf gr, m-w srt, sb ang- sb rnd, sli frm-frm, sli arg ip, micmica ip, rr pp pyr, n calc; SLTST: gy bl, gy, sli frm-frm, plty, micmica ip, sli arg ip, n calc; SH: dk gy-gy, sli frm-sli hd, flky-plty, slty ip, micmica ip, n calc
SH: lt gy-gy, gy gn ip, sli frm-frm, sft ip, plty-blky, slty ip, vf sd gr ip, n calc; SLTST: gy-dk gy, gy bl, sli frm-frm, hd ip, plty-blky, micmica ip, sli arg ip, vf sd ip, tr pp pyr; tr SS
SLTST: lt gy-gy, dk gy ip, lt gy gn ip, sli frm-frm, pedy amorph, plty ip, vf sb ang sd gr ip, micmica ip, n calc; SH: lt gy-gy, gy gn ip, sli frm-frm, sft ip, plty-blky, micmica ip, slty ip, n calc
SS: lt gy gn, gy, med rd brn, vf-f gr, m-w srt, sb ang-sb rnd, frm-hd, sli arg mtx ip, sil cmt, micmica ip, n calc; SH: gy gn, lt gy ip, sli frm, sft ip, plty, tr slt gr, no calc; tr SLTST
SLTST: lt gy gn-gy gn, frm-hd, sft ip, plty, blky, tr sd gr, sli arg ip, no calc; SS: lt gy gn-gy gn, tr med dk brn, vf-f gr, m-w srt, predy sb ang gr, sb rnd ip, rr arg mtx, sil cmt, micmica ip, no calc; SH: gy gn, blk ip, tr lt gy, sft-sli frm, rr sli hd, flky-plty, slty ip, no calc
SH: lt gy gn-gy gn, lt gy brn ip, sli frm-frm, hd ip, predy plty, blky ip, slty ip, sdy ip, n calc; tr SS; tr SLTST
SH: lt gy gn-gy gn, dk gy ip, sli frm-frm, hd ip, predy plty, blky ip, slty ip, n calc; SLTST: lt gy gn-gy gn, frm-hd, plty, amorph ip, f mica flk ip, micmica ip, tr vf sd gr, n calc; SS: lt gy gn-gy gn, vf-f gr, m-w srt, sb rnd, sb ang ip, sil cmt, n calc
SH: lt gy-gy, bl gy, sft-sli frm, predy plty,
G 12 u
MD: 4,438'
Dev: 4.3
Azm: 249.4
G 15 u
BG 9 u
C
CG 13 u
AIR DRILLING
BG 9 u
G 13 u
BG 10 u
C
CG 48 u
BG 8 u
TG (units)
1
10
100
1000
C1 (ppm)
1000
10e4
10e5
C2 (ppm)
100
1000
10e4
10e5
BG 10u
MD: 4,626'
Dev: 5.2
Azm: 249.5
MD: 4,633'
Dev: 5.1
Azm: 240.5

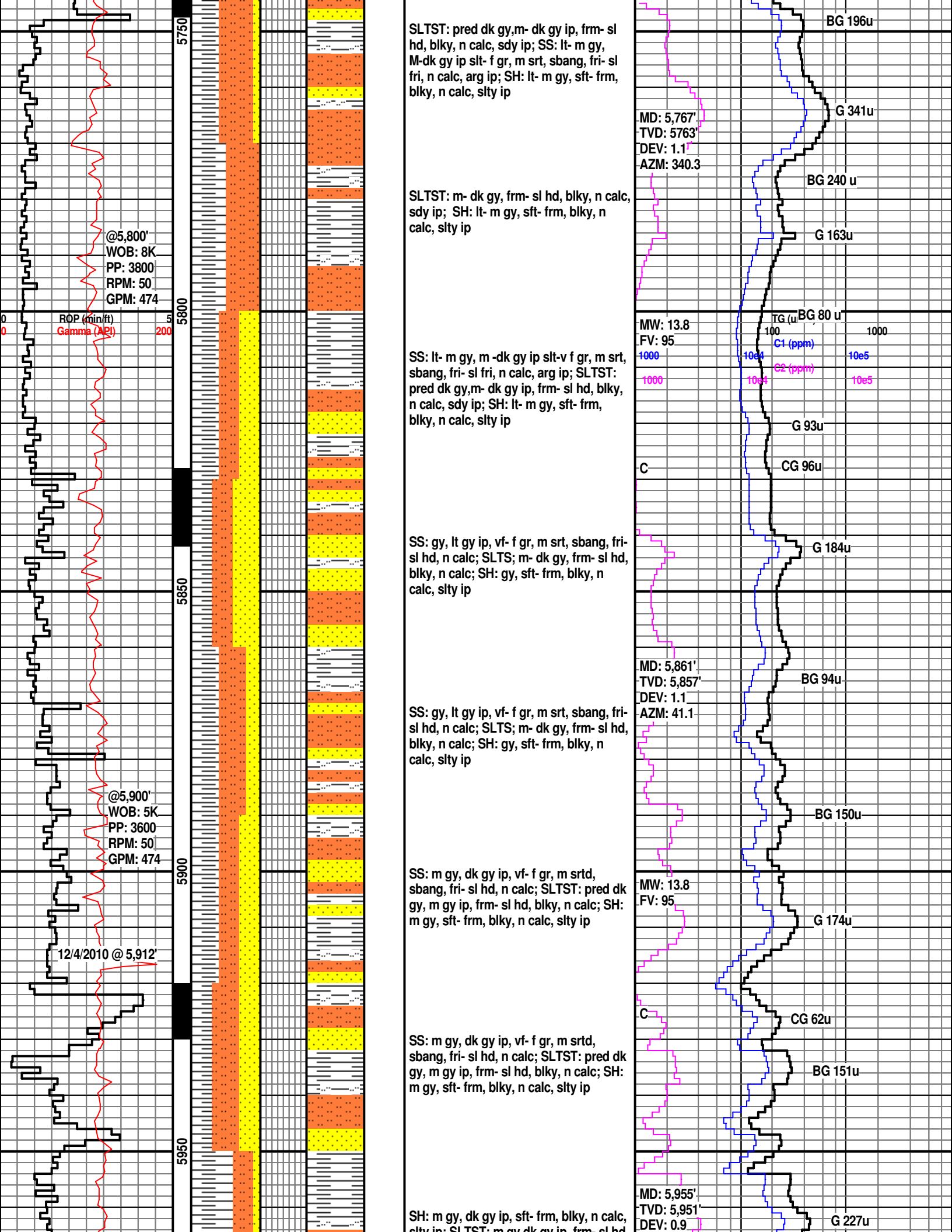

OB #3 Drilled 1,985' in 38.8 hrs. Avg ROP: 51.2 ft/hr
ROP SCALE CHG@ 4660'
12/1/2010 @4,660'
ROP (min/ft)
Gamma (API)
NB #4, Smith-PDC @4,660'
Type: F47YA Serial# PS3442
TOOH to check bit @4,706'MD
Sliding
@4,700'
WOB: 40K
PP: 3400
RPM: S
GPM: 461
12/2/2010 @4,706'
ROP SCALE CHG@ 4706'
@4,800'
WOB: 10K
PP: 3457
RPM: 80
GPM: 415
OB #4 Drilled 223' in 8hrs. Avg ROP: 27 ft/hr
4650
4700
4750
4800
4850
blky ip, slty ip, fi calc; SS: v dk gy, vf-f gr, w srt, sb ang, sil cmt, n calc; tr SLTST
Switching to Oil-Based mud @ 4,660'
SH: lt gy-gy, bl gy, predy sft, sli frm ip, plty, blky ip, n calc; tr sft SS
SH: lt- m gy, m- dk gy ip, sft- sl frm, blky- plty, amorph ip, n calc, slty ip grdng to SLTST
SH: lt- m gy, m- dk gy ip, sft- sl frm, blky- plty, amorph ip, n calc, slty ip
SH: lt- m gy, m- dk gy ip, sft- sl frm, blky- plty, amorph ip, n calc, slty ip
SH: lt gy-m gy, v dk gy ip, predy sli frm, sft ip, blky. blky, plty ip, amorph ip, slty ip, n calc
SH: lt gy-gy, dk gy ip, predy sft, sli frm ip, tr sli hd, flky-plty, blky ip, slty ip, tr vf lam, rr micmica, n calc
SH: lt gy-gym dk gy ip, predy sft, sli frm ip, tr sli hd, flky-plty, slty ip, tr vf lam, rr micmica, n calc; SLTST: gy-dk gy, dk gn bl ip, sli hd, sft -sli frm ip, micmica ip, n calc
BG 8u
DLB @ 4,660'
KAH/NCS @4,660'
BG 7 u
G 16u
Mud Check @4,690'
WT: 13.75 FC: 2.0
FV: 175 H2O: 22%
PV: 73 Oil 52%
YP: 33 SOL: 26%
GS: 44/46 O/W: 70:30
FL: 4.5 CI: 23K
C
CG 12u
DLB @ 4,696'
Zeroed Chromat
BG 14 u
G 43u
MD: 4,730'
Dev: 4.0
Azm: 235.1
BG 26 u
G 109u
KAH/NCS @4,836'
C
CG 37 u
GAS SCALE CHANGE@ 4,800'
MW: 13.75
FV: 175
Scale Change
TG (units)
C1 (ppm)
C2 (ppm)
G 488 u
BG 120 u
MD: 4,825'
TVD: 4,822'
DEV: 3.2
AZM 237.9
BG 45 u
BG 47 u

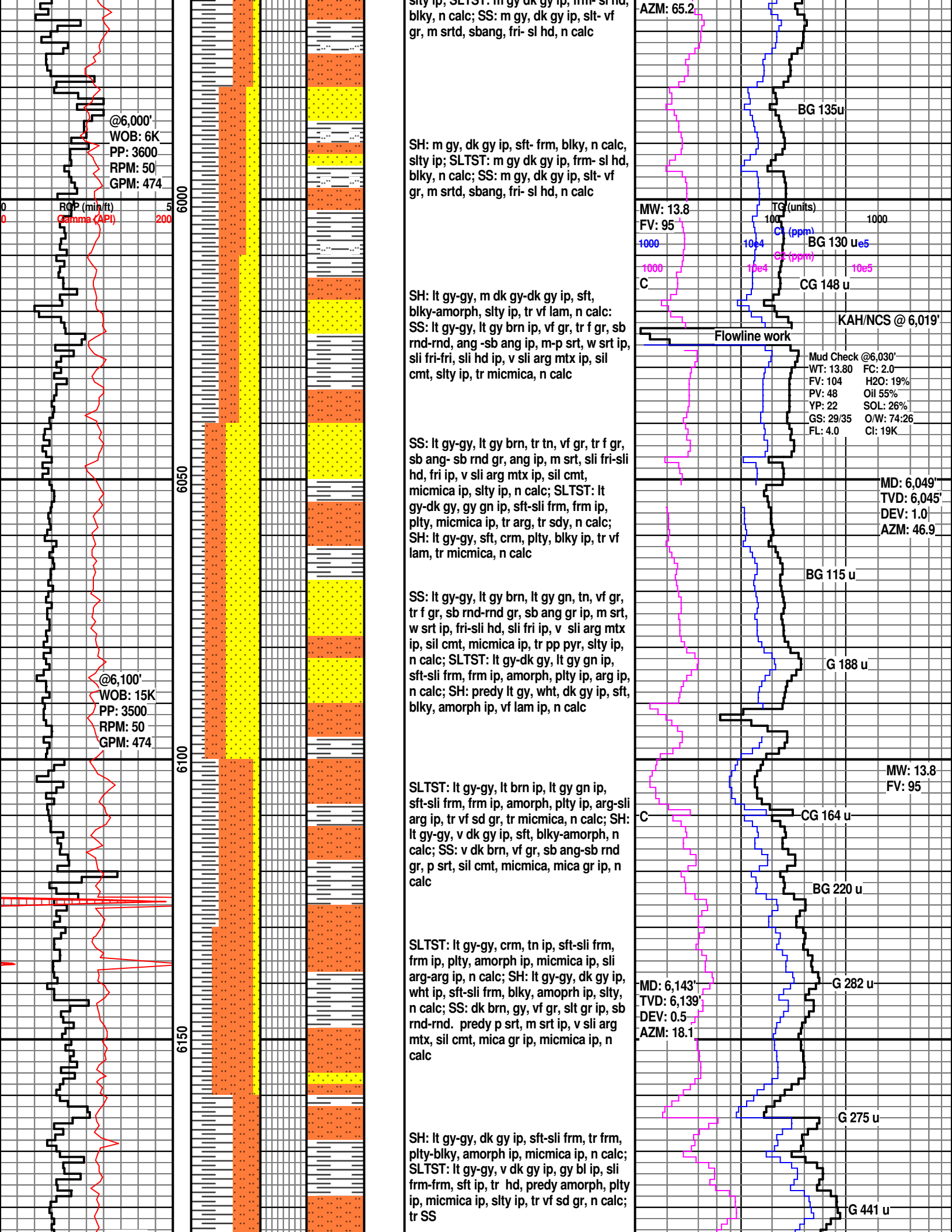

NB #5, Ulterra-PDC
@4,883'MD Type:
MT135CDSU Serial#
SN8206. Jets: 5x20s.
MM# 2
@4,900',
WOB: 10K
PP: 3537
RPM: 50
GPM: 415
@5,000'
WOB: 50K
PP: 3616
RPM: 50
GPM: 415
ROP (min/ft)
Gamma (API)
0
200
4900
4950
5000
5050
Mud Check @4,885'
WT: 13.90 FC: 2.0
FV: 115 H2O: 21%
PV: 64 Oil 52%
YP: 29 SOL: 26%
GS: 34/44 O/W: 71:29
FL: 4.5 Cl: 23K
SH: lt gy-gy, rr dk gy, predy sft, sli frm ip, plty-blky, flky ip, rr slt gr, tr vf lam, n calc; SLTST: gy-dkgy, gy gn ip, si frm, sli hd ip, micmica ip, vf sd gr ip, n calc
C
CG 54 u
BG 50 u
MW: 13.90
FV: 115
SH: lt gy-gy, dk gy ip, predy sft, sli frm ip, plty-blky, flky ip, rr slt gr, tr vf lam, n calc; SS: lt gn gy-gn gy, vf gr, w srt, sb ang-sb rnd, predy sli hd -hd, fri-sli fri ip, v sli arg mtx, sil cmt, micmica ip, n calc; SLTST: gy gn, lt gy ip, sli frm, sft ip, plty, blky ip, micmica ip, n calc
BG 45 u
MD: 4,919'
TVD: 4,915'
DEV: 2.3
AZM: 268.8
BG 60 u
SH: lt gy-gy, sft, blky, plty ip, rr slt gr, tr vf lam, n calc; SS: v lt gy gn, gy gn, vf gr, w srt, sb ang-sb rnd, predy sli hd -hd, fri-sli fri ip, v sli arg mtx ip, sil cmt, micmica ip, n calc; SLTST: dk gy, gy ip, predy sli frm, frm ip, plty, blky ip, micmica ip, n calc
G 89 u
G 78 u
SS: dk brn, v dk gy, gy gn ip, vf-f gr, predy w srt, m srt ip, sb ang-sb rnd, predy sli hd -hd, fri-sli fri ip, tr v sli arg mtx, sil cmt, micmica ip, n calc; SLTST: dk gy, gy gn, predy sli frm, frm ip, plty-blky, micmica ip, n calc; SH: v lt gy -gy, blky, plty ip, tr vf lam, n calc
BG 31 u
C
CG 54 u
SS: lt gy-gy, lt gy gn ip, dk gy brn ip, vf gr, predy w srt, m srt ip, sb ang-sb rnd, predy sli hd -hd, fri-sli fri ip, tr v sli arg mtx, sil cmt, micmica ip, n calc; SLTST: dk gy, gy, sli frm, sft ip, plty, blky ip, micmca ip, n calc; SH: lt gy-gy, v dk gy ip, sft, frm-sli hd ip, blky, plty ip, rr slt gr, vf lam w v dk brn SH ip, n calc
G 185 u
MW: 13.90
FV: 115
TG (units)
100
1000
C1 (ppm)
C2 (ppm)
1000
10e4
10e5
MD: 5,013'
TVD: 5'011'
DEV: 1.8
AZM: 265.7
BG 72 u
G 130 u
SS: lt brn, lt gy-gy, ltgy gn ip, vf gr, f gr ip, w srt, sb ang-sb rnd, predy sli hd -hd, fri-sli fri ip, v sli arg mtx ip, sil cmt, slty ip, micmica ip, n calc; SH: lt gy-gy, sft, sli frm ip, predy blky, plty ip, vf lam w dk brn SH ip, n calc; tr SLTST
SS: lt brn-brn, lt gy gn-gy gn, vf gr, f gr ip, w srt, sb ang- sb rnd, predy sli hd -hd, fri-sli fri ip, sil cmt, micmica ip, rr f lam, n calc; SH: lt gy-gy, tr dk gy brn, sft-sli frm, plty -blky, tr vf lam w slty arg lyr, n calc; tr SLTST
BG 67 u
C
CG 181 u

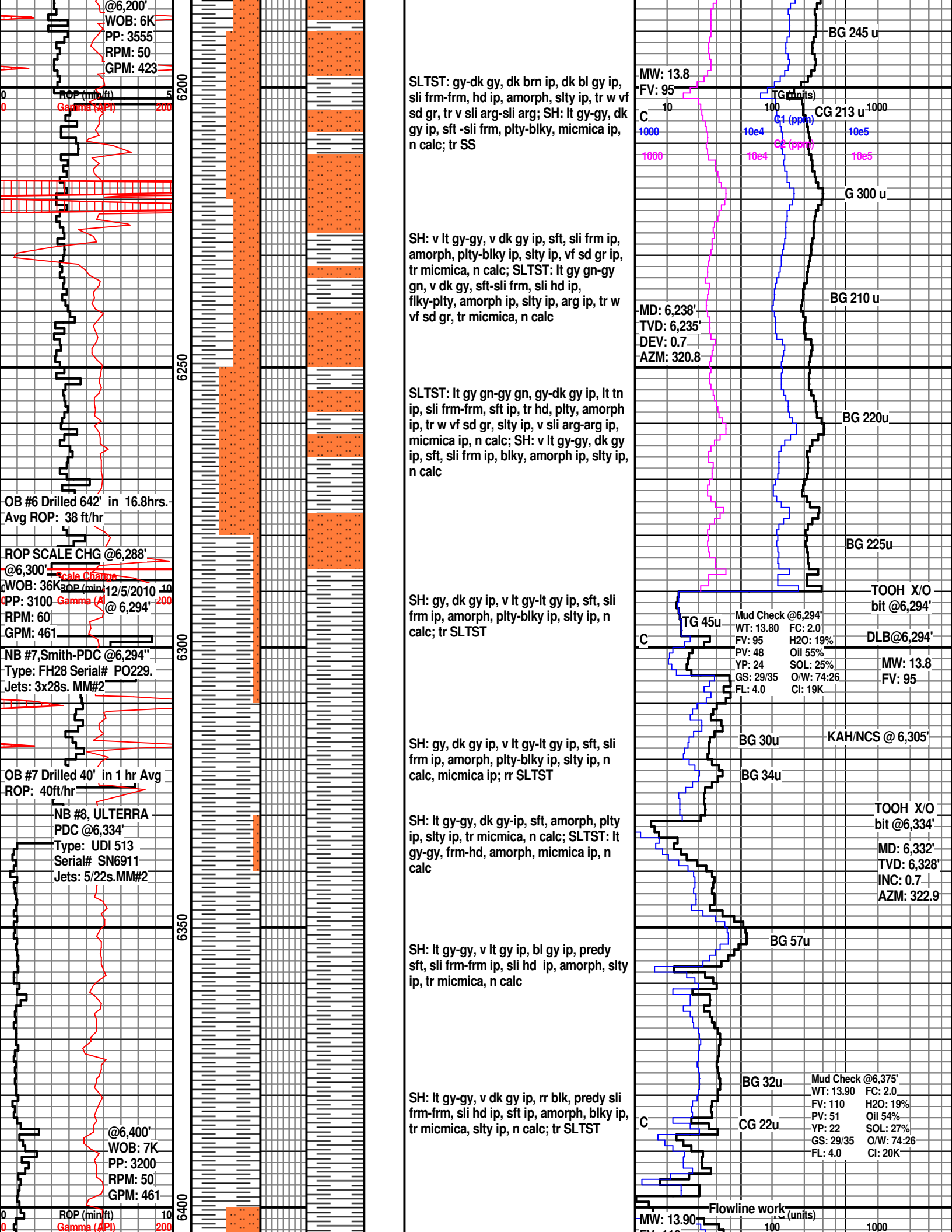

@5,100'
WOB: 13K
PP: 3650
RPM: 50
GPM: 415
5100
SH: lt gy-gy, sft, sli frm ip, plty, flky ip, n calc; SLTST: gy-v dk gy, sft-sli frm, sli hd ip, plty-flky, sdy ip, n calc; SS: brn-dk brn, gy gn ip, vf gr, w srt, sb ang gr, sb rnd ip gr, predy sli hd -hd, fri-sli fri ip, sli arg mtx ip, sil cmt, slty ip, n calc
BG 70 u
MW: 13.90
FV: 115
MD: 5,107'
TVD: 5,104'
DEV: 1.9
AZM: 266.5
SS: lt gy gn- gy gn, m brn ip, vf gr, w srt, sb rnd gr, predy sli hd -hd, fri-sli fri ip, sil cmt, micmica ip, pp pyr ip, no calc; SH: lt gy -gy, sft, blky, ptly ip, n calc: SLTST: lt brn gn, brn gn, sft-sli frm, plty, n calc
BG 110 u
5150
SH: lt gy-gy, dk gy ip, sft-sli frm, bkly-amorph, plty ip, vf lam ip, n calc; SLTST: gy-dk gy, dk gy brn, fli frm-frm, hd ip, sft ip, plty, micmica ip, n calc; SS: lt gn gy-gn gy, vf gr, f gr ip, sb rnd-rnd, predy m srt, w srt ip, p srt ip, predy sli hd -hd, fri-sli fri ip, v sli arg mtx ip, sil cmt, slty ip, n calc
G 138 u
C
CG 108 u
SLTST: gy gn-dk gy gn, gy ip, gy brn ip, sft-sli frm, amorph, plty-blky ip, sli arg ip, micmica ip, n calc; SH: lt gy-gy, predy sft, sli frm ip, predy blky -amorph, plty ip, tr vf lam, n calc; SS: lt gy gn-gy gn, vf gr, f gr ip, sb rnd-rnd, predy m srt, p srt ip, predy sli hd -hd, fri-sli fri ip, v sli arg mtx ip, sil cmt, micmica ip, slty ip, n calc
BG 95 u
@5,200'
WOB: 16K
PP: 3700
RPM: 50
GPM: 415
MD: 5,201'
TVD: 5,199'
DEV: 2.1
AZM: 278.8
0
ROP (min/ft)
5
0
Gamma (API)
200
MW: 13.90
FV: 115
TG (units)
100
C1 (ppm)
1000
10e4
10e5
C2 (pp...)
1000
10e4
10e5
BG 110 u
5200
SS: lt gy gn-gy gn, lt gy brn ip, vf gr, predy sb rnd-rnd gr, ang-sb ang gr ip, m srt, w srt ip, p srt ip, predy sli hd -hd, fri-sli fri ip, v sli arg mtx ip, sil cmt, micmica ip, slty ip, n calc; SH: lt gy-gy, brn gy ip, sft-sli frm, blky-amorph, n calc; tr SLTST
SH: lt gy-gy, gy gn ip, sft, sli frm ip, blky-amorph, vf-f lam ip, tr slt gr, n calc; SLTST: lt gy gn-gy gn, sft-sli frm, sli hd ip, amorph, plty ip, tr sd gr, micmica ip, n calc; SS: dk brn, gy gn, vf gr, f gr ip, predy sb rnd-rnd, sb ang-ang ip, w-m srt, p srt ip, predy sli hd -hd, fri-sli fri ip, v sli arg mtx ip, sil cmt, micmica ip, tr pp pyr ip, n calc
BG 160 u
P
P
5250
C
CG 468 u
SS: lt gy gn-gy gn, dk brn, vf-f gr, sb rnd-rnd gr, ang-sb ang ip, m srt, p srt ip, predy sli hd -hd, fri-sli fri ip, tr v sli arg mtx, sil cmt, micmica ip, n calc; SH: lt gy-gy, dk gy ip, sft-sli frm, amorph, n calc; SLTST: gy gn-dk gy dn, gy brn ip, sli frm, sft ip, amorph, blky ip, micmica ip, arg ip, tr sd gr ip, no calc
Mud Check @5,275'
WT: 13.70 FC: 2.0
FV: 90 H2O: 21%
PV: 55 Oil 54%
YP: 23 SOL: 26%
GS: 29/37 O/W: 73:27
FL: 4.0 Cl: 18K
BG 100 u
G 305 u
@5,300'
WOB: 20K
PP: 3874
RPM: 50
GPM: 415
MD: 5,295'
TVD: 5,292'
DEV: 1.4
AZM: 289.2
5300
SLTST: lt gy gn-gy gn, gy brn ip, sft sli frm, amorph, micmica ip, sli arg-arg ip,
MW: 13.70

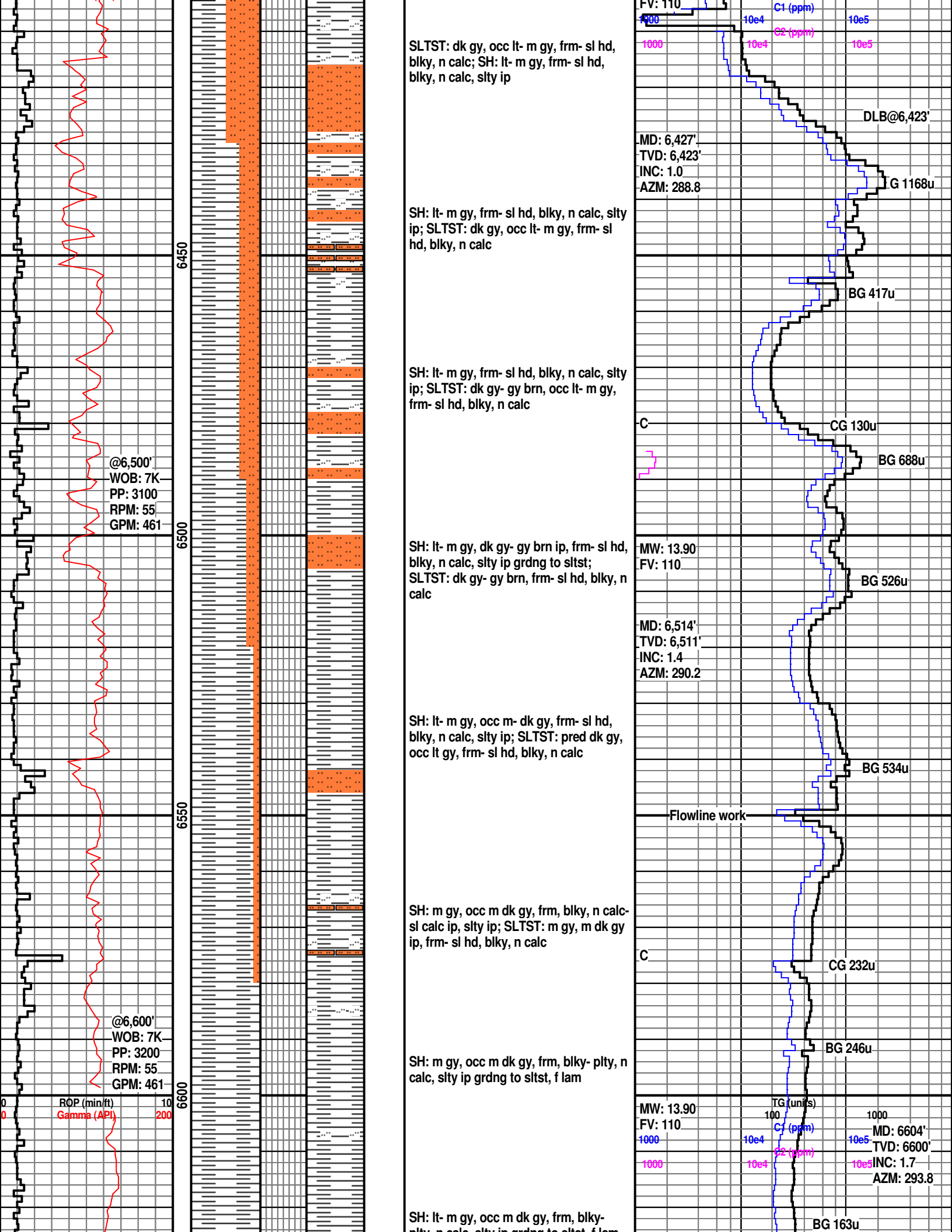

sdy ip, no calc; SH: lt gy-gy, tr dk gy, sft, sli frm ip, amorph, vf lam ip, no calc; tr SS
FV: 90
BG 170 u
SLTST: gy-dk gy, dk brn ip, sft-sli frm, tr frm, amorph, plty-blky ip, micmica ip, sli arg-arg ip, sdy ip, no calc; SS: lt gy brn-gy brn, gy gn ip, vf-f gr, sb rnd-rnd gr, ang -sb ang ip, m srt, p srt ip, predy sli hd -hd, fri-sli fri ip, sli arg mtx ip, sil cmt, no calc; SH: lt gy-gy, dk gy ip, sft, sli frm ip, amorph, vf lam ip, no calc
G 357 u
5350
SS: lt gy brn-gy brn, lt gy gn-gy gn, dk brn ip, vf, sb rnd-rnd, sb ang ip, m srt, w srt ip, p srt ip, predy sli hd -hd, fri-sli fri ip, sli arg mtx ip, sil cmt, tr micmica, no calc; SLTST: lt brn, lt gy gn-gy gn, sft-sli frm, amorph, micmica ip, sli arg ip, sli sdy, no calc
C
CG 190 u
G 309 u
@5,400'
WOB:15K
PP: 3714
RPM: 50
GPM: 415
BG 215 u
MD: 5,390'
TVD: 5,387'
DEV: 1.6
AZM: 284.5
SH: m gy, dk gy ip sft- frm, blky- plty, amorph ip, n calc, slty ip grdng to sltst; SLTST: lt- m gy, m- dk gy ip, frm, n calc, arg
0
ROP (min/ft)
5
0
Gamma (API)
200
5400
10
100
1000
TG (units)
MW: 13.70
FV: 90
C1 (ppm)
10e4
10e5
C2 (ppm)
1000
10e4
10e5
BG 361u
SH: m gy, dk gy ip sft- frm, blky- plty, amorph ip, n calc, slty ip grdng to sltst; SLTST: lt- m gy, m- dk gy ip, frm, n calc, arg
DLB@5,434'
BG 259u
5450
C
CG 167u
SS: lt- m gy, m-dk gy ip, slt- vf gr, m srt, sbrnd, sli fri- sli hd, n calc; SLTST: lt-m gy, m- dk gy ip, sft- frm, n calc; SH: lt- m gy, dk gy ip , sft- sl frm, blky- plty, amorph ip, n calc
BG 191u
SH: m gy, dk gy ip , sft- sl frm, blky- plty, amorph ip, n calc; SLTST: lt-m gy, m- dk gy ip, sft- frm, n calc; SS: lt- m gy, m-dk gy ip, slt- vf gr, m srt, sbang- sbrnd, sli fri- sli hd, n calc
BG 238u
@5,500'
WOB: 6K
PP: 3200
RPM: 50
GPM: 415
MD: 5,484'
TVD: 5,481'
DEV: 1.6
AZM: 304.8
5500
MW: 13.70
FV: 90
BG 185u
SH: m gy , sft- sl frm, blky- plty, amorph ip, n calc, slty; SLTST: lt-m gy, m- dk gy ip, sft- frm, n calc; SS: lt- m gy, m-dk gy ip, slt- vf gr, m srt, sbrnd- sbang, sli fri- sli hd, n calc

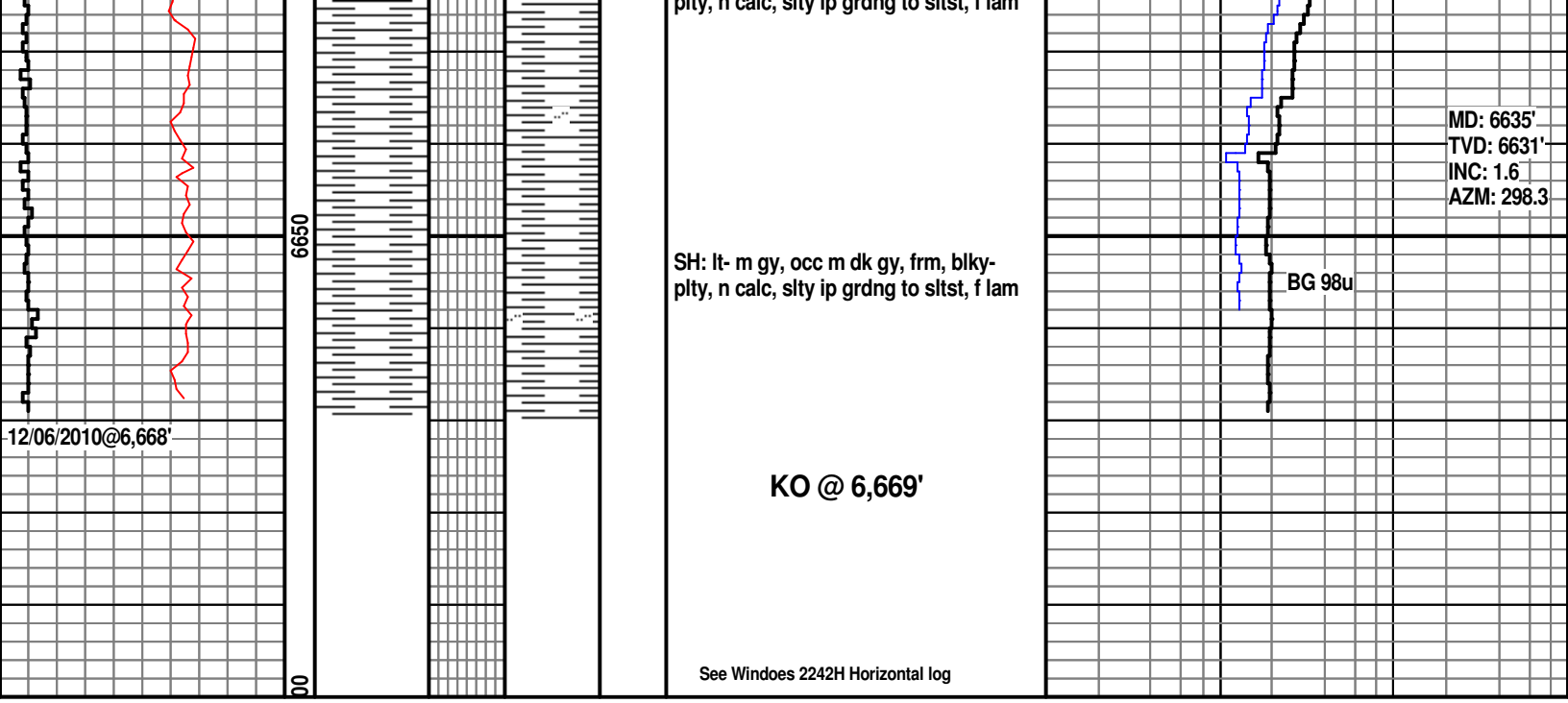

12/3/2010 @ 5,539'
5550
@5,600'
WOB: 10K
PP: 3600
RPM: 50
GPM: 432
0
ROP (min/ft)
5
0
Gamma (API)
200
5600
OB #5 Drilled 769 in 20hrs.
Avg ROP: 38 ft/hr
5650
NB #6, Ulterra-PDC @5,652'
Type: MT1355CASU Serial#
SN8768. Jets: 5x22s. M#2
@5,700'
WOB: 6K
PP: 3600
RPM: 50
GPM: 474
5700
SH: m gy , sft- sl frm, blky- plty, amorph ip, n calc, slty; SLTST: lt-m gy, occ m-dk gy, sft- frm, n calc;
SH: m gy , sft- sl frm, blky- plty, amorph ip, n calc, slty; SLTST: lt-m gy, occ m-dk gy, sft- frm, n calc;
SH: m gy , sft- sl frm, blky- plty, amorph ip, n calc, slty; SLTST: lt-m gy, m- dk gy ip, sft- frm, n calc; SS: lt- m gy, m-dk gy ip, slt- vf gr, m srt, sbang, sli fri- sli hd, n calc
SH: lt gy-gy, v dk gy ip, sft, sli frm ip, predy amorph, blky ip, vf lam ip, n calc; SS: lt brn, lt gy-gy, vf gr, f gr ip, m srt, p srt ip, tr w srt, sb rnd-rnd ip, sb ang ip, v fri-sli fri, sli hd-hd ip, v sli arg mtx ip, sil cmt, mimica ip, slty ip, no calc; tr SLTST
SH: lt- m gy, sft- frm, blky, amorph ip, n calc, slty ip grdng to sltst; SLTST: dk gy, lt- m gy ip, frm- sl hd, n calc; SS: lt gy, slt- vf gr, m srt, sbang, sli fri- sl hd, n calc
SS: lt- m gy, slt- f gr, m srt, sbang, fri- sl fri, n calc, arg ip; SLTST: m- dk gy, frm- sl hd, blky, n calc, sdy ip; SH: lt- m gy, sft- frm, blky, n calc, slty ip
BENSON SANDS @ 5,700'
SLTST: pred dk gy,m- dk gy ip, frm- sl hd, blky, n calc, sdy ip; SS: lt- m gy, m -dk gy ip slt- f gr, m srt, sbang, fri- sl fri, n calc, arg ip; SH: lt- m gy, sft- frm, blky, n calc, slty ip
BG 197u
CG 150u
C
BG 260u
MD: 5,579'
TVD: 5,575'
DEV: 1.7
AZM: 308.3
BG 244u
MW: 13.70
FV: 90
TG (units)
100
1000
C1 (ppm)
1000
10e4
10e5
C5 (ppm)
1000
10e4
10e5
BG 365u
BG 210u
KAH/NCS @ 5,635'
C
CG 269u
G 229u
DLB@5,652'
TOOH X/O bit @5,652'
Mud Check @5,652'
WT: 13.80 FC: 2.0
FV: 95 H2O: 19%
PV: 22 Oil 55%
YP: 43 SOL: 26%
GS: 27/35 O/W: 74:26
FL: 4.0 Cl: 19K
BG 40 u
MD: 5,673'
TVD: 5670'
DEV: 1.6
AZM: 316.1
G 195u
MW: 13.8
FV: 95
G 151u
CG 76u
C


5750
5800
5850
5900
5950
@5,800'
WOB: 8K
PP: 3800
RPM: 50
GPM: 474
ROP (min/ft)
Gamma (API)
@5,900'
WOB: 5K
PP: 3600
RPM: 50
GPM: 474
12/4/2010 @ 5,912'
SLTST: pred dk gy,m- dk gy ip, frm- sl hd, blky, n calc, sdy ip; SS: lt- m gy, M-dk gy ip slt- f gr, m srt, sbang, fri- sl fri, n calc, arg ip; SH: lt- m gy, sft- frm, blky, n calc, slty ip
SLTST: m- dk gy, frm- sl hd, blky, n calc, sdy ip; SH: lt- m gy, sft- frm, blky, n calc, slty ip
SS: lt- m gy, m -dk gy ip slt-v f gr, m srt, sbang, fri- sl fri, n calc, arg ip; SLTST: pred dk gy,m- dk gy ip, frm- sl hd, blky, n calc, sdy ip; SH: lt- m gy, sft- frm, blky, n calc, slty ip
SS: gy, lt gy ip, vf- f gr, m srt, sbang, fri- sl hd, n calc; SLTS; m- dk gy, frm- sl hd, blky, n calc; SH: gy, sft- frm, blky, n calc, slty ip
SS: gy, lt gy ip, vf- f gr, m srt, sbang, fri- sl hd, n calc; SLTS; m- dk gy, frm- sl hd, blky, n calc; SH: gy, sft- frm, blky, n calc, slty ip
SS: m gy, dk gy ip, vf- f gr, m srtd, sbang, fri- sl hd, n calc; SLTST: pred dk gy, m gy ip, frm- sl hd, blky, n calc; SH: m gy, sft- frm, blky, n calc, slty ip
SS: m gy, dk gy ip, vf- f gr, m srtd, sbang, fri- sl hd, n calc; SLTST: pred dk gy, m gy ip, frm- sl hd, blky, n calc; SH: m gy, sft- frm, blky, n calc, slty ip
SH: m gy, dk gy ip, sft- frm, blky, n calc,
BG 196u
G 341u
MD: 5,767'
TVD: 5763'
DEV: 1.1
AZM: 340.3
BG 240 u
G 163u
BG 80 u
MW: 13.8
FV: 95
TG (u
100
1000
C1 (ppm)
1000
10e4
10e5
C2 (ppm)
1000
10e4
10e5
G 93u
C
CG 96u
G 184u
MD: 5,861'
TVD: 5,857'
DEV: 1.1
AZM: 41.1
BG 94u
BG 150u
MW: 13.8
FV: 95
G 174u
C
CG 62u
BG 151u
MD: 5,955'
TVD: 5,951'
DEV: 0.9
G 227u


@6,000'
WOB: 6K
PP: 3600
RPM: 50
GPM: 474
0
ROP (min/ft)
5
0
Gamma (API)
200
6000
@6,100'
WOB: 15K
PP: 3500
RPM: 50
GPM: 474
6050
6100
6150
SH: m gy, dk gy ip, sft- frm, blky, n calc, slty ip; SLTST: m gy dk gy ip, frm- sl hd, blky, n calc; SS: m gy, dk gy ip, slt- vf gr, m srtd, sbang, fri- sl hd, n calc
SH: lt gy-gy, m dk gy-dk gy ip, sft, blky-amorph, slty ip, tr vf lam, n calc: SS: lt gy-gy, lt gy brn ip, vf gr, tr f gr, sb rnd-rnd, ang -sb ang ip, m-p srt, w srt ip, sli fri-fri, sli hd ip, v sli arg mtx ip, sil cmt, slty ip, tr micmica, n calc
SS: lt gy-gy, lt gy brn, tr tn, vf gr, tr f gr, sb ang- sb rnd gr, ang ip, m srt, sli fri-sli hd, fri ip, v sli arg mtx ip, sil cmt, micmica ip, slty ip, n calc; SLTST: lt gy-dk gy, gy gn ip, sft-sli frm, frm ip, plty, micmica ip, tr arg, tr sdy, n calc; SH: lt gy-gy, sft, crm, plty, blky ip, tr vf lam, tr micmica, n calc
SS: lt gy-gy, lt gy brn, lt gy gn, tn, vf gr, tr f gr, sb rnd-rnd gr, sb ang gr ip, m srt, w srt ip, fri-sli hd, sli fri ip, v sli arg mtx ip, sil cmt, micmica ip, tr pp pyr, slty ip, n calc; SLTST: lt gy-dk gy, lt gy gn ip, sft-sli frm, frm ip, amorph, plty ip, arg ip, n calc; SH: predy lt gy, wht, dk gy ip, sft, blky, amorph ip, vf lam ip, n calc
SLTST: lt gy-gy, lt brn ip, lt gy gn ip, sft-sli frm, frm ip, amorph, plty ip, arg-sli arg ip, tr vf sd gr, tr micmica, n calc; SH: lt gy-gy, v dk gy ip, sft, blky-amorph, n calc; SS: v dk brn, vf gr, sb ang-sb rnd gr, p srt, sil cmt, micmica, mica gr ip, n calc
SLTST: lt gy-gy, crm, tn ip, sft-sli frm, frm ip, plty, amorph ip, micmica ip, sli arg-arg ip, n calc; SH: lt gy-gy, dk gy ip, wht ip, sft-sli frm, blky, amoprh ip, slty, n calc; SS: dk brn, gy, vf gr, slt gr ip, sb rnd-rnd. predy p srt, m srt ip, v sli arg mtx, sil cmt, mica gr ip, micmica ip, n calc
SH: lt gy-gy, dk gy ip, sft-sli frm, tr frm, plty-blky, amorph ip, micmica ip, n calc; SLTST: lt gy-gy, v dk gy ip, gy bl ip, sli frm-frm, sft ip, tr hd, predy amorph, plty ip, micmica ip, slty ip, tr vf sd gr, n calc; tr SS
AZM: 65.2
BG 135u
MW: 13.8
FV: 95
TG (units)
100
1000
C1 (ppm)
1000
10e4
BG 130 u
10e5
C2 (ppm)
1000
10e4
10e5
C
CG 148 u
KAH/NCS @ 6,019'
Flowline work
Mud Check @6,030'
WT: 13.80 FC: 2.0
FV: 104 H2O: 19%
PV: 48 Oil 55%
YP: 22 SOL: 26%
GS: 29/35 O/W: 74:26
FL: 4.0 Cl: 19K
MD: 6,049'
TVD: 6,045'
DEV: 1.0
AZM: 46.9
BG 115 u
G 188 u
MW: 13.8
FV: 95
C
CG 164 u
BG 220 u
MD: 6,143'
TVD: 6,139'
DEV: 0.5
AZM: 18.1
G 282 u
G 275 u
G 441 u


@6,200'
WOB: 6K
PP: 3555
RPM: 50
GPM: 423
ROP (min/ft)
Gamma (API)
6200
SLTST: gy-dk gy, dk brn ip, dk bl gy ip, sli frm-frm, hd ip, amorph, slty ip, tr w vf sd gr, tr v sli arg-sli arg; SH: lt gy-gy, dk gy ip, sft -sli frm, plty-blky, micmica ip, n calc; tr SS
BG 245 u
MW: 13.8
FV: 95
TG (units)
CG 213 u
C1 (ppm)
C2 (ppm)
G 300 u
SH: v lt gy-gy, v dk gy ip, sft, sli frm ip, amorph, plty-blky ip, slty ip, vf sd gr ip, tr micmica, n calc; SLTST: lt gy gn-gy gn, v dk gy, sft-sli frm, sli hd ip, flky-plty, amorph ip, slty ip, arg ip, tr w vf sd gr, tr micmica, n calc
BG 210 u
MD: 6,238'
TVD: 6,235'
DEV: 0.7
AZM: 320.8
6250
OB #6 Drilled 642' in 16.8hrs.
Avg ROP: 38 ft/hr
ROP SCALE CHG @6,288'
@6,300'
Scale Change
WOB: 36K
PP: 3100
RPM: 60
GPM: 461
12/5/2010
@ 6,294'
SLTST: lt gy gn-gy gn, gy-dk gy ip, lt tn ip, sli frm-frm, sft ip, tr hd, plty, amorph ip, tr w vf sd gr, slty ip, v sli arg-arg ip, micmica ip, n calc; SH: v lt gy-gy, dk gy ip, sft, sli frm ip, blky, amorph ip, slty ip, n calc
BG 220u
BG 225u
6300
NB #7,Smith-PDC @6,294"
Type: FH28 Serial# PO229.
Jets: 3x28s. MM#2
SH: gy, dk gy ip, v lt gy-lt gy ip, sft, sli frm ip, amorph, plty-blky ip, slty ip, n calc; tr SLTST
TOOH X/O bit @6,294'
TG 45u
Mud Check @6,294'
WT: 13.80 FC: 2.0
FV: 95 H2O: 19%
PV: 48 Oil 55%
YP: 24 SOL: 25%
GS: 29/35 O/W: 74:26
FL: 4.0 Cl: 19K
DLB@6,294'
MW: 13.8
FV: 95
OB #7 Drilled 40' in 1 hr Avg
ROP: 40ft/hr
NB #8, ULTERRA
PDC @6,334'
Type: UDI 513
Serial# SN6911
Jets: 5/22s.MM#2
SH: gy, dk gy ip, v lt gy-lt gy ip, sft, sli frm ip, amorph, plty-blky ip, slty ip, n calc, micmica ip; rr SLTST
BG 30u
KAH/NCS @ 6,305'
BG 34u
SH: lt gy-gy, dk gy-ip, sft, amorph, plty ip, slty ip, tr micmica, n calc; SLTST: lt gy-gy, frm-hd, amorph, micmica ip, n calc
TOOH X/O bit @6,334'
MD: 6,332'
TVD: 6,328'
INC: 0.7
AZM: 322.9
6350
BG 57u
SH: lt gy-gy, v lt gy ip, bl gy ip, predy sft, sli frm-frm ip, sli hd ip, amorph, slty ip, tr micmica, n calc
@6,400'
WOB: 7K
PP: 3200
RPM: 50
GPM: 461
BG 32u
Mud Check @6,375'
WT: 13.90 FC: 2.0
FV: 110 H2O: 19%
PV: 51 Oil 54%
YP: 22 SOL: 27%
GS: 29/35 O/W: 74:26
FL: 4.0 Cl: 20K
SH: lt gy-gy, v dk gy ip, rr blk, predy sli frm-frm, sli hd ip, sft ip, amorph, blky ip, tr micmica, slty ip, n calc; tr SLTST
CG 22u
Flowline work
MW: 13.90
6400


6450
6500
6550
6600
@6,500'
WOB: 7K
PP: 3100
RPM: 55
GPM: 461
@6,600'
WOB: 7K
PP: 3200
RPM: 55
GPM: 461
0
ROP (min/ft)
10
0
Gamma (API)
200
SLTST: dk gy, occ lt- m gy, frm- sl hd, blky, n calc; SH: lt- m gy, frm- sl hd, blky, n calc, slty ip
SH: lt- m gy, frm- sl hd, blky, n calc, slty ip; SLTST: dk gy, occ lt- m gy, frm- sl hd, blky, n calc
SH: lt- m gy, frm- sl hd, blky, n calc, slty ip; SLTST: dk gy- gy brn, occ lt- m gy, frm- sl hd, blky, n calc
SH: lt- m gy, dk gy- gy brn ip, frm- sl hd, blky, n calc, slty ip grdng to sltst; SLTST: dk gy- gy brn, frm- sl hd, blky, n calc
SH: lt- m gy, occ m- dk gy, frm- sl hd, blky, n calc, slty ip; SLTST: pred dk gy, occ lt gy, frm- sl hd, blky, n calc
SH: m gy, occ m dk gy, frm, blky, n calc- sl calc ip, slty ip; SLTST: m gy, m dk gy ip, frm- sl hd, blky, n calc
SH: m gy, occ m dk gy, frm, blky- plty, n calc, slty ip grdng to sltst, f lam
SH: lt- m gy, occ m dk gy, frm, blky-
FV: 110
C1 (ppm)
1000
10e4
10e5
C2 (ppm)
1000
10e4
10e5
DLB@6,423'
MD: 6,427'
TVD: 6,423'
INC: 1.0
AZM: 288.8
G 1168u
BG 417u
C
CG 130u
BG 688u
MW: 13.90
FV: 110
BG 526u
MD: 6,514'
TVD: 6,511'
INC: 1.4
AZM: 290.2
BG 534u
Flowline work
C
CG 232u
BG 246u
MW: 13.90
FV: 110
TG (units)
100
1000
C1 (ppm)
1000
10e4
10e5
C2 (ppm)
1000
10e4
10e5
MD: 6604'
TVD: 6600'
INC: 1.7
AZM: 293.8
BG 163u


plty, n calc, slty ip grdng to sltst, f lam
MD: 6635'
TVD: 6631'
INC: 1.6
AZM: 298.3
6650
SH: lt- m gy, occ m dk gy, frm, blky-
plty, n calc, slty ip grdng to sltst, f lam
BG 98u
12/06/2010@6,668'
KO @ 6,669'
See Windoes 2242H Horizontal log