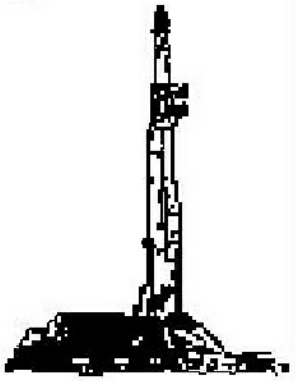
GOOLSBY BROTHERS and associates, inc.

575 Union Blvd, Suite 208
Lakewood, CO 80228
303-945-2860 Office

PETCOM

Geological Wellsite Supervision



www.goolsbybrothers.com

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

Well Name:	Critter Creek 13-17H
Location:	Hereford Ranch Prospect - SE/SE Sec 17 T11N R63W Weld County, Colorado
License Number:	API: 05-123-31442 Region: DJ Basin
Spud Date:	8/12/2010 Drilling Completed: *7" Csg. Pt. on 8/20/10
Surface Coordinates:	501' FSL, 501' FEL SE/SE Section 17 T11N R63W Latitude 40.916469 Longitude 104.448808
Bottom Hole Coordinates:	629.6' FNL & 1053.5' FWL NW/NW Section 17 T11N R63W Latitude 40.927950 Longitude 104.461883
Ground Elevation (ft):	5280' K.B. Elevation (ft): 5302'
Logged Interval (ft):	1340' To: *7673' Total Depth (ft): *7673' MD, 7403' TVD (7" Csg. Pt.)
Formation:	Niobrara 'B' Chalk
Type of Drilling Fluid:	Water

Printed by WellSight Log Manager from WellSight Systems 1-800-447-1534 www.WellSight.com

OPERATOR

Company: EOG Resources, Inc.
Address: 600 17th St., Ste. 1000
Denver, CO 80202
Co. Geologist John Melby

GEOLOGIST

Name: Mike Dodge and Robert Nordeck
Company: Goolsby Brothers & Assoc. (GBA), Inc. (www.goolsbybrothers.com)
Address: 575 Union Blvd.
Suite 208,
Lakewood CO. 80228

E-Logs

MWD GR from Surface Casing to TD.

Casing

9 5/8" 36# J55 STC set @ 1340'.

7" 23# HC-P110 LTC set @ 7665'.

4.5" 11.6# P110 LTC from KOP to TD.

Comments

*This well was spudded @ 16:00 on 8/12/10. A 13½" Hole was drilled to 1340', and 9 5/8" S.C. was set @ 1340'. The well was Drilled Vertically to KOP of 6930', at which point angle was built to 87° by 7673' MD, 7403' TVD. 7" Casing was set and the well was then Drilled Horizontally to a TD of 12,780' MD. This Vertical Strip Log covers the Interval from S.C. to 7" Intermediate Casing. A Horizontal Strip Log was made covering the interval from 6930' (KOP) to TD (12,780' MD).

1) Drilling Contractor: DHS Drilling Co., Rig #8
Tool Pusher: Scott Putnam, Robert Roman, Fred Weber.
Pumps: #1 & #2 PZ-9 5.5" x 9" (.0628 bbl/stk)

2) Company Men: Bill Hutto, Brian Dutton, Tim Storey.

3) Directional Services / MWD GR: Nevis Energy Services - Daniel Gilbert, Dusty Moyer, Jack Miller, Brian Heath.

4) Mud Company: Baker Hughes Drilling Fluids
Mud Engineer: Mark O'Harrow, Lee Smith.
Solids Control: National Oilwell Varco / Brandt's Solids Control.

5) Contained/Under Balanced Drilling System: Weatherford.

6) Gas Detection Equipment: Mudlogging Systems Inc.
by Terra Services
Redbox TGC #ML-073 (Total Gas/Chromatograph).

ROCK TYPES

- Bent
- Arg ss
- Clyst
- Coal
- Congl
- Ls
- Mrlst
- Sh
- Cement
- Sltst
- Ss (>fgr)
- Chlk
- Mdstn
- Fracture
- Mdstn
- Ss (<f gr)
- Slty sh
- Cly based sltst
- Carb sh
- Carb chalk
- Arg lmy ss
- Arg chalk
- Chky carb mrlst

ACCESSORIES

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

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

STRINGER
- Arg
- Bent
- Coal
- Dol
- Ls
- Marl strg
- Slt strg
- Ss strg
- Chalk strg

TEXTURE
- Boundst
- Chalky
- Cryxln
- Earthy
- Finexln
- Grainst
- Lithogr
- Microxln
- Mudst
- Packst
- Wackest

OTHER SYMBOLS

INTERVALS
- Core
- Dst
- Casing shoe
- Off bottom

POROSITY TYPE
- Vuggy

SORTING
- Well

- Angular

OIL SHOWS
- Even

EVENTS
- Trip point
- New bit
- Connection
- Survey (mwd)
- Survey (dropped)
- Survey (wireline)

- Earthy
- Fenest
- Fracture
- Inter
- Moldic
- Organic
- Pinpoint

- Moderate
- Poor

ROUNDING
- Rounded
- Subrnd
- Subang

- Spotty
- Dead
- Very spotty
- Ques
- Patchy

ROP,GR
ROP (min/ft)
Gamma (API)
WOB

Events

Depth

Lithology

Oil Shows

Geological Descriptions

CTGS (% >1/4")

Flare

TG, C1-C4
TGAS (units)
C1 (units)
C2 (units)
C3 (units)
C4 (units)

Mud
IN (ppg)
OUT (pp

This well was spudded @ 16:00 on 8/12/10. A 13½" Hole was drilled to 1340', and 9 5/8" S.C. was set @ 1340'. The well was Drilled Vertically to KOP of 6930', at which point angle was built to 87° by 7673' MD (7403' TVD). 7" Casing was set at 7665' and the well was Drilled Horizontally to a TD of 12,780' MD. This Vertical Strip Log Covers the interval from Surface Casing to 7" Intermediate Casing, While a Horizontal Strip Log covers from 6930' (KOP) to TD.

Gas Detection and Sample Evaluation were begun at 1340', 11:30am 8/15/10.
50' Lagged Samples were caught by the Drilling Crews from 1340' to 6900', with 10-30' Samples caught from 6900' to TD.

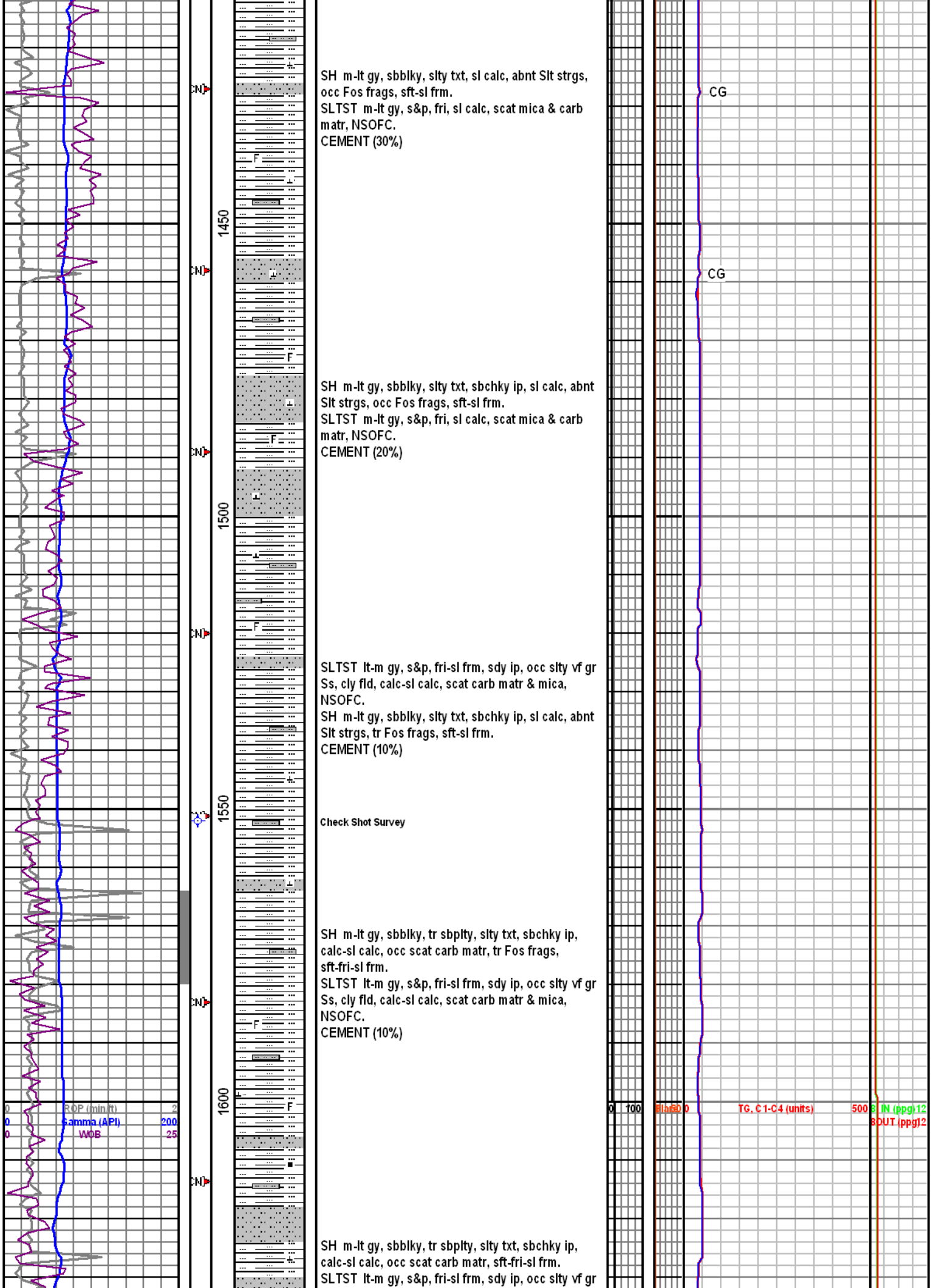
Mud @ 1340' WT 8.45 FV 30 PV 2 YP 3 GS 1/1/2
Fil 37 pH 7 Cl 800 Hd 680 Sol 0%

Drilling w/ Bit #2 8¾" HTC 505Z (Jets 7x13) with Mud Motor/MWD Gamma & Directional.

WOB 12
RPM 85
PP 1340
SPM 95/95

SH m-lt gy, sbblky, slty txt, sbchky cly ip, sl calc, occ v slty grdg-Sltst, tr scat Fos frags, sft-sl frm. CEMENT (50%)

Survey @ 1407' Incl 4.0° Az 196.7°



SH m-lt gy, sbblky, slty txt, sl calc, abnt Slt strgs, occ Fos frags, sft-sl frm.
SLTST m-lt gy, s&p, fri, sl calc, scat mica & carb matr, NSOFC.
CEMENT (30%)

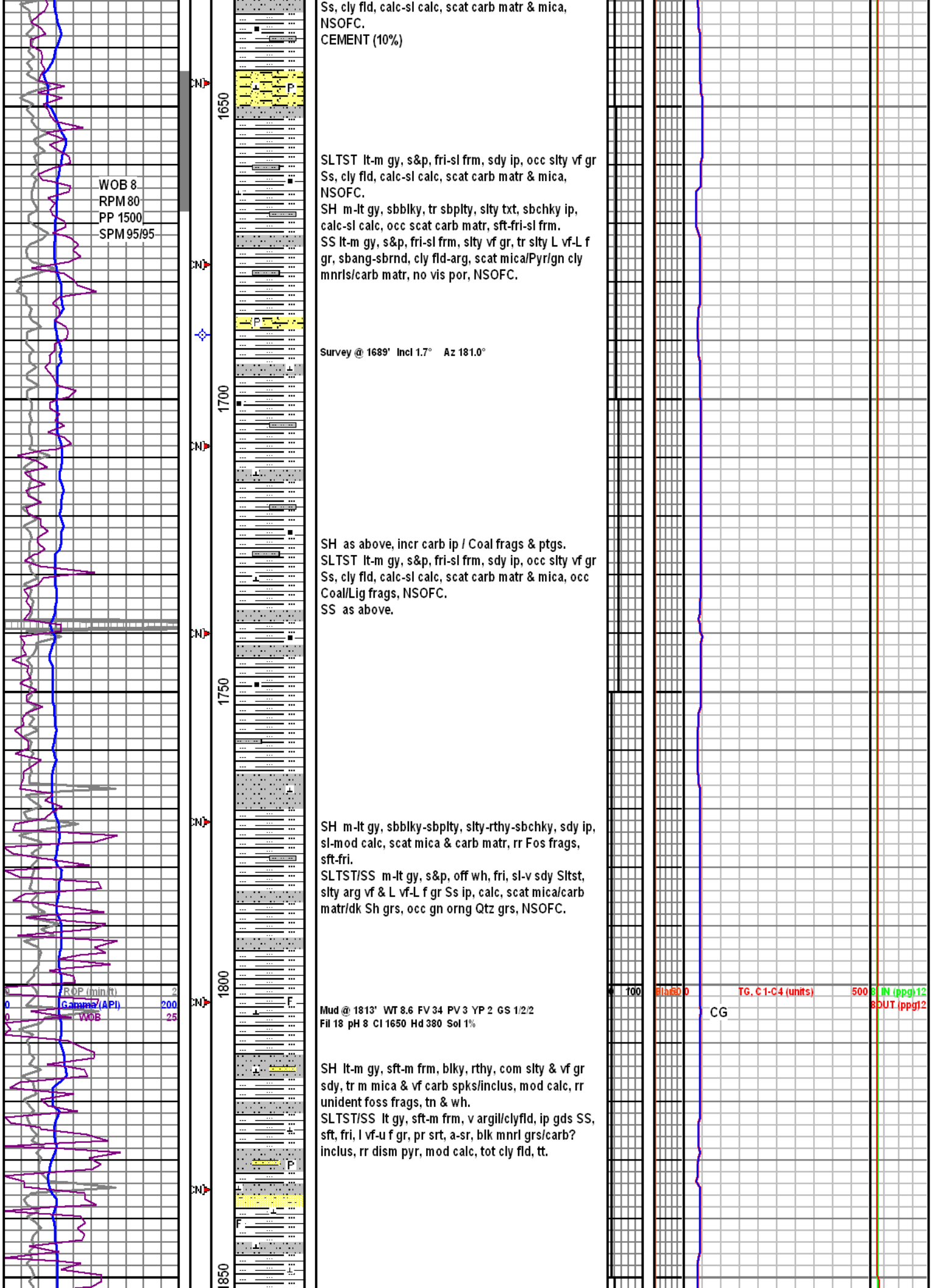
SH m-lt gy, sbblky, slty txt, sbchky ip, sl calc, abnt Slt strgs, occ Fos frags, sft-sl frm.
SLTST m-lt gy, s&p, fri, sl calc, scat mica & carb matr, NSOFC.
CEMENT (20%)

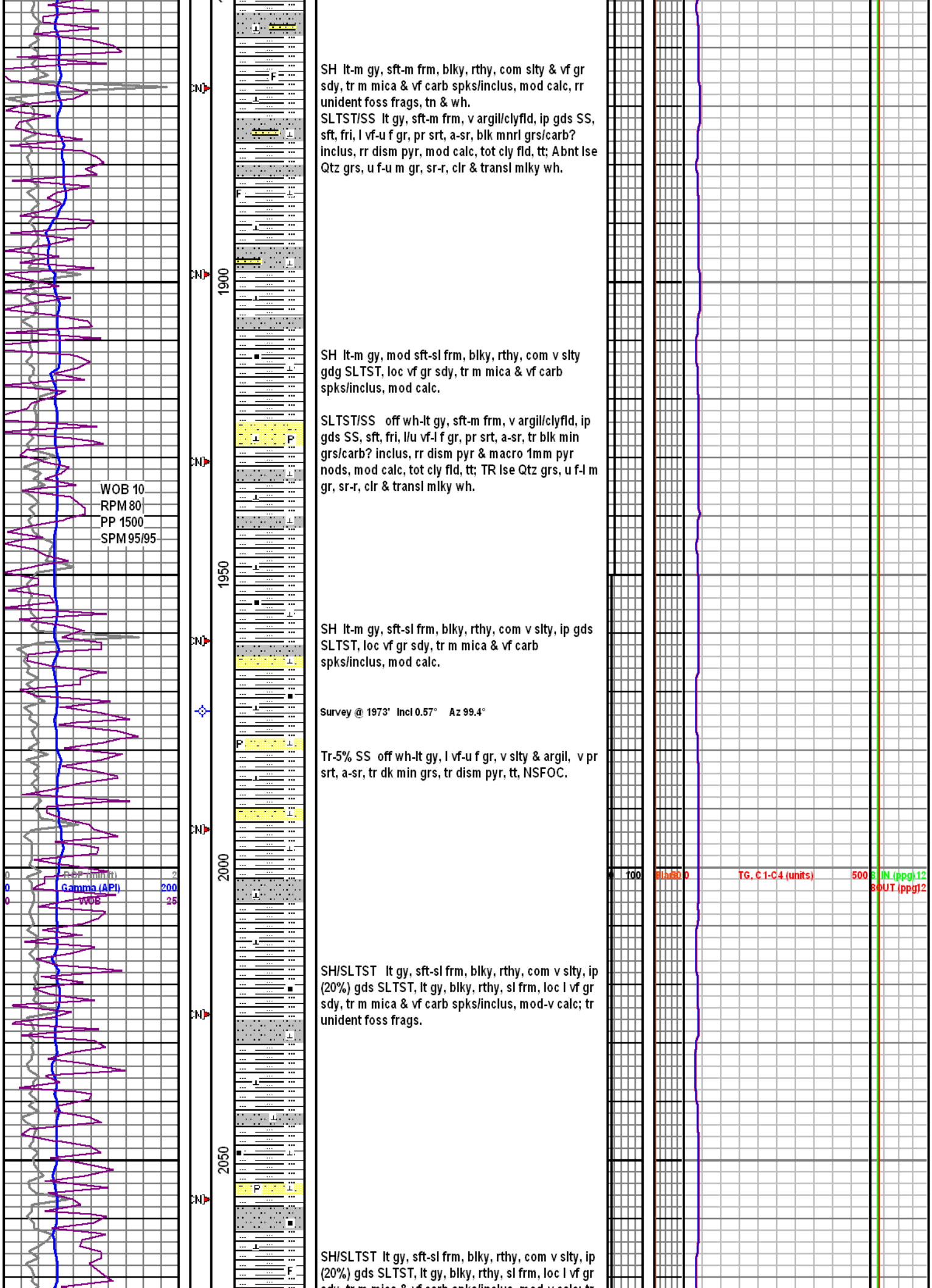
SLTST lt-m gy, s&p, fri-sl frm, sdy ip, occ slty vf gr Ss, cly fld, calc-sl calc, scat carb matr & mica, NSOFC.
SH m-lt gy, sbblky, slty txt, sbchky ip, sl calc, abnt Slt strgs, tr Fos frags, sft-sl frm.
CEMENT (10%)

Check Shot Survey

SH m-lt gy, sbblky, tr sbplty, slty txt, sbchky ip, calc-sl calc, occ scat carb matr, tr Fos frags, sft-fri-sl frm.
SLTST lt-m gy, s&p, fri-sl frm, sdy ip, occ slty vf gr Ss, cly fld, calc-sl calc, scat carb matr & mica, NSOFC.
CEMENT (10%)

SH m-lt gy, sbblky, tr sbplty, slty txt, sbchky ip, calc-sl calc, occ scat carb matr, sft-fri-sl frm.
SLTST lt-m gy, s&p, fri-sl frm, sdy ip, occ slty vf gr


Ss, cly fld, calc-sl calc, scat carb matr & mica, NSOFC.
CEMENT (10%)
SLTST lt-m gy, s&p, fri-sl frm, sdy ip, occ slty vf gr Ss, cly fld, calc-sl calc, scat carb matr & mica, NSOFC.
SH m-lt gy, sbblky, tr sbplty, slty txt, sbchky ip, calc-sl calc, occ scat carb matr, sft-fri-sl frm.
SS lt-m gy, s&p, fri-sl frm, slty vf gr, tr slty L vf-L f gr, sbang-sbrnd, cly fld-arg, scat mica/Pyr/gn cly mnrls/carb matr, no vis por, NSOFC.
WOB 8
RPM 80
PP 1500
SPM 95/95
Survey @ 1689' Incl 1.7° Az 181.0°
SH as above, incr carb ip / Coal frags & ptgs.
SLTST lt-m gy, s&p, fri-sl frm, sdy ip, occ slty vf gr Ss, cly fld, calc-sl calc, scat carb matr & mica, occ Coal/Lig frags, NSOFC.
SS as above.
SH m-lt gy, sbblky-sbplty, slty-rthy-sbchky, sdy ip, sl-mod calc, scat mica & carb matr, rr Fos frags, sft-fri.
SLTST/SS m-lt gy, s&p, off wh, fri, sl-v sdy Sltst, slty arg vf & L vf-L f gr Ss ip, calc, scat mica/carb matr/dk Sh grs, occ gn orng Qtz grs, NSOFC.
ROP (min/ft)
Gamma (API)
WOB
Mud @ 1813' WT 8.6 FV 34 PV 3 YP 2 GS 1/2/2
Fil 18 pH 8 Cl 1650 Hd 380 Sol 1%
TG, C1-C4 (units)
CG
SH lt-m gy, sft-m frm, blky, rthy, com slty & vf gr sdy, tr m mica & vf carb spks/inclus, mod calc, rr unident foss frags, tn & wh.
SLTST/SS lt gy, sft-m frm, v argil/clyfld, ip gds SS, sft, fri, l vf-u f gr, pr srt, a-sr, blk mnrl grs/carb? inclus, rr dism pyr, mod calc, tot cly fld, tt.



SH lt-m gy, sft-m frm, blky, rthy, com slty & vf gr sdy, tr m mica & vf carb spks/inclus, mod calc, rr unident foss frags, tn & wh.
SLTST/SS lt gy, sft-m frm, v argil/clyfld, ip gds SS, sft, fri, l vf-u f gr, pr srt, a-sr, blk mnrl grs/carb? inclus, rr dism pyr, mod calc, tot cly fld, tt; Abnt lse Qtz grs, u f-u m gr, sr-r, clr & transl mlky wh.

SH lt-m gy, mod sft-sl frm, blky, rthy, com v slty gdg SLTST, loc vf gr sdy, tr m mica & vf carb spks/inclus, mod calc.

SLTST/SS off wh-lt gy, sft-m frm, v argil/clyfld, ip gds SS, sft, fri, l/u vf-l f gr, pr srt, a-sr, tr blk min grs/carb? inclus, rr dism pyr & macro 1mm pyr nods, mod calc, tot cly fld, tt; TR lse Qtz grs, u f-l m gr, sr-r, clr & transl mlky wh.

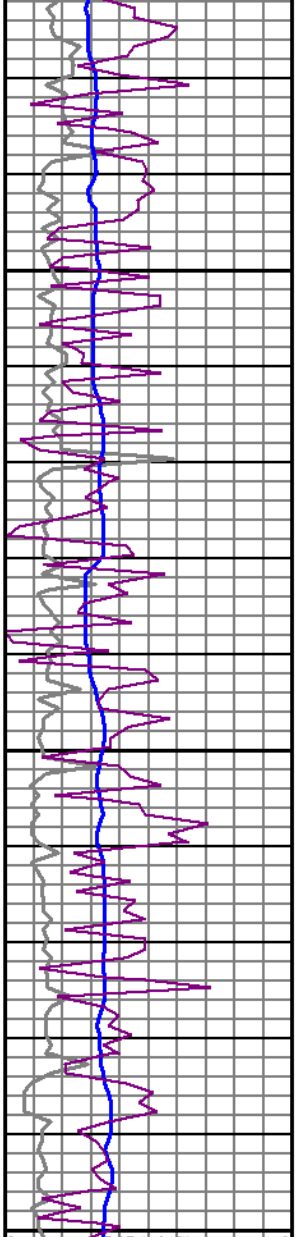
SH lt-m gy, sft-sl frm, blky, rthy, com v slty, ip gds SLTST, loc vf gr sdy, tr m mica & vf carb spks/inclus, mod calc.

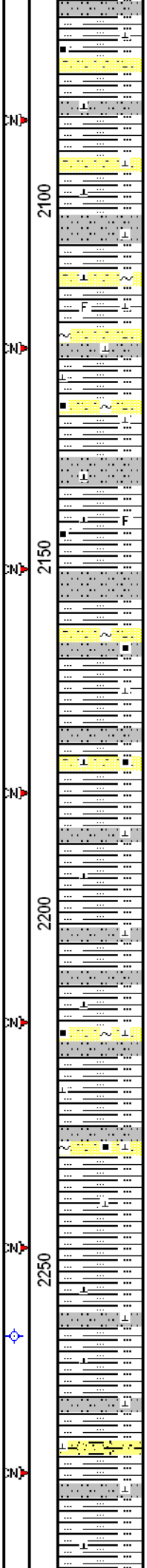
Survey @ 1973' Incl 0.57° Az 99.4°

Tr-5% SS off wh-lt gy, l vf-u f gr, v slty & argil, v pr srt, a-sr, tr dk min grs, tr dism pyr, tt, NSFOC.

SH/SLTST lt gy, sft-sl frm, blky, rthy, com v slty, ip (20%) gds SLTST, lt gy, blky, rthy, sl frm, loc l vf gr sdy, tr m mica & vf carb spks/inclus, mod-v calc; tr unident foss frags.

SH/SLTST lt gy, sft-sl frm, blky, rthy, com v slty, ip (20%) gds SLTST, lt gy, blky, rthy, sl frm, loc l vf gr





sdy, tr m mica & vf carb spks/inclus, mod-v calc; tr unident foss frags.

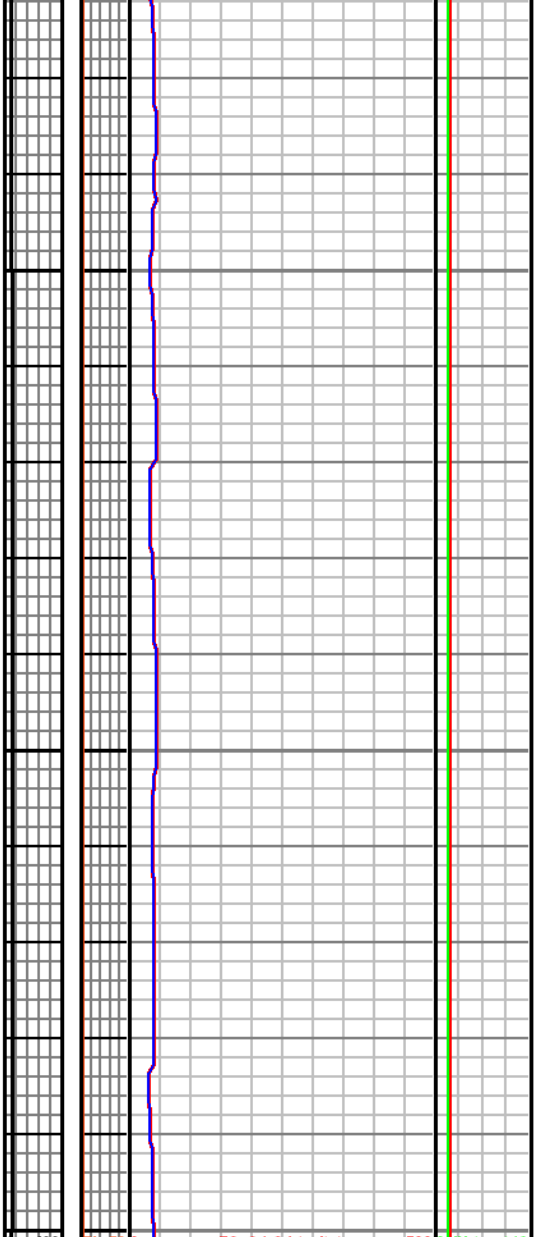
SS (10%) off wh-lt gy, l/u vf-u f gr, slty & argil/tot cly fld, v pr srt, sa-sr, com dk carb inclus/micro lams, v calc, dns/tt, NSFOC.

SH/SLTST lt gy, sft-sl frm, blky, rthy, com v slty, ip (30%) gds SLTST, lt gy, blky, rthy, sl frm, loc l vf gr sdy, tr m mica & vf carb spks/inclus, mod-v calc. No vis lith change.

SS (20%) off wh-lt gy, l/u vf-u f gr, slty & argil/tot cly fld, v pr srt, sa-sr, com dk carb inclus, abnt dk gn glau grs, l m gr, v calc, dns/tt, NSFOC.

SH/SLTST lt gy, sft-sl frm, blky, rthy, com v slty, ip (40%) gds SLTST, lt gy, blky, rthy, sft-sl frm, loc l vf gr sdy, tr m mica & vf carb spks/inclus, mod calc. No vis lith change.

SS (Tr-5%) off wh-lt gy, l/u vf-u f gr, slty & argil/tot cly fld, v pr srt, sa-sr, com dk carb inclus, abnt dk gn glau grs, l m gr, v calc, dns/tt, NSFOC.



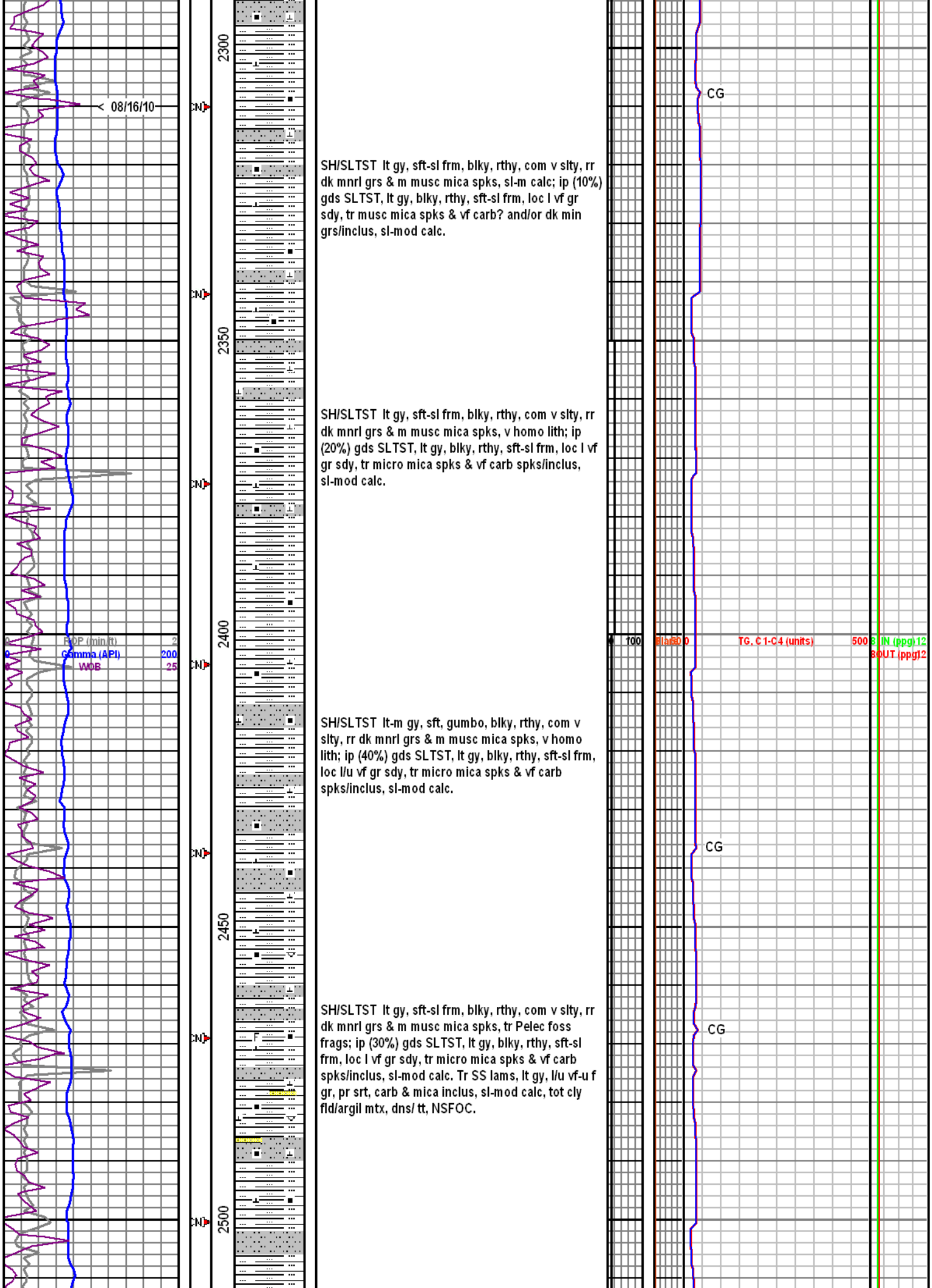
SH/SLTST lt gy, sft-sl frm, blky, rthy, com v slty, ip (40%) gds SLTST, lt gy, blky, rthy, sft-sl frm, loc l vf gr sdy, tr musc mica spks & vf carb spks/inclus, mod calc.

SS (10%) off wh-lt gy, l/u vf-u f gr, slty & argil/tot cly fld, pr srt, sa-sr, tr dk carb inclus, abnt dk gn l m glau grs, v calc, dns/tt, NSFOC.

Survey @ 2259' Incl 0.40° Az 153.6°

SH/SLTST lt gy, sft-sl frm, blky, rthy, com v slty, ip (40%) gds SLTST, lt gy, blky, rthy, sft-sl frm, loc l vf gr sdy, tr micro mica spks & vf carb spks/inclus, tr glau, sl-mod calc.

SS (Tr-2%) off wh-lt gy, l/u vf gr, slty & argil, v pr srt, sa-sr, sm dk mnrl grs &/or carb inclus, tr dk gn glauc grs, mod calc, dns/tt, NSFOC.

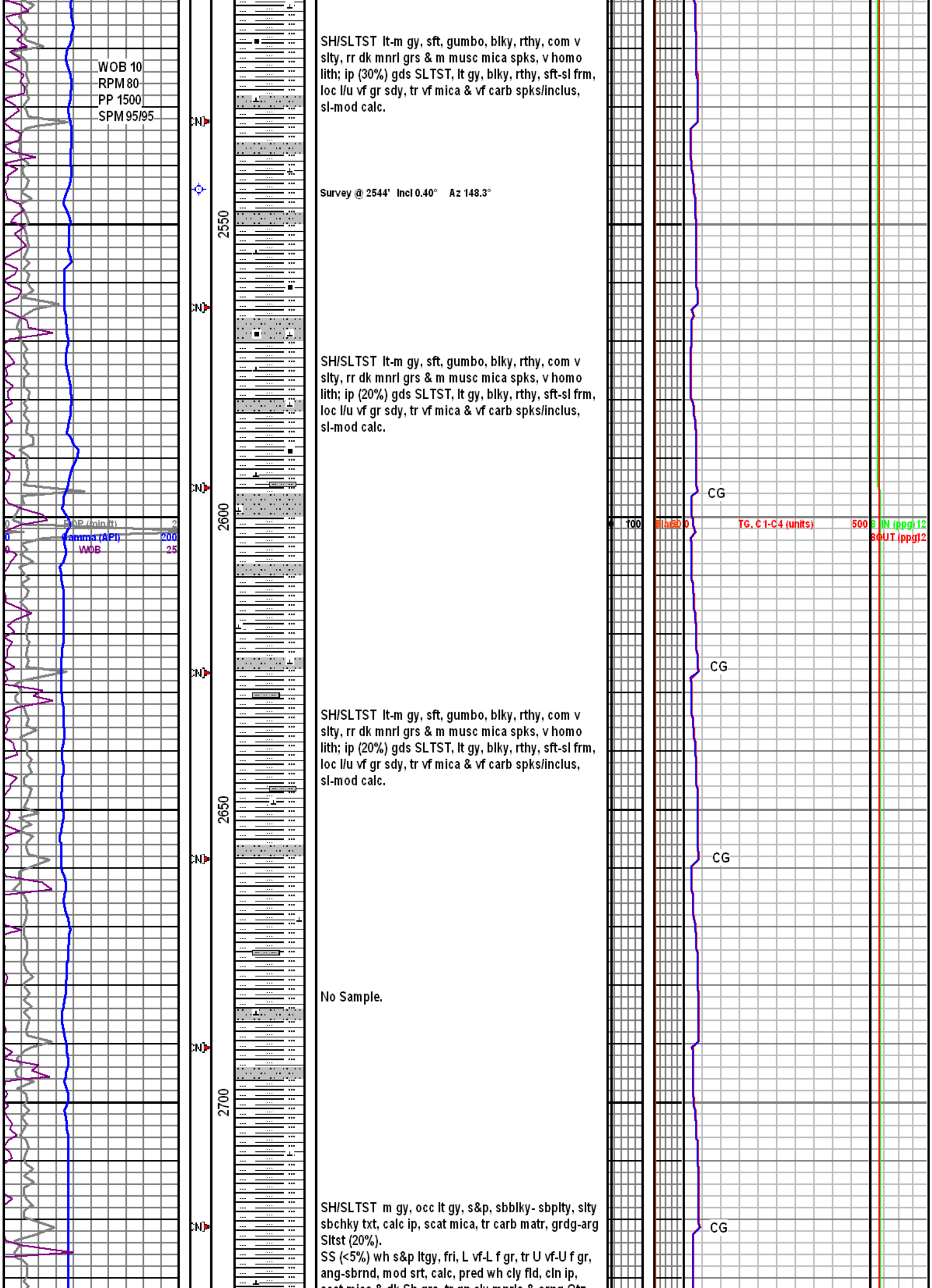


SH/SLTST lt gy, sft-sl frm, blky, rthy, com v slty, rr dk mnrl grs & m musc mica spks, sl-m calc; ip (10%) gds SLTST, lt gy, blky, rthy, sft-sl frm, loc l vf gr sdy, tr musc mica spks & vf carb? and/or dk min grs/inclus, sl-mod calc.

SH/SLTST lt gy, sft-sl frm, blky, rthy, com v slty, rr dk mnrl grs & m musc mica spks, v homo lith; ip (20%) gds SLTST, lt gy, blky, rthy, sft-sl frm, loc l vf gr sdy, tr micro mica spks & vf carb spks/inclus, sl-mod calc.

SH/SLTST lt-m gy, sft, gumbo, blky, rthy, com v slty, rr dk mnrl grs & m musc mica spks, v homo lith; ip (40%) gds SLTST, lt gy, blky, rthy, sft-sl frm, loc l/u vf gr sdy, tr micro mica spks & vf carb spks/inclus, sl-mod calc.

SH/SLTST lt gy, sft-sl frm, blky, rthy, com v slty, rr dk mnrl grs & m musc mica spks, tr Pelec foss frags; ip (30%) gds SLTST, lt gy, blky, rthy, sft-sl frm, loc l vf gr sdy, tr micro mica spks & vf carb spks/inclus, sl-mod calc. Tr SS lams, lt gy, l/u vf-u f gr, pr srt, carb & mica inclus, sl-mod calc, tot cly fld/argil mtx, dns/ tt, NSFOC.



SH/SLTST lt-m gy, sft, gumbo, blky, rthy, com v slty, rr dk mnrl grs & m musc mica spks, v homo lith; ip (30%) gds SLTST, lt gy, blky, rthy, sft-sl frm, loc l/u vf gr sdy, tr vf mica & vf carb spks/inclus, sl-mod calc.

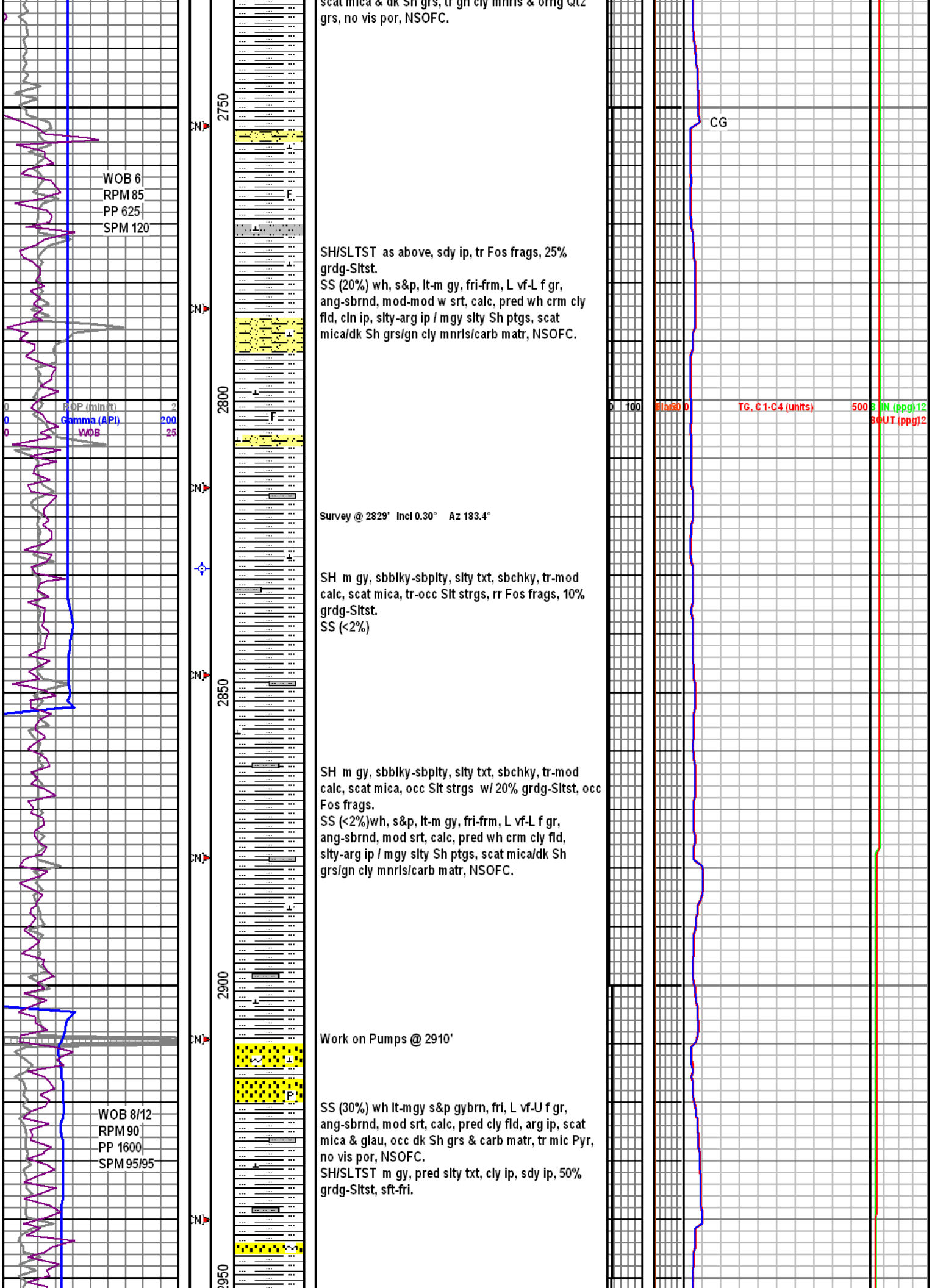
Survey @ 2544' Incl 0.40° Az 148.3°

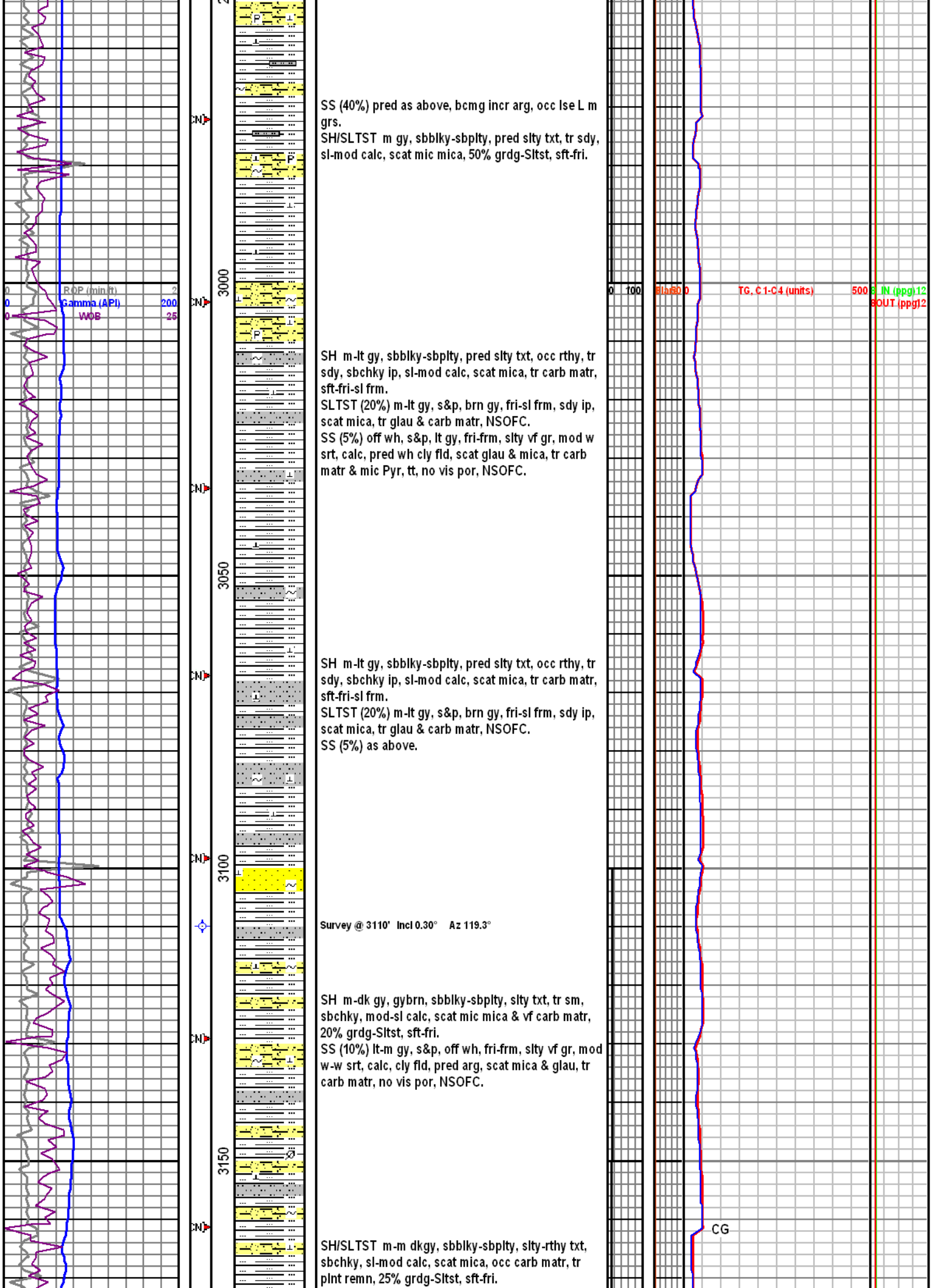
SH/SLTST lt-m gy, sft, gumbo, blky, rthy, com v slty, rr dk mnrl grs & m musc mica spks, v homo lith; ip (20%) gds SLTST, lt gy, blky, rthy, sft-sl frm, loc l/u vf gr sdy, tr vf mica & vf carb spks/inclus, sl-mod calc.

SH/SLTST lt-m gy, sft, gumbo, blky, rthy, com v slty, rr dk mnrl grs & m musc mica spks, v homo lith; ip (20%) gds SLTST, lt gy, blky, rthy, sft-sl frm, loc l/u vf gr sdy, tr vf mica & vf carb spks/inclus, sl-mod calc.

No Sample.

SH/SLTST m gy, occ lt gy, s&p, sbblky- sbplty, slty sbchky txt, calc ip, scat mica, tr carb matr, grdg-arg Sltst (20%).
SS (<5%) wh s&p ltgy, fri, L vf-L f gr, tr U vf-U f gr, ang-sbrnd, mod srt, calc, pred wh cly fld, cln ip,


scat mica & dk Sh grs, tr gn cly mnrls & orng Qtz grs, no vis por, NSOFC.
CG
WOB 6
RPM 85
PP 625
SPM 120
ROP (min/ft)
Gamma (API)
WOB
TG, C1-C4 (units)
IN (ppg)
OUT (ppg)
SH/SLTST as above, sdy ip, tr Fos frags, 25% grdg-Sltst.
SS (20%) wh, s&p, lt-m gy, fri-frm, L vf-L f gr, ang-sbrnd, mod-mod w srt, calc, pred wh crm cly fld, cln ip, slty-arg ip / mgy slty Sh ptgs, scat mica/dk Sh grs/gn cly mnrls/carb matr, NSOFC.
Survey @ 2829' Incl 0.30° Az 183.4°
SH m gy, sbblky-sbplty, slty txt, sbchky, tr-mod calc, scat mica, tr-occ Slt strgs, rr Fos frags, 10% grdg-Sltst.
SS (<2%)
SH m gy, sbblky-sbplty, slty txt, sbchky, tr-mod calc, scat mica, occ Slt strgs w/ 20% grdg-Sltst, occ Fos frags.
SS (<2%)wh, s&p, lt-m gy, fri-frm, L vf-L f gr, ang-sbrnd, mod srt, calc, pred wh crm cly fld, slty-arg ip / mgy slty Sh ptgs, scat mica/dk Sh grs/gn cly mnrls/carb matr, NSOFC.
Work on Pumps @ 2910'
WOB 8/12
RPM 90
PP 1600
SPM 95/95
SS (30%) wh lt-mgy s&p gybrn, fri, L vf-U f gr, ang-sbrnd, mod srt, calc, pred cly fld, arg ip, scat mica & glau, occ dk Sh grs & carb matr, tr mic Pyr, no vis por, NSOFC.
SH/SLTST m gy, pred slty txt, cly ip, sdy ip, 50% grdg-Sltst, sft-fri.
2750
2800
2850
2900
2950



SS (40%) pred as above, bcmg incr arg, occ lse L m grs.
SH/SLTST m gy, sbblky-sbplty, pred slty txt, tr sdy, sl-mod calc, scat mic mica, 50% grdg-Sltst, sft-fri.

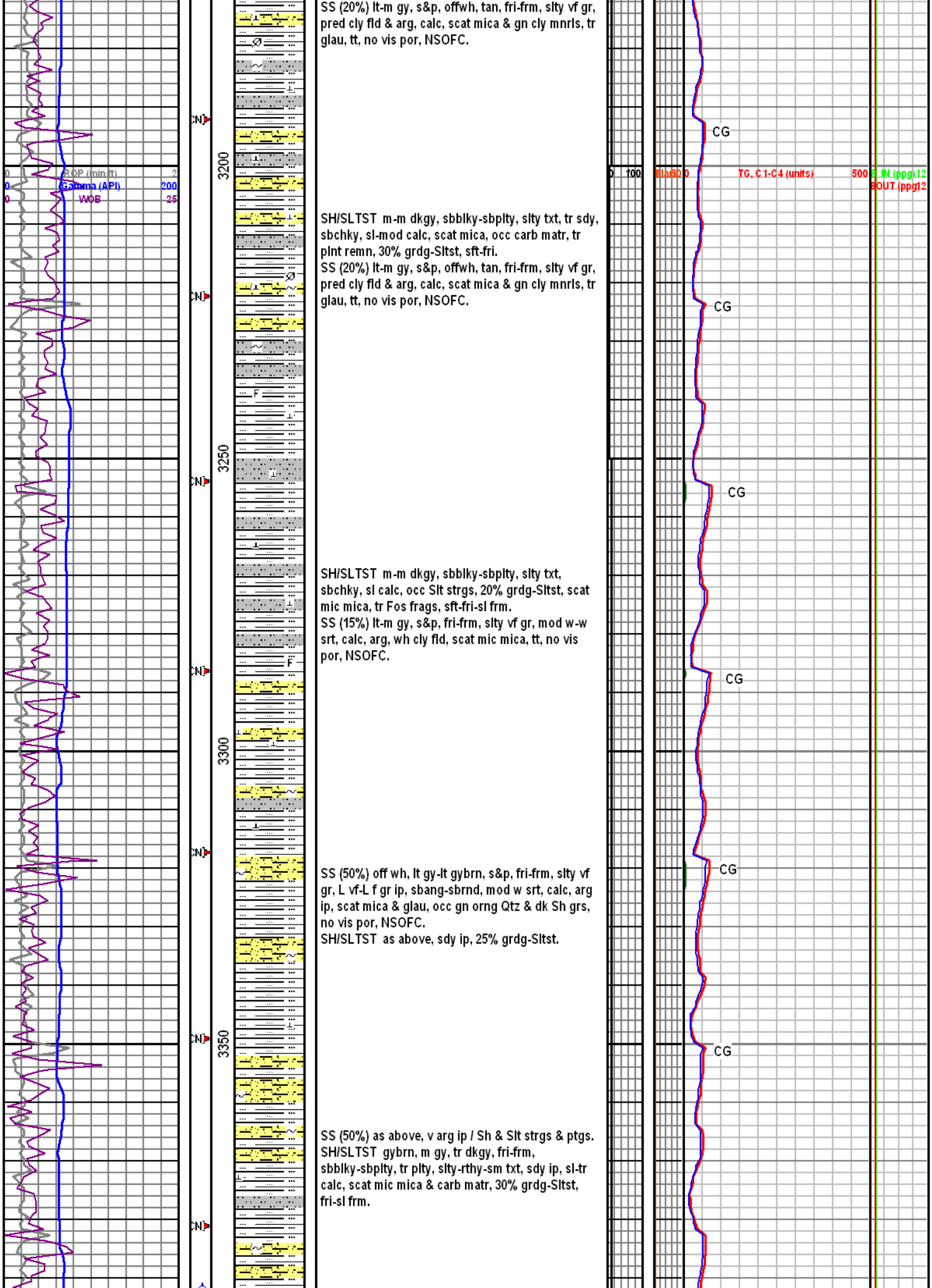
SH m-lt gy, sbblky-sbplty, pred slty txt, occ rthy, tr sdy, sbchky ip, sl-mod calc, scat mica, tr carb matr, sft-fri-sl frm.
SLTST (20%) m-lt gy, s&p, brn gy, fri-sl frm, sdy ip, scat mica, tr glau & carb matr, NSOFC.
SS (5%) off wh, s&p, lt gy, fri-frm, slty vf gr, mod w srt, calc, pred wh cly fld, scat glau & mica, tr carb matr & mic Pyr, tt, no vis por, NSOFC.

SH m-lt gy, sbblky-sbplty, pred slty txt, occ rthy, tr sdy, sbchky ip, sl-mod calc, scat mica, tr carb matr, sft-fri-sl frm.
SLTST (20%) m-lt gy, s&p, brn gy, fri-sl frm, sdy ip, scat mica, tr glau & carb matr, NSOFC.
SS (5%) as above.

Survey @ 3110' Incl 0.30° Az 119.3°

SH m-dk gy, gybrn, sbblky-sbplty, slty txt, tr sm, sbchky, mod-sl calc, scat mic mica & vf carb matr, 20% grdg-Sltst, sft-fri.
SS (10%) lt-m gy, s&p, off wh, fri-frm, slty vf gr, mod w-w srt, calc, cly fld, pred arg, scat mica & glau, tr carb matr, no vis por, NSOFC.

SH/SLTST m-m dkgy, sbblky-sbplty, slty-rthy txt, sbchky, sl-mod calc, scat mica, occ carb matr, tr plnt remn, 25% grdg-Sltst, sft-fri.



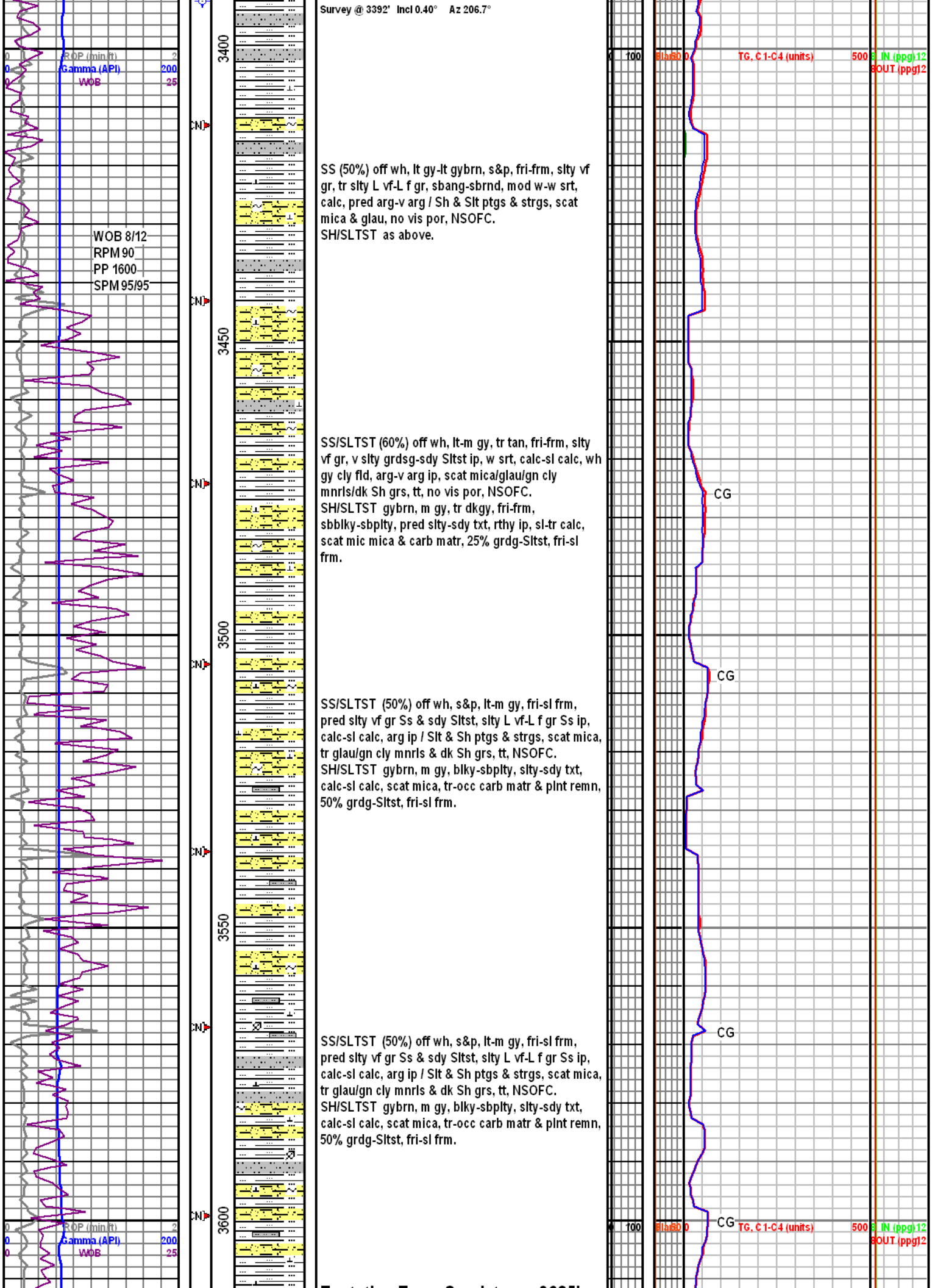
SS (20%) lt-m gy, s&p, offwh, tan, fri-frm, slty vf gr, pred cly fld & arg, calc, scat mica & gn cly mnrls, tr glau, tt, no vis por, NSOFC.

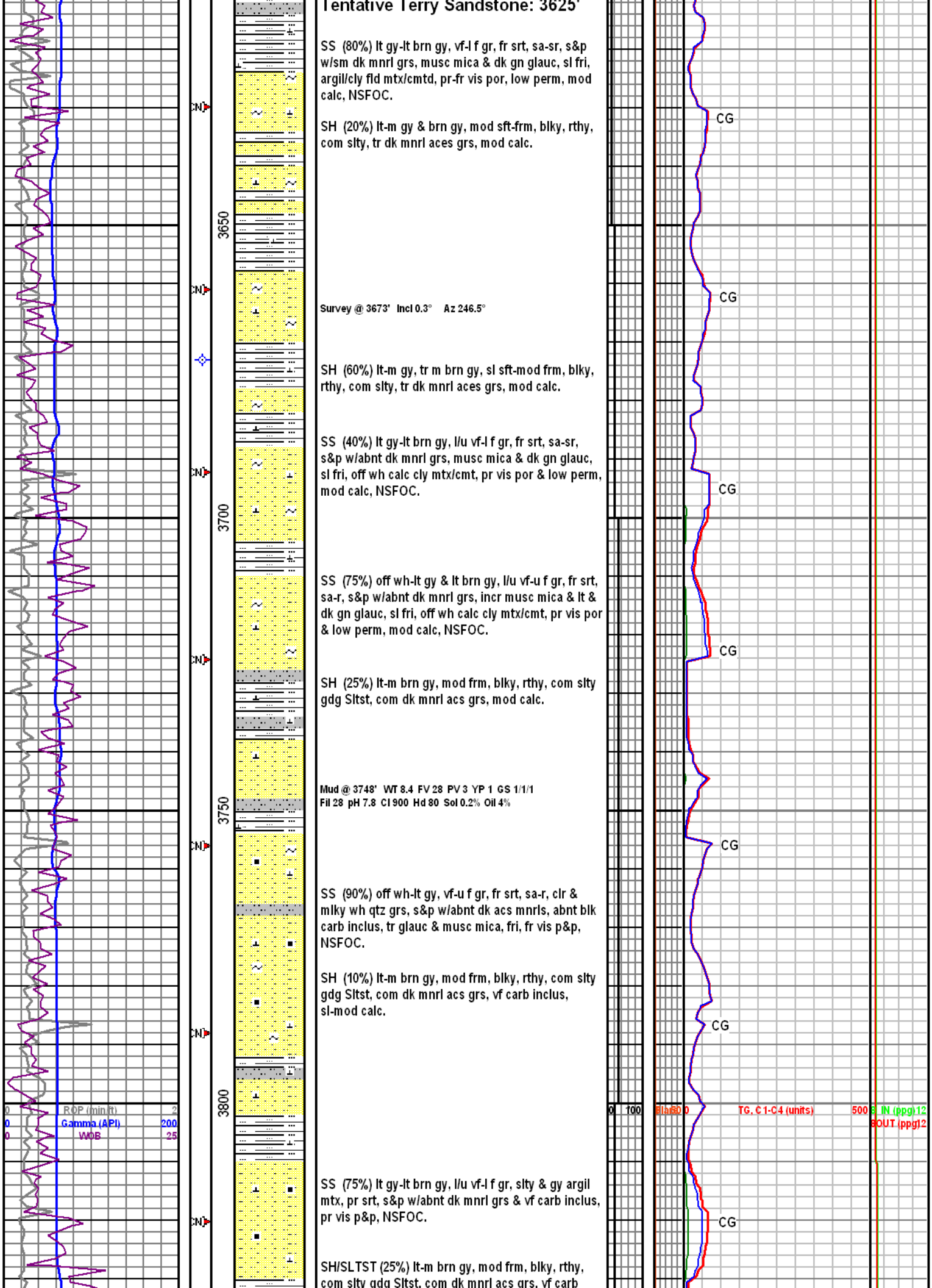
SH/SLTST m-m dkgy, sbblky-sbplty, slty txt, tr sdy, sbchky, sl-mod calc, scat mica, occ carb matr, tr plnt remn, 30% grdg-Sltst, sft-fri.
SS (20%) lt-m gy, s&p, offwh, tan, fri-frm, slty vf gr, pred cly fld & arg, calc, scat mica & gn cly mnrls, tr glau, tt, no vis por, NSOFC.

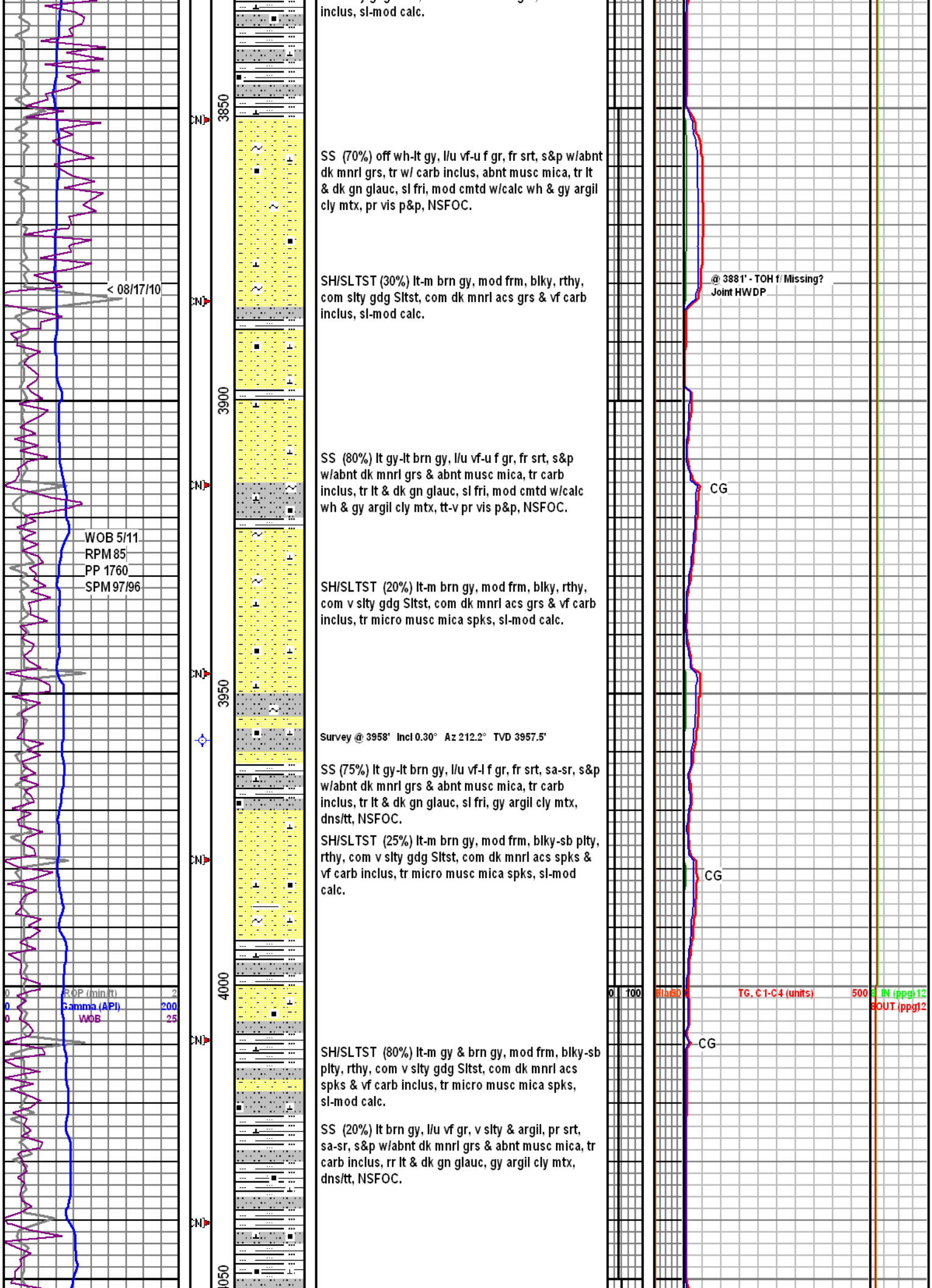
SH/SLTST m-m dkgy, sbblky-sbplty, slty txt, sbchky, sl calc, occ Slt strgs, 20% grdg-Sltst, scat mic mica, tr Fos frags, sft-fri-sl frm.
SS (15%) lt-m gy, s&p, fri-frm, slty vf gr, mod w-w srt, calc, arg, wh cly fld, scat mic mica, tt, no vis por, NSOFC.

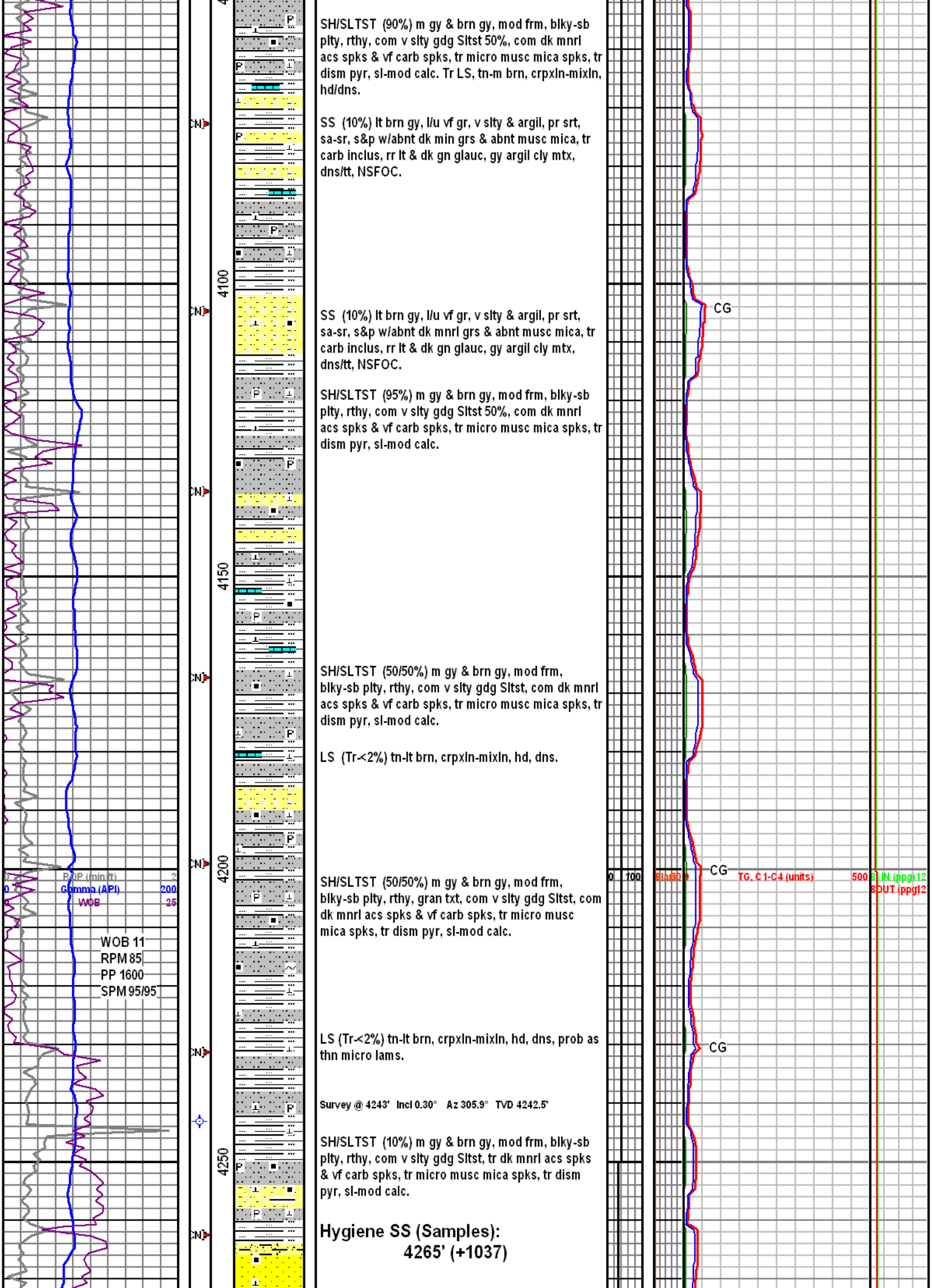
SS (50%) off wh, lt gy-lt gybrn, s&p, fri-frm, slty vf gr, L vf-L f gr ip, sbang-sbrnd, mod w srt, calc, arg ip, scat mica & glau, occ gn orng Qtz & dk Sh grs, no vis por, NSOFC.
SH/SLTST as above, sdy ip, 25% grdg-Sltst.

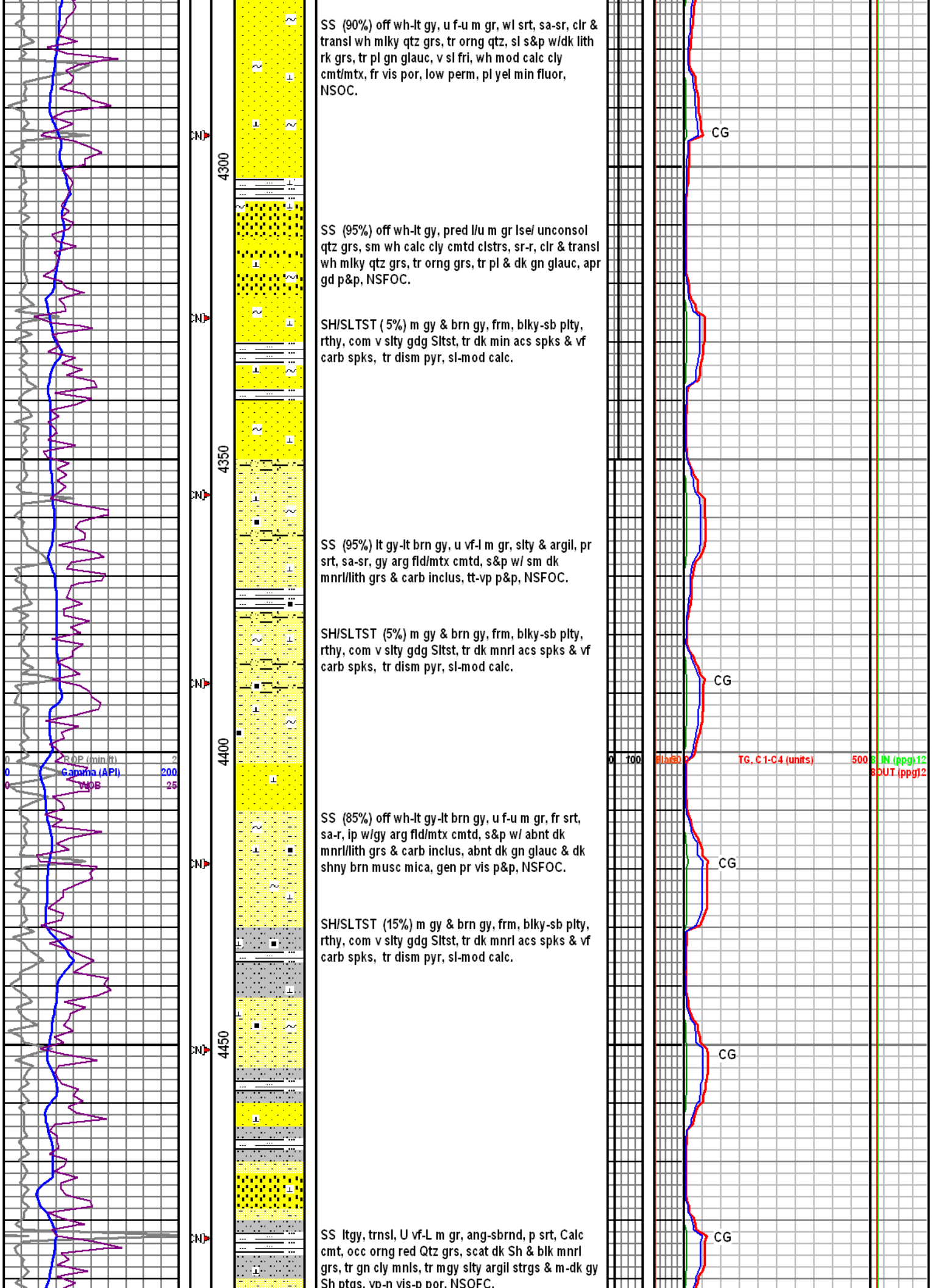
SS (50%) as above, v arg ip / Sh & Slt strgs & ptgs.
SH/SLTST gybrn, m gy, tr dkgy, fri-frm, sbblky-sbplty, tr plty, slty-rthy-sm txt, sdy ip, sl-tr calc, scat mic mica & carb matr, 30% grdg-Sltst, fri-sl frm.


ROP (min/ft)
0
2
Gamma (API)
0
200
WOB
0
25
WOB 8/12
RPM 90
PP 1600
SPM 95/95
3400
3450
3500
3550
3600
Survey @ 3392' Incl 0.40° Az 206.7°
SS (50%) off wh, lt gy-lt gybrn, s&p, fri-frm, slty vf gr, tr slty L vf-L f gr, sbang-sbrnd, mod w-w srt, calc, pred arg-v arg / Sh & Slt ptgs & strgs, scat mica & glau, no vis por, NSOFC.
SH/SLTST as above.
SS/SLTST (60%) off wh, lt-m gy, tr tan, fri-frm, slty vf gr, v slty grdsg-sdy Sltst ip, w srt, calc-sl calc, wh gy cly fld, arg-v arg ip, scat mica/glau/gn cly mnrls/dk Sh grs, tt, no vis por, NSOFC.
SH/SLTST gybrn, m gy, tr dkgy, fri-frm, sbblky-sbplty, pred slty-sdy txt, rthy ip, sl-tr calc, scat mic mica & carb matr, 25% grdg-Sltst, fri-sl frm.
SS/SLTST (50%) off wh, s&p, lt-m gy, fri-sl frm, pred slty vf gr Ss & sdy Sltst, slty L vf-L f gr Ss ip, calc-sl calc, arg ip / Slt & Sh ptgs & strgs, scat mica, tr glau/gn cly mnrls & dk Sh grs, tt, NSOFC.
SH/SLTST gybrn, m gy, blky-sbplty, slty-sdy txt, calc-sl calc, scat mica, tr-occ carb matr & plnt remn, 50% grdg-Sltst, fri-sl frm.
SS/SLTST (50%) off wh, s&p, lt-m gy, fri-sl frm, pred slty vf gr Ss & sdy Sltst, slty L vf-L f gr Ss ip, calc-sl calc, arg ip / Slt & Sh ptgs & strgs, scat mica, tr glau/gn cly mnrls & dk Sh grs, tt, NSOFC.
SH/SLTST gybrn, m gy, blky-sbplty, slty-sdy txt, calc-sl calc, scat mica, tr-occ carb matr & plnt remn, 50% grdg-Sltst, fri-sl frm.
100
Blah80
TG, C1-C4 (units)
500
IN (ppg)12
OUT (ppg)12
CG
CG
CG
CG
ROP (min/ft)
Gamma (API)
WOB


Tentative Terry Sandstone: 3625'
SS (80%) lt gy-lt brn gy, vf-l f gr, fr srt, sa-sr, s&p w/sm dk mnrl grs, musc mica & dk gn glauc, sl fri, argil/cly fld mtx/cmtd, pr-fr vis por, low perm, mod calc, NSFOC.
SH (20%) lt-m gy & brn gy, mod sft-frm, blky, rthy, com slty, tr dk mnrl aces grs, mod calc.
Survey @ 3673' Incl 0.3° Az 246.5°
SH (60%) lt-m gy, tr m brn gy, sl sft-mod frm, blky, rthy, com slty, tr dk mnrl aces grs, mod calc.
SS (40%) lt gy-lt brn gy, l/u vf-l f gr, fr srt, sa-sr, s&p w/abnt dk mnrl grs, musc mica & dk gn glauc, sl fri, off wh calc cly mtx/cmt, pr vis por & low perm, mod calc, NSFOC.
SS (75%) off wh-lt gy & lt brn gy, l/u vf-u f gr, fr srt, sa-r, s&p w/abnt dk mnrl grs, incr musc mica & lt & dk gn glauc, sl fri, off wh calc cly mtx/cmt, pr vis por & low perm, mod calc, NSFOC.
SH (25%) lt-m brn gy, mod frm, blky, rthy, com slty gdg Sltst, com dk mnrl acs grs, mod calc.
Mud @ 3748' WT 8.4 FV 28 PV 3 YP 1 GS 1/1/1
Fil 28 pH 7.8 Cl 900 Hd 80 Sol 0.2% Oil 4%
SS (90%) off wh-lt gy, vf-u f gr, fr srt, sa-r, clr & mlky wh qtz grs, s&p w/abnt dk acs mnrls, abnt blk carb inclus, tr glauc & musc mica, fri, fr vis p&p, NSFOC.
SH (10%) lt-m brn gy, mod frm, blky, rthy, com slty gdg Sltst, com dk mnrl acs grs, vf carb inclus, sl-mod calc.
SS (75%) lt gy-lt brn gy, l/u vf-l f gr, slty & gy argil mtx, pr srt, s&p w/abnt dk mnrl grs & vf carb inclus, pr vis p&p, NSFOC.
SH/SLTST (25%) lt-m brn gy, mod frm, blky, rthy, com slty gdg Sltst, com dk mnrl acs grs, vf carb
3650
3700
3750
3800
CG
ROP (min/ft)
Gamma (API)
WOB
TG, C1-C4 (units)
MW IN (ppg)
MW OUT (ppg)


inclus, sl-mod calc.
SS (70%) off wh-lt gy, l/u vf-u f gr, fr srt, s&p w/abnt dk mnrl grs, tr w/ carb inclus, abnt musc mica, tr lt & dk gn glauc, sl fri, mod cmtd w/calc wh & gy argil cly mtx, pr vis p&p, NSFOC.
< 08/17/10
SH/SLTST (30%) lt-m brn gy, mod frm, blky, rthy, com slty gdg Sltst, com dk mnrl acs grs & vf carb inclus, sl-mod calc.
@ 3881' - TOH f/ Missing? Joint HWDP
SS (80%) lt gy-lt brn gy, l/u vf-u f gr, fr srt, s&p w/abnt dk mnrl grs & abnt musc mica, tr carb inclus, tr lt & dk gn glauc, sl fri, mod cmtd w/calc wh & gy argil cly mtx, tt-v pr vis p&p, NSFOC.
CG
WOB 5/11
RPM 85
PP 1760
SPM 97/96
SH/SLTST (20%) lt-m brn gy, mod frm, blky, rthy, com v slty gdg Sltst, com dk mnrl acs grs & vf carb inclus, tr micro musc mica spks, sl-mod calc.
Survey @ 3958' Incl 0.30° Az 212.2° TVD 3957.5'
SS (75%) lt gy-lt brn gy, l/u vf-l f gr, fr srt, sa-sr, s&p w/abnt dk mnrl grs & abnt musc mica, tr carb inclus, tr lt & dk gn glauc, sl fri, gy argil cly mtx, dns/tt, NSFOC.
SH/SLTST (25%) lt-m brn gy, mod frm, blky-sb plty, rthy, com v slty gdg Sltst, com dk mnrl acs spks & vf carb inclus, tr micro musc mica spks, sl-mod calc.
CG
ROP (min/ft)
Gamma (API)
WOB
TG, C1-C4 (units)
MIN (ppg)
MOUT (ppg)
CG
SH/SLTST (80%) lt-m gy & brn gy, mod frm, blky-sb plty, rthy, com v slty gdg Sltst, com dk mnrl acs spks & vf carb inclus, tr micro musc mica spks, sl-mod calc.
SS (20%) lt brn gy, l/u vf gr, v slty & argil, pr srt, sa-sr, s&p w/abnt dk mnrl grs & abnt musc mica, tr carb inclus, rr lt & dk gn glauc, gy argil cly mtx, dns/tt, NSFOC.
3850
3900
3950
4000
4050


ROP (min/ft)
Gamma (API)
WOB
WOB 11
RPM 85
PP 1600
SPM 95/95
4100
4150
4200
4250
SH/SLTST (90%) m gy & brn gy, mod frm, blky-sb plty, rthy, com v slty gdg Sltst 50%, com dk mnrl acs spks & vf carb spks, tr micro musc mica spks, tr dism pyr, sl-mod calc. Tr LS, tn-m brn, crpxln-mixln, hd/dns.
SS (10%) lt brn gy, l/u vf gr, v slty & argil, pr srt, sa-sr, s&p w/abnt dk min grs & abnt musc mica, tr carb inclus, rr lt & dk gn glauc, gy argil cly mtx, dns/tt, NSFOC.
SS (10%) lt brn gy, l/u vf gr, v slty & argil, pr srt, sa-sr, s&p w/abnt dk mnrl grs & abnt musc mica, tr carb inclus, rr lt & dk gn glauc, gy argil cly mtx, dns/tt, NSFOC.
SH/SLTST (95%) m gy & brn gy, mod frm, blky-sb plty, rthy, com v slty gdg Sltst 50%, com dk mnrl acs spks & vf carb spks, tr micro musc mica spks, tr dism pyr, sl-mod calc.
SH/SLTST (50/50%) m gy & brn gy, mod frm, blky-sb plty, rthy, com v slty gdg Sltst, com dk mnrl acs spks & vf carb spks, tr micro musc mica spks, tr dism pyr, sl-mod calc.
LS (Tr-<2%) tn-lt brn, crpxln-mixln, hd, dns.
SH/SLTST (50/50%) m gy & brn gy, mod frm, blky-sb plty, rthy, gran txt, com v slty gdg Sltst, com dk mnrl acs spks & vf carb spks, tr micro musc mica spks, tr dism pyr, sl-mod calc.
LS (Tr-<2%) tn-lt brn, crpxln-mixln, hd, dns, prob as thn micro lams.
Survey @ 4243' Incl 0.30° Az 305.9° TVD 4242.5'
SH/SLTST (10%) m gy & brn gy, mod frm, blky-sb plty, rthy, com v slty gdg Sltst, tr dk mnrl acs spks & vf carb spks, tr micro musc mica spks, tr dism pyr, sl-mod calc.
Hygiene SS (Samples):
4265' (+1037)
CG
CG
CG
0 100
TG, C1-C4 (units)
500 8 IN (ppg)12
8OUT (ppg)12



SS (90%) off wh-lt gy, u f-u m gr, wl srt, sa-sr, clr & transl wh mlky qtz grs, tr orng qtz, sl s&p w/dk lith rk grs, tr pl gn glauc, v sl fri, wh mod calc cly cmt/mtx, fr vis por, low perm, pl yel min fluor, NSOC.

SS (95%) off wh-lt gy, pred l/u m gr lse/ unconsol qtz grs, sm wh calc cly cmtd clstrs, sr-r, clr & transl wh mlky qtz grs, tr orng grs, tr pl & dk gn glauc, apr gd p&p, NSFOC.

SH/SLTST (5%) m gy & brn gy, frm, blky-sb plty, rthy, com v slty gdg Sltst, tr dk min acs spks & vf carb spks, tr dism pyr, sl-mod calc.

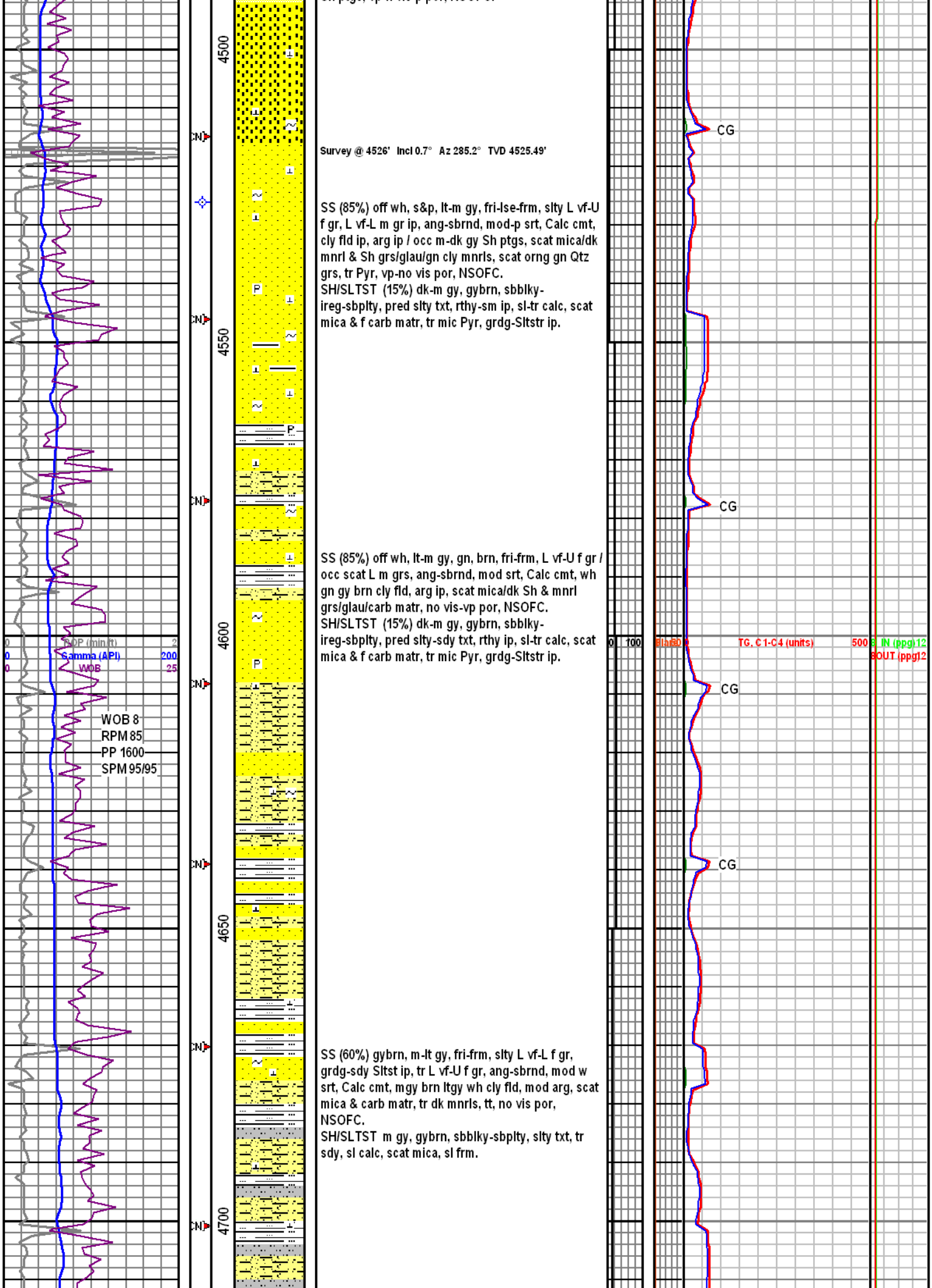
SS (95%) lt gy-lt brn gy, u vf-l m gr, slty & argil, pr srt, sa-sr, gy arg fld/mtx cmtd, s&p w/ sm dk mnrl/lith grs & carb inclus, tt-vp p&p, NSFOC.

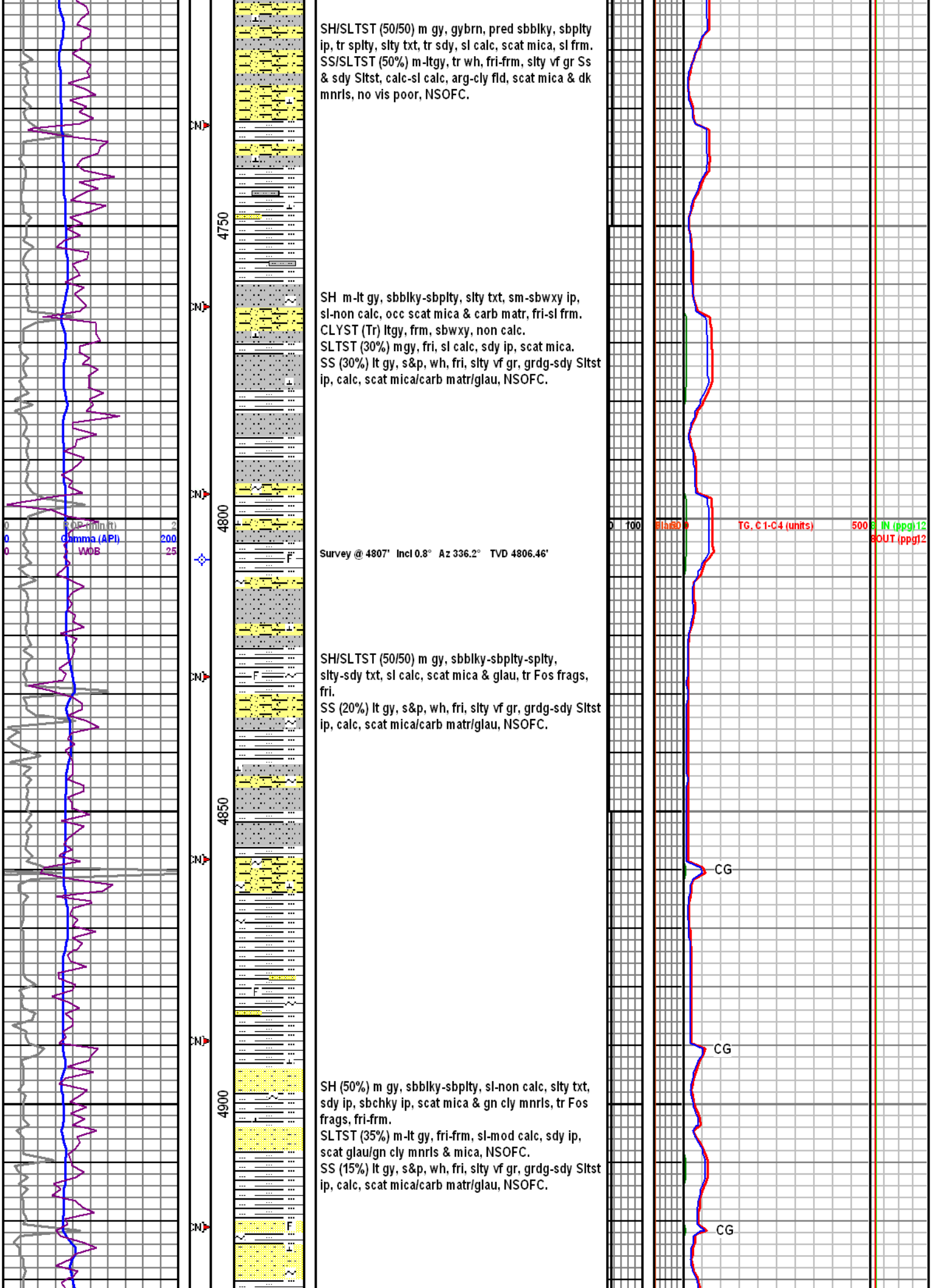
SH/SLTST (5%) m gy & brn gy, frm, blky-sb plty, rthy, com v slty gdg Sltst, tr dk mnrl acs spks & vf carb spks, tr dism pyr, sl-mod calc.

SS (85%) off wh-lt gy-lt brn gy, u f-u m gr, fr srt, sa-r, ip w/gy arg fld/mtx cmtd, s&p w/ abnt dk mnrl/lith grs & carb inclus, abnt dk gn glauc & dk shny brn musc mica, gen pr vis p&p, NSFOC.

SH/SLTST (15%) m gy & brn gy, frm, blky-sb plty, rthy, com v slty gdg Sltst, tr dk mnrl acs spks & vf carb spks, tr dism pyr, sl-mod calc.

SS ltgy, trnsl, U vf-L m gr, ang-sbrnd, p srt, Calc cmt, occ orng red Qtz grs, scat dk Sh & blk mnrl grs, tr gn cly mnls, tr mgy slty argil strgs & m-dk gy Sh ptgs, vp-p vis-p por, NSOFC.


4500
4550
4600
4650
4700
ROP (min/ft)
Gamma (API)
WOB
WOB 8
RPM 85
PP 1600
SPM 95/95
TG, C1-C4 (units)
CG
CG
CG
CG
Survey @ 4526' Incl 0.7° Az 285.2° TVD 4525.49'
SS (85%) off wh, s&p, lt-m gy, fri-lse-frm, slty L vf-U f gr, L vf-L m gr ip, ang-sbrnd, mod-p srt, Calc cmt, cly fld ip, arg ip / occ m-dk gy Sh ptgs, scat mica/dk mnrl & Sh grs/glau/gn cly mnrls, scat orng gn Qtz grs, tr Pyr, vp-no vis por, NSOFC.
SH/SLTST (15%) dk-m gy, gybrn, sbblky-ireg-sbplty, pred slty txt, rthy-sm ip, sl-tr calc, scat mica & f carb matr, tr mic Pyr, grdg-Sltstr ip.
SS (85%) off wh, lt-m gy, gn, brn, fri-frm, L vf-U f gr / occ scat L m grs, ang-sbrnd, mod srt, Calc cmt, wh gn gy brn cly fld, arg ip, scat mica/dk Sh & mnrl grs/glau/carb matr, no vis-vp por, NSOFC.
SH/SLTST (15%) dk-m gy, gybrn, sbblky-ireg-sbplty, pred slty-sdy txt, rthy ip, sl-tr calc, scat mica & f carb matr, tr mic Pyr, grdg-Sltstr ip.
SS (60%) gybrn, m-lt gy, fri-frm, slty L vf-L f gr, grdg-sdy Sltst ip, tr L vf-U f gr, ang-sbrnd, mod w srt, Calc cmt, mgy brn ltgy wh cly fld, mod arg, scat mica & carb matr, tr dk mnrls, tt, no vis por, NSOFC.
SH/SLTST m gy, gybrn, sbblky-sbplty, slty txt, tr sdy, sl calc, scat mica, sl frm.



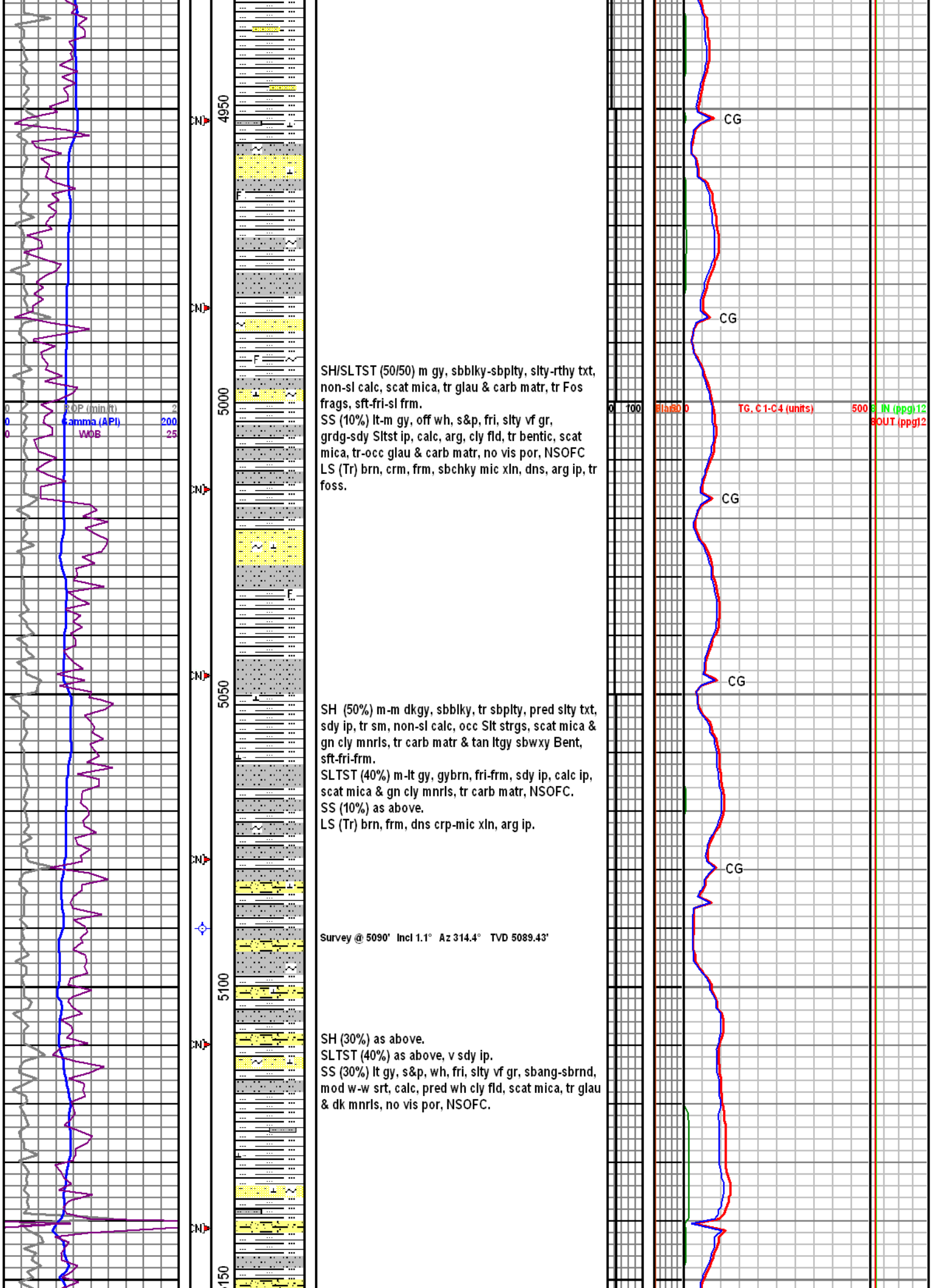
SH/SLTST (50/50) m gy, gybrn, pred sbblky, sbplty ip, tr splty, slty txt, tr sdy, sl calc, scat mica, sl frm.
SS/SLTST (50%) m-ltgy, tr wh, fri-frm, slty vf gr Ss & sdy Sltst, calc-sl calc, arg-cly fld, scat mica & dk mnrls, no vis poor, NSOFC.

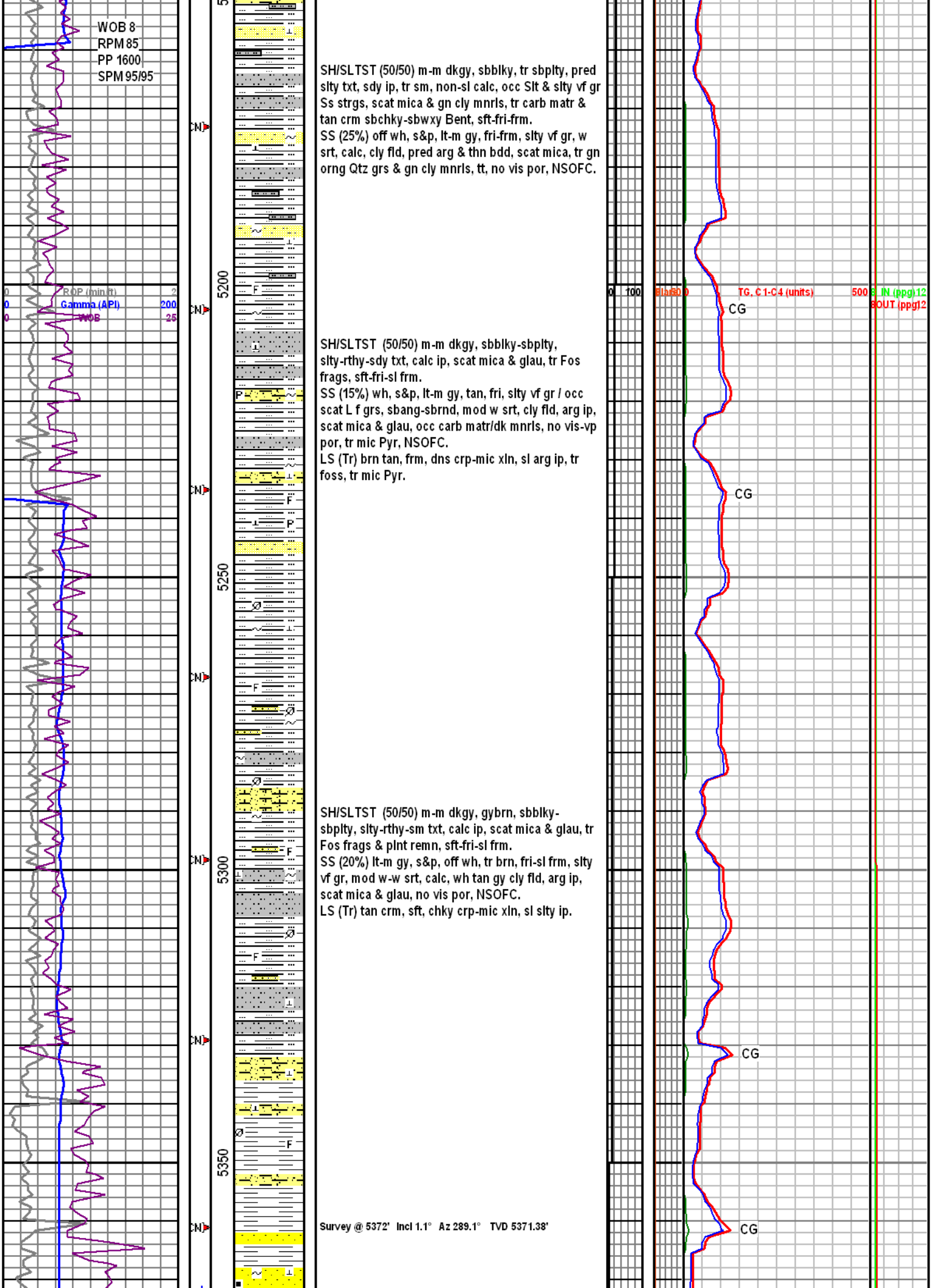
SH m-lt gy, sbblky-sbplty, slty txt, sm-sbwxy ip, sl-non calc, occ scat mica & carb matr, fri-sl frm.
CLYST (Tr) ltgy, frm, sbwxy, non calc.
SLTST (30%) mgy, fri, sl calc, sdy ip, scat mica.
SS (30%) lt gy, s&p, wh, fri, slty vf gr, grdg-sdy Sltst ip, calc, scat mica/carb matr/glau, NSOFC.

Survey @ 4807' Incl 0.8° Az 336.2° TVD 4806.46'

SH/SLTST (50/50) m gy, sbblky-sbplty-splty, slty-sdy txt, sl calc, scat mica & glau, tr Fos frags, fri.
SS (20%) lt gy, s&p, wh, fri, slty vf gr, grdg-sdy Sltst ip, calc, scat mica/carb matr/glau, NSOFC.

SH (50%) m gy, sbblky-sbplty, sl-non calc, slty txt, sdy ip, sbchky ip, scat mica & gn cly mnrls, tr Fos frags, fri-frm.
SLTST (35%) m-lt gy, fri-frm, sl-mod calc, sdy ip, scat glau/gn cly mnrls & mica, NSOFC.
SS (15%) lt gy, s&p, wh, fri, slty vf gr, grdg-sdy Sltst ip, calc, scat mica/carb matr/glau, NSOFC.


ROP (min/ft)
Gamma (API)
WOB
4950
5000
5050
5100
5150
CG
CG
CG
CG
CG
TG, C1-C4 (units)
MIN (ppg)
MOUT (ppg)
SH/SLTST (50/50) m gy, sbblky-sbplty, slty-rthy txt, non-sl calc, scat mica, tr glau & carb matr, tr Fos frags, sft-fri-sl frm.
SS (10%) lt-m gy, off wh, s&p, fri, slty vf gr, grdg-sdy Sltst ip, calc, arg, cly fld, tr bentic, scat mica, tr-occ glau & carb matr, no vis por, NSOFC
LS (Tr) brn, crm, frm, sbchky mic xln, dns, arg ip, tr foss.
SH (50%) m-m dkgy, sbblky, tr sbplty, pred slty txt, sdy ip, tr sm, non-sl calc, occ Slt strgs, scat mica & gn cly mnrls, tr carb matr & tan ltgy sbwxy Bent, sft-fri-frm.
SLTST (40%) m-lt gy, gybrn, fri-frm, sdy ip, calc ip, scat mica & gn cly mnrls, tr carb matr, NSOFC.
SS (10%) as above.
LS (Tr) brn, frm, dns crp-mic xln, arg ip.
Survey @ 5090' Incl 1.1° Az 314.4° TVD 5089.43'
SH (30%) as above.
SLTST (40%) as above, v sdy ip.
SS (30%) lt gy, s&p, wh, fri, slty vf gr, sbang-sbrnd, mod w-w srt, calc, pred wh cly fld, scat mica, tr glau & dk mnrls, no vis por, NSOFC.

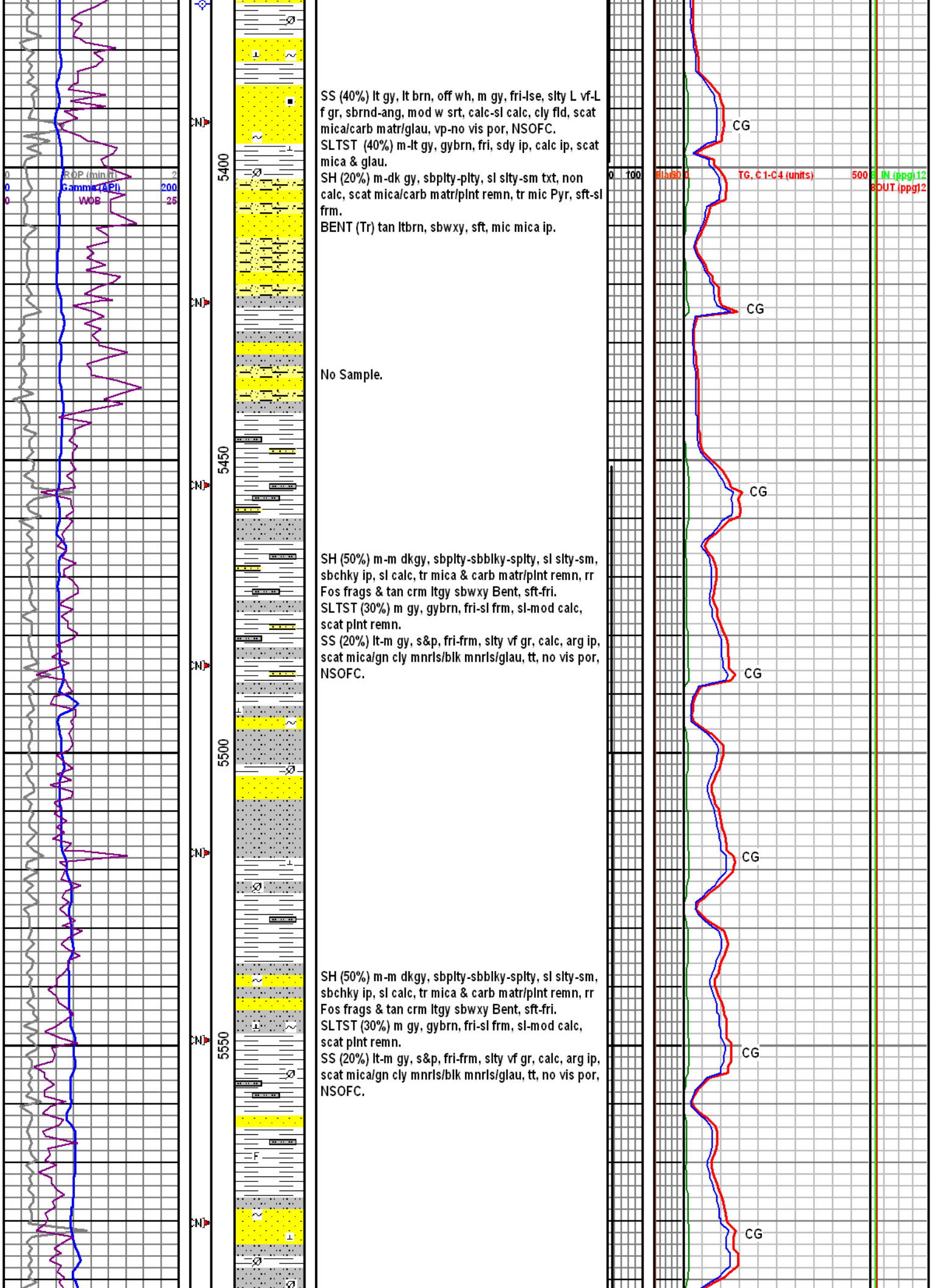


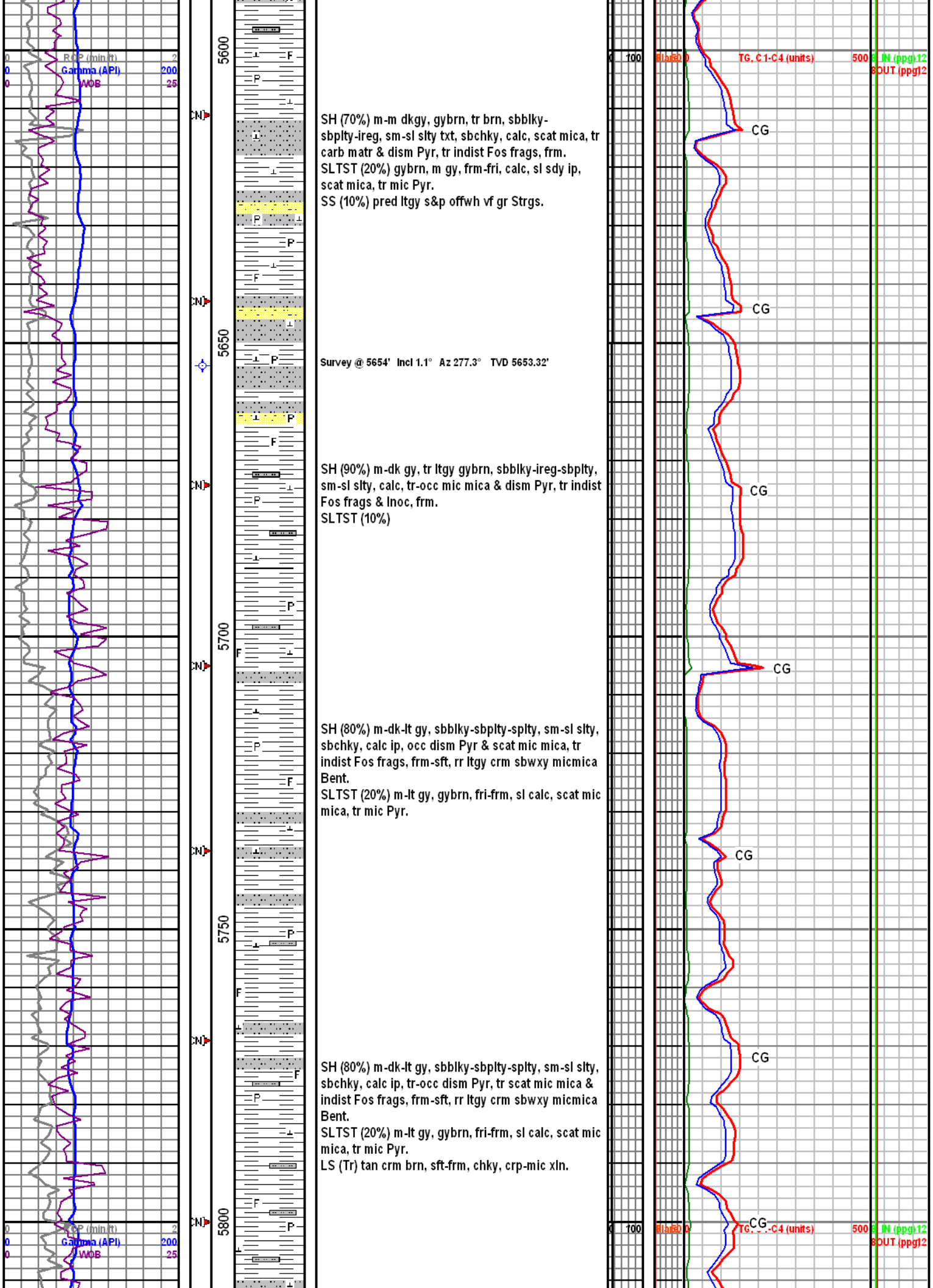
SH/SLTST (50/50) m-m dkgy, sbblky, tr sbplty, pred slty txt, sdy ip, tr sm, non-sl calc, occ Slt & slty vf gr Ss strgs, scat mica & gn cly mnrls, tr carb matr & tan crm sbchky-sbwxy Bent, sft-fri-frm.
SS (25%) off wh, s&p, lt-m gy, fri-frm, slty vf gr, w srt, calc, cly fld, pred arg & thn bdd, scat mica, tr gn orng Qtz grs & gn cly mnrls, tt, no vis por, NSOFC.

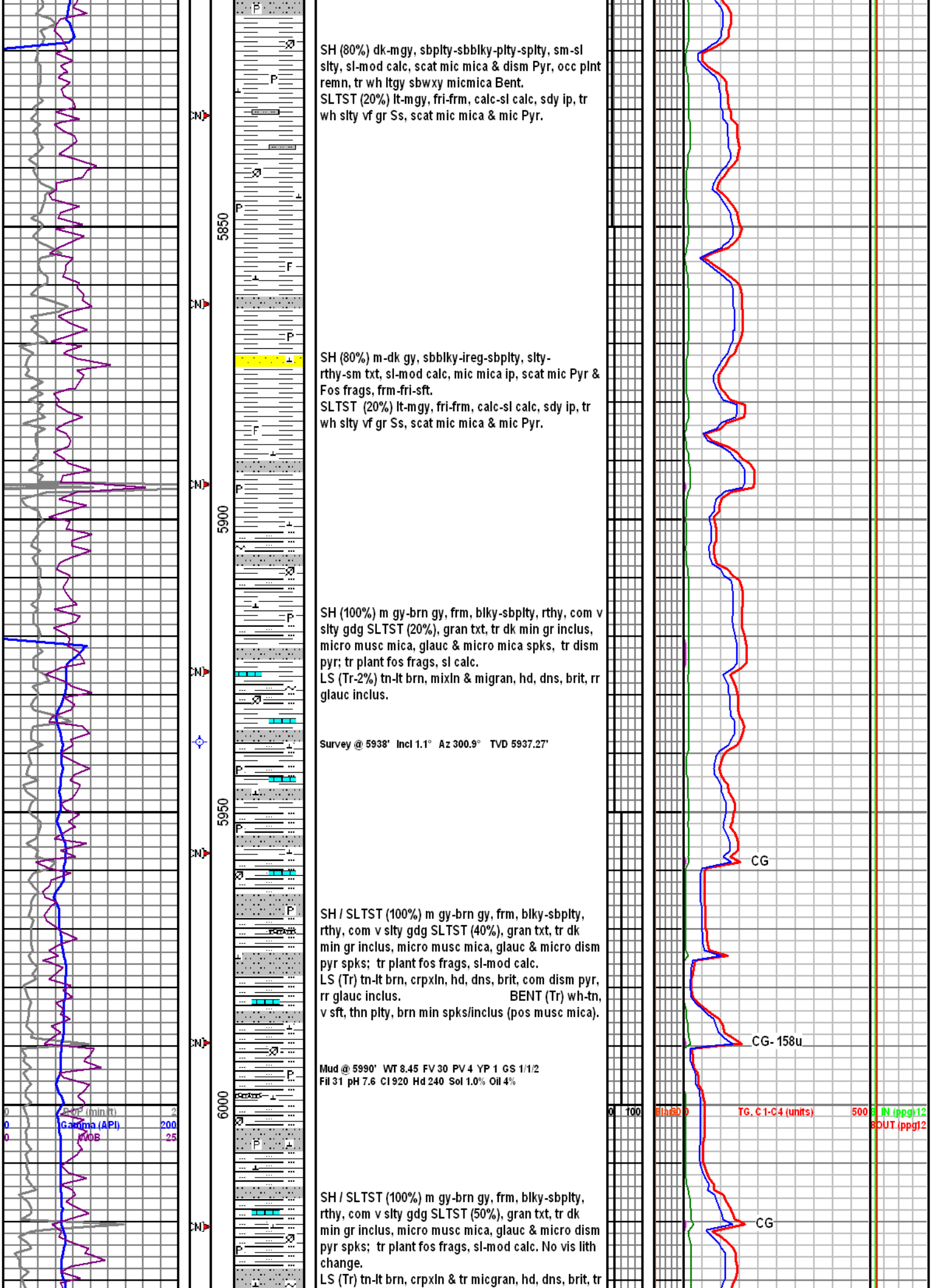
SH/SLTST (50/50) m-m dkgy, sbblky-sbplty, slty-rthy-sdy txt, calc ip, scat mica & glau, tr Fos frags, sft-fri-sl frm.
SS (15%) wh, s&p, lt-m gy, tan, fri, slty vf gr / occ scat L f grs, sbang-sbrnd, mod w srt, cly fld, arg ip, scat mica & glau, occ carb matr/dk mnrls, no vis-vp por, tr mic Pyr, NSOFC.
LS (Tr) brn tan, frm, dns crp-mic xln, sl arg ip, tr foss, tr mic Pyr.

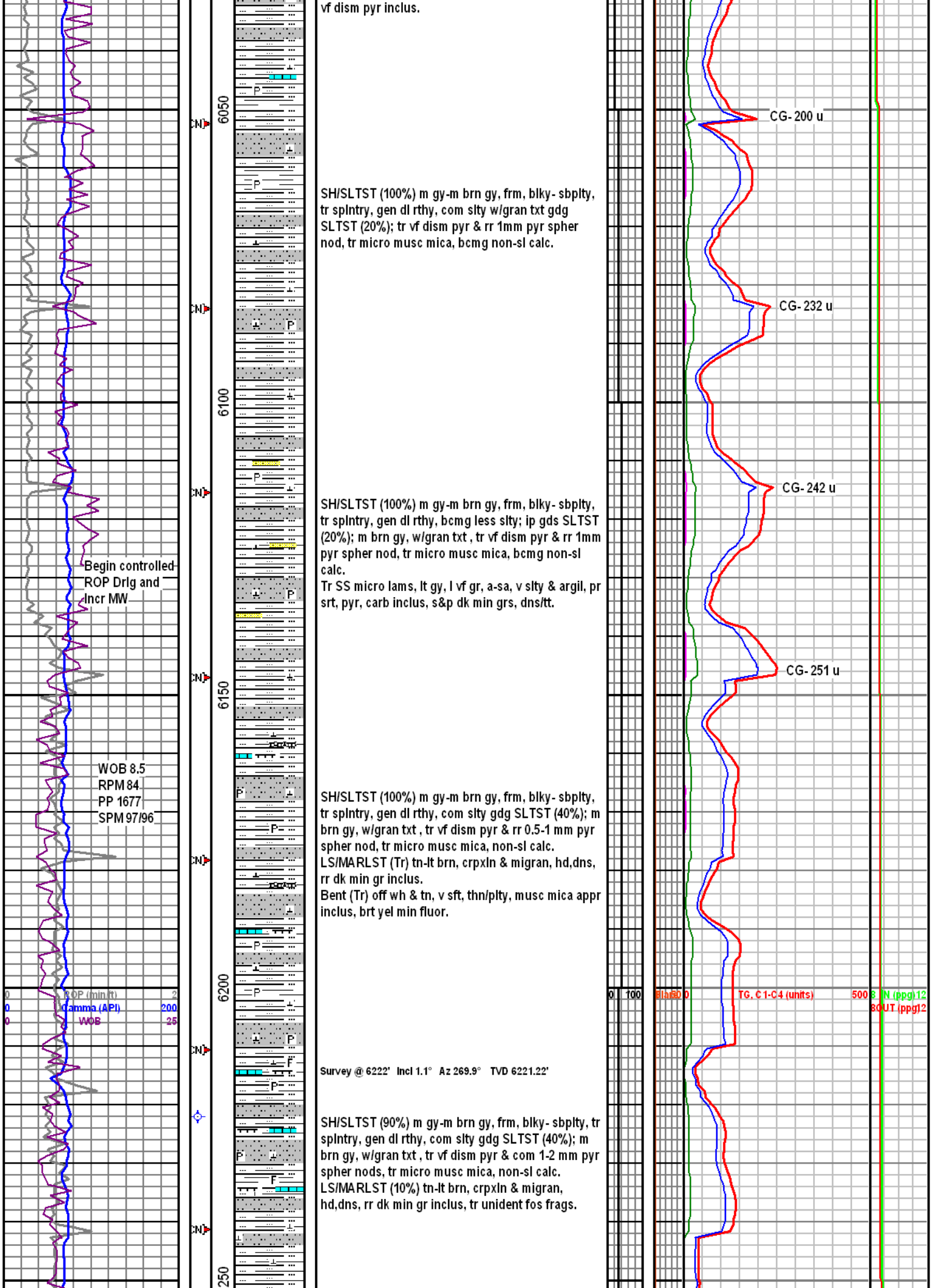
SH/SLTST (50/50) m-m dkgy, gybrn, sbblky-sbplty, slty-rthy-sm txt, calc ip, scat mica & glau, tr Fos frags & plnt remn, sft-fri-sl frm.
SS (20%) lt-m gy, s&p, off wh, tr brn, fri-sl frm, slty vf gr, mod w-w srt, calc, wh tan gy cly fld, arg ip, scat mica & glau, no vis por, NSOFC.
LS (Tr) tan crm, sft, chky crp-mic xln, sl slty ip.

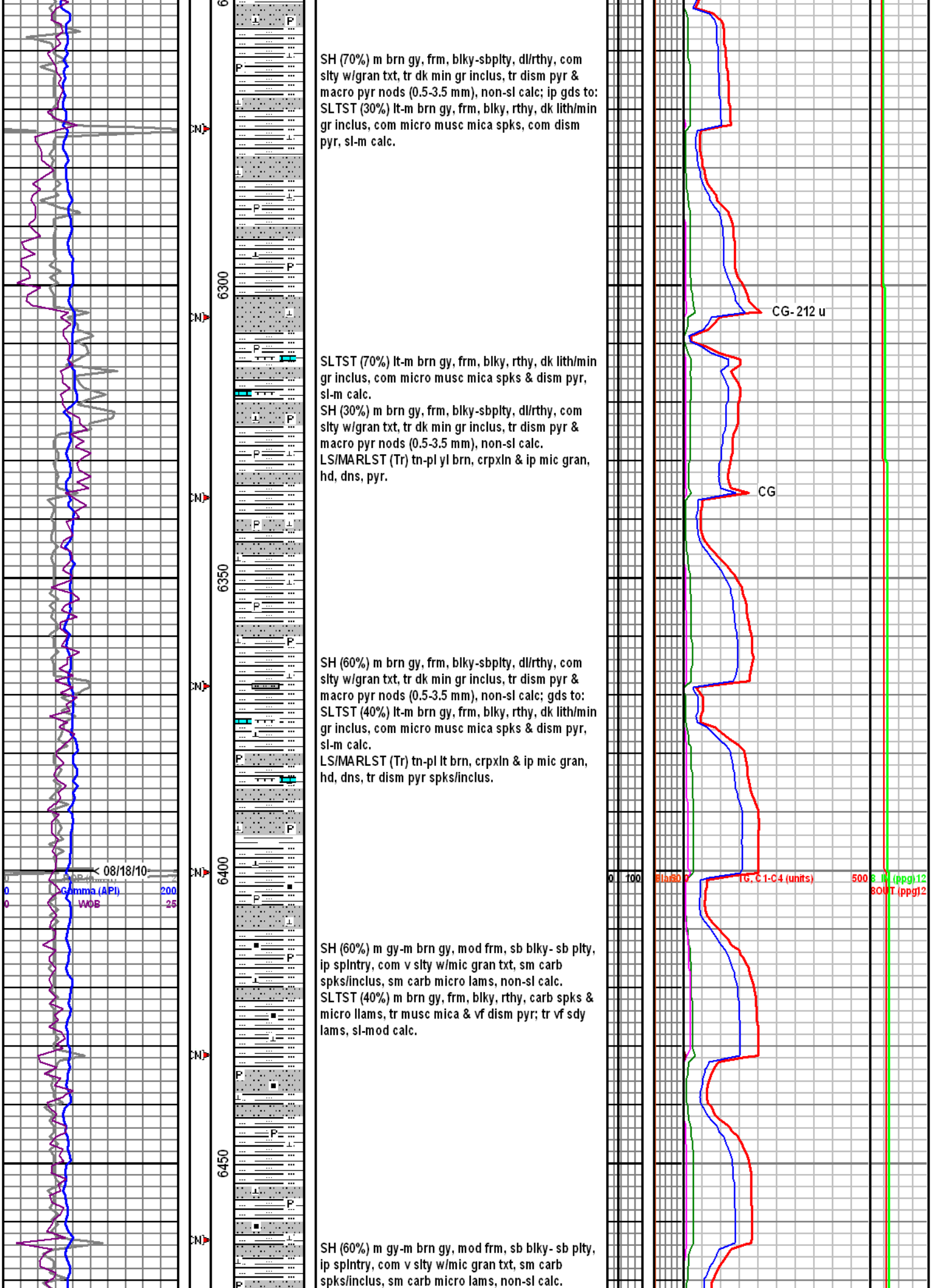
Survey @ 5372' Incl 1.1° Az 289.1° TVD 5371.38'


ROP (min/ft)
Gamma (API)
WOB
5400
5450
5500
5550
SS (40%) lt gy, lt brn, off wh, m gy, fri-lse, slty L vf-L f gr, sbrnd-ang, mod w srt, calc-sl calc, cly fld, scat mica/carb matr/glau, vp-no vis por, NSOFC.
SLTST (40%) m-lt gy, gybrn, fri, sdy ip, calc ip, scat mica & glau.
SH (20%) m-dk gy, sbplty-plty, sl slty-sm txt, non calc, scat mica/carb matr/plnt remn, tr mic Pyr, sft-sl frm.
BENT (Tr) tan ltbrn, sbwxy, sft, mic mica ip.
No Sample.
SH (50%) m-m dkgy, sbplty-sbblky-splty, sl slty-sm, sbchky ip, sl calc, tr mica & carb matr/plnt remn, rr Fos frags & tan crm ltgy sbwxy Bent, sft-fri.
SLTST (30%) m gy, gybrn, fri-sl frm, sl-mod calc, scat plnt remn.
SS (20%) lt-m gy, s&p, fri-frm, slty vf gr, calc, arg ip, scat mica/gn cly mnrls/blk mnrls/glau, tt, no vis por, NSOFC.
SH (50%) m-m dkgy, sbplty-sbblky-splty, sl slty-sm, sbchky ip, sl calc, tr mica & carb matr/plnt remn, rr Fos frags & tan crm ltgy sbwxy Bent, sft-fri.
SLTST (30%) m gy, gybrn, fri-sl frm, sl-mod calc, scat plnt remn.
SS (20%) lt-m gy, s&p, fri-frm, slty vf gr, calc, arg ip, scat mica/gn cly mnrls/blk mnrls/glau, tt, no vis por, NSOFC.
CG
CG
CG
CG
CG
CG
CG
TG, C1-C4 (units)
MIN (ppg)
MOUT (ppg)


ROP (min/ft)
Gamma (API)
WOB
5600
5650
5700
5750
5800
SH (70%) m-m dkgy, gybrn, tr brn, sbblky-sbplty-ireg, sm-sl slty txt, sbchky, calc, scat mica, tr carb matr & dism Pyr, tr indist Fos frags, frm.
SLTST (20%) gybrn, m gy, frm-fri, calc, sl sdy ip, scat mica, tr mic Pyr.
SS (10%) pred ltgy s&p offwh vf gr Strgs.
Survey @ 5654' Incl 1.1° Az 277.3° TVD 5653.32'
SH (90%) m-dk gy, tr ltgy gybrn, sbblky-ireg-sbplty, sm-sl slty, calc, tr-occ mic mica & dism Pyr, tr indist Fos frags & Inoc, frm.
SLTST (10%)
SH (80%) m-dk-lt gy, sbblky-sbplty-splty, sm-sl slty, sbchky, calc ip, occ dism Pyr & scat mic mica, tr indist Fos frags, frm-sft, rr ltgy crm sbwxy micmica Bent.
SLTST (20%) m-lt gy, gybrn, fri-frm, sl calc, scat mic mica, tr mic Pyr.
SH (80%) m-dk-lt gy, sbblky-sbplty-splty, sm-sl slty, sbchky, calc ip, tr-occ dism Pyr, tr scat mic mica & indist Fos frags, frm-sft, rr ltgy crm sbwxy micmica Bent.
SLTST (20%) m-lt gy, gybrn, fri-frm, sl calc, scat mic mica, tr mic Pyr.
LS (Tr) tan crm brn, sft-frm, chky, crp-mic xln.
TG, C1-C4 (units)
IN (ppg)
OUT (ppg)
CG


SH (80%) dk-mgy, sbplty-sbblky-plty-splty, sm-sl slty, sl-mod calc, scat mic mica & dism Pyr, occ plnt remn, tr wh ltgy sbwxy micmica Bent.
SLTST (20%) lt-mgy, fri-frm, calc-sl calc, sdy ip, tr wh slty vf gr Ss, scat mic mica & mic Pyr.
SH (80%) m-dk gy, sbblky-ireg-sbplty, slty-rthy-sm txt, sl-mod calc, mic mica ip, scat mic Pyr & Fos frags, frm-fri-sft.
SLTST (20%) lt-mgy, fri-frm, calc-sl calc, sdy ip, tr wh slty vf gr Ss, scat mic mica & mic Pyr.
SH (100%) m gy-brn gy, frm, blky-sbplty, rthy, com v slty gdg SLTST (20%), gran txt, tr dk min gr inclus, micro musc mica, glauc & micro mica spks, tr dism pyr; tr plant fos frags, sl calc.
LS (Tr-2%) tn-lt brn, mixln & migran, hd, dns, brit, rr glauc inclus.
Survey @ 5938' Incl 1.1° Az 300.9° TVD 5937.27'
SH / SLTST (100%) m gy-brn gy, frm, blky-sbplty, rthy, com v slty gdg SLTST (40%), gran txt, tr dk min gr inclus, micro musc mica, glauc & micro dism pyr spks; tr plant fos frags, sl-mod calc.
LS (Tr) tn-lt brn, crpxln, hd, dns, brit, com dism pyr, rr glauc inclus. BENT (Tr) wh-tn, v sft, thn plty, brn min spks/inclus (pos musc mica).
Mud @ 5990' WT 8.45 FV 30 PV 4 YP 1 GS 1/1/2
Fil 31 pH 7.6 Cl 920 Hd 240 Sol 1.0% Oil 4%
SH / SLTST (100%) m gy-brn gy, frm, blky-sbplty, rthy, com v slty gdg SLTST (50%), gran txt, tr dk min gr inclus, micro musc mica, glauc & micro dism pyr spks; tr plant fos frags, sl-mod calc. No vis lith change.
LS (Tr) tn-lt brn, crpxln & tr micgran, hd, dns, brit, tr
5850
5900
5950
6000
CG
CG- 158u
CG
ROP (min/ft)
Gamma (API)
TG, C1-C4 (units)
MW IN (ppg)
MW OUT (ppg)


vf dism pyr inclus.
CG- 200 u
SH/SLTST (100%) m gy-m brn gy, frm, blky- sbplty, tr splntry, gen dl rthy, com slty w/gran txt gdg SLTST (20%); tr vf dism pyr & rr 1mm pyr spher nod, tr micro musc mica, bcmg non-sl calc.
CG- 232 u
CG- 242 u
SH/SLTST (100%) m gy-m brn gy, frm, blky- sbplty, tr splntry, gen dl rthy, bcmg less slty; ip gds SLTST (20%); m brn gy, w/gran txt , tr vf dism pyr & rr 1mm pyr spher nod, tr micro musc mica, bcmg non-sl calc.
Tr SS micro lams, lt gy, l vf gr, a-sa, v slty & argil, pr srt, pyr, carb inclus, s&p dk min grs, dns/tt.
Begin controlled ROP Drlg and Incr MW
CG- 251 u
WOB 8.5
RPM 84
PP 1677
SPM 97/96
SH/SLTST (100%) m gy-m brn gy, frm, blky- sbplty, tr splntry, gen dl rthy, com slty gdg SLTST (40%); m brn gy, w/gran txt , tr vf dism pyr & rr 0.5-1 mm pyr spher nod, tr micro musc mica, non-sl calc.
LS/MARLST (Tr) tn-lt brn, crpxln & migran, hd,dns, rr dk min gr inclus.
Bent (Tr) off wh & tn, v sft, thn/plty, musc mica appr inclus, brt yel min fluor.
0 ROP (min/ft) 2
0 Gamma (API) 200
0 WOB 25
0 100
TG, C1-C4 (units)
500
MN (ppg) 12
MOUT (ppg) 12
Survey @ 6222' Incl 1.1° Az 269.9° TVD 6221.22'
SH/SLTST (90%) m gy-m brn gy, frm, blky- sbplty, tr splntry, gen dl rthy, com slty gdg SLTST (40%); m brn gy, w/gran txt , tr vf dism pyr & com 1-2 mm pyr spher nods, tr micro musc mica, non-sl calc.
LS/MARLST (10%) tn-lt brn, crpxln & migran, hd,dns, rr dk min gr inclus, tr unident fos frags.
6050
6100
6150
6200
6250



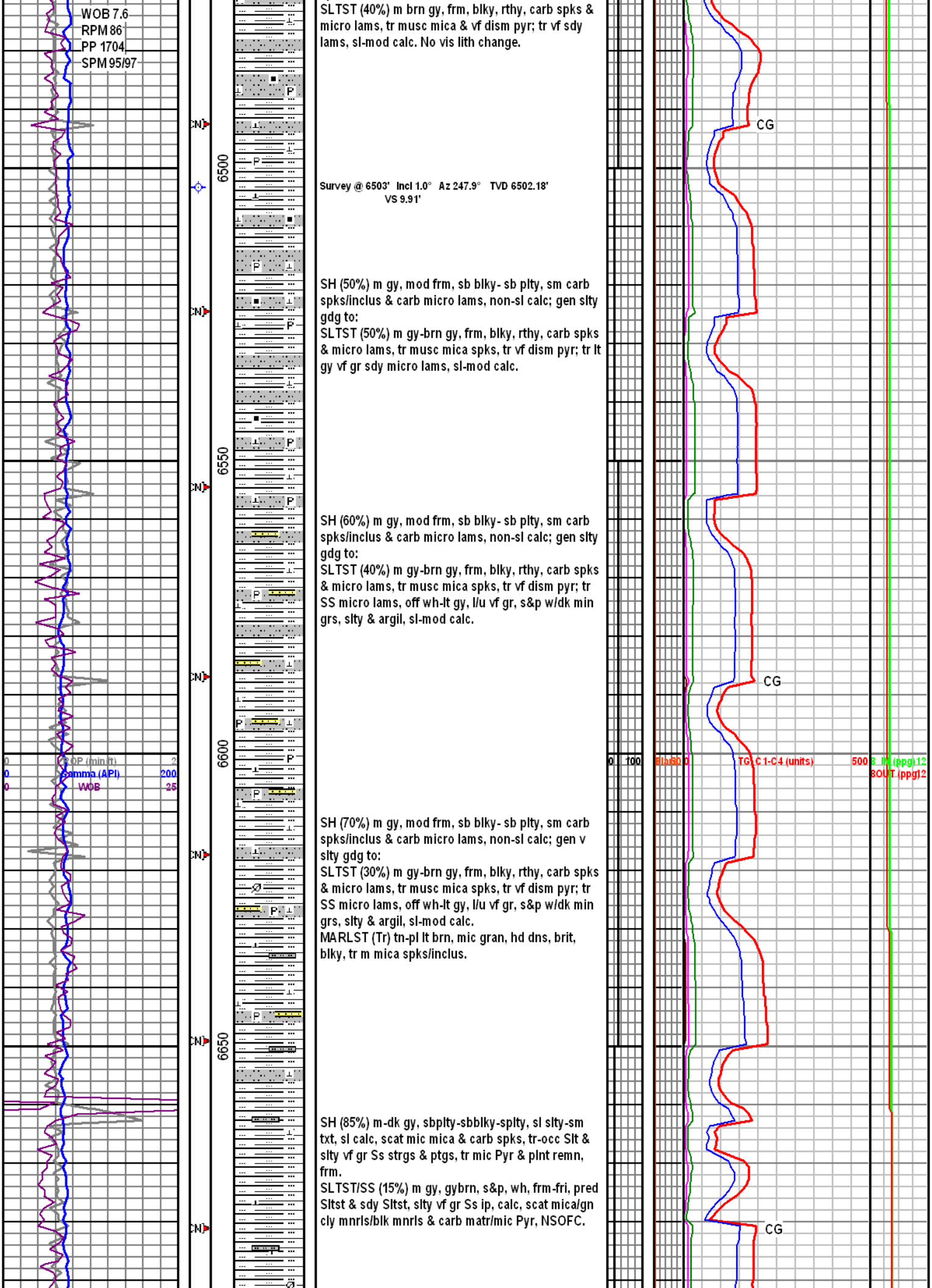
SH (70%) m brn gy, frm, blky-sbplty, dl/rthy, com slty w/gran txt, tr dk min gr inclus, tr dism pyr & macro pyr nods (0.5-3.5 mm), non-sl calc; ip gds to: SLTST (30%) lt-m brn gy, frm, blky, rthy, dk lith/min gr inclus, com micro musc mica spks, com dism pyr, sl-m calc.

SLTST (70%) lt-m brn gy, frm, blky, rthy, dk lith/min gr inclus, com micro musc mica spks & dism pyr, sl-m calc.
SH (30%) m brn gy, frm, blky-sbplty, dl/rthy, com slty w/gran txt, tr dk min gr inclus, tr dism pyr & macro pyr nods (0.5-3.5 mm), non-sl calc.
LS/MARLST (Tr) tn-pl yl brn, crpxln & ip mic gran, hd, dns, pyr.

SH (60%) m brn gy, frm, blky-sbplty, dl/rthy, com slty w/gran txt, tr dk min gr inclus, tr dism pyr & macro pyr nods (0.5-3.5 mm), non-sl calc; gds to: SLTST (40%) lt-m brn gy, frm, blky, rthy, dk lith/min gr inclus, com micro musc mica spks & dism pyr, sl-m calc.
LS/MARLST (Tr) tn-pl lt brn, crpxln & ip mic gran, hd, dns, tr dism pyr spks/inclus.

SH (60%) m gy-m brn gy, mod frm, sb blky- sb plty, ip splntry, com v slty w/mic gran txt, sm carb spks/inclus, sm carb micro lams, non-sl calc.
SLTST (40%) m brn gy, frm, blky, rthy, carb spks & micro llams, tr musc mica & vf dism pyr; tr vf sdy lams, sl-mod calc.

SH (60%) m gy-m brn gy, mod frm, sb blky- sb plty, ip splntry, com v slty w/mic gran txt, sm carb spks/inclus, sm carb micro lams, non-sl calc.



SLTST (40%) m brn gy, frm, blky, rthy, carb spks & micro lams, tr musc mica & vf dism pyr; tr vf sdy lams, sl-mod calc. No vis lith change.

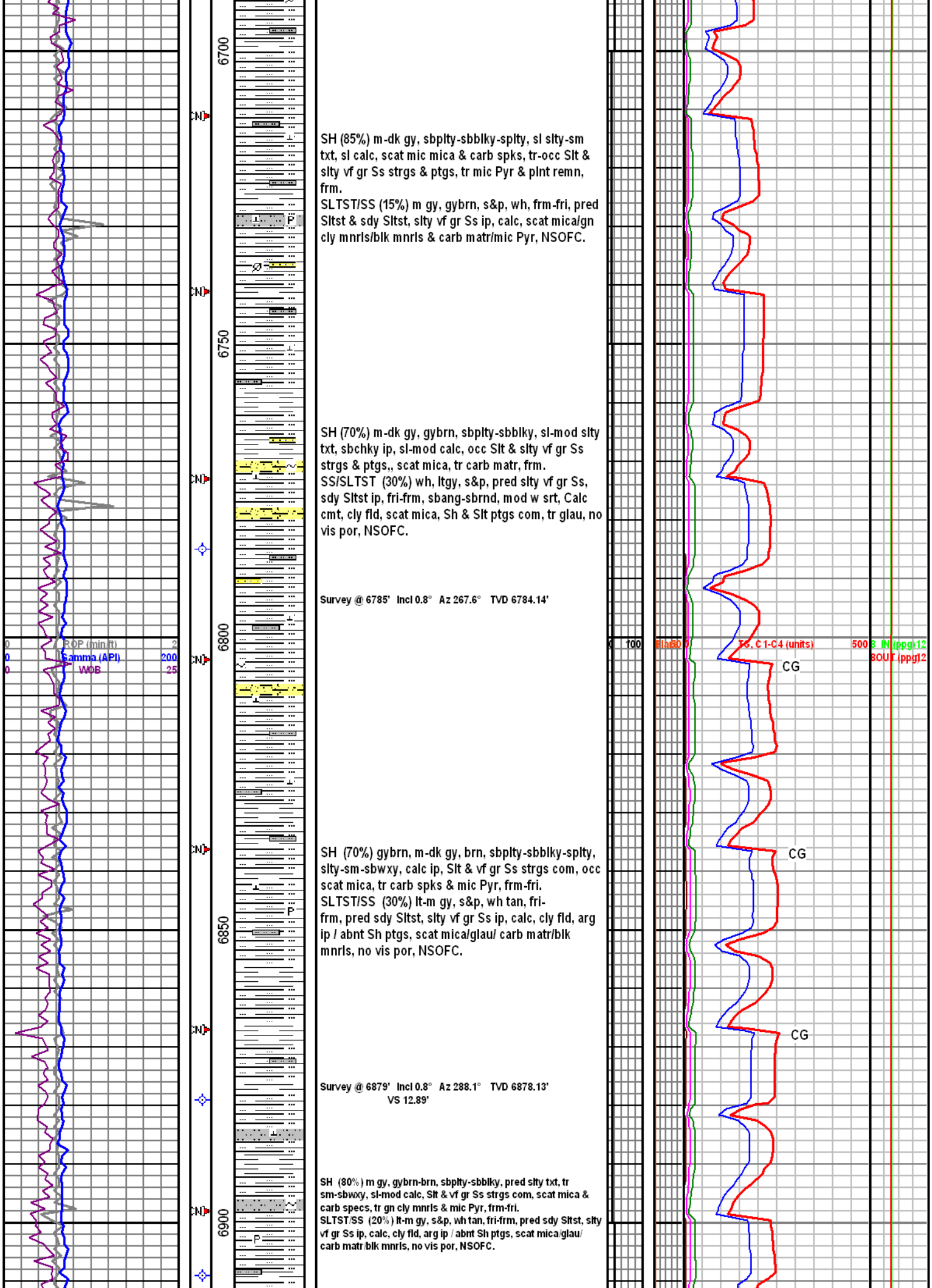
Survey @ 6503' Incl 1.0° Az 247.9° TVD 6502.18'
VS 9.91'

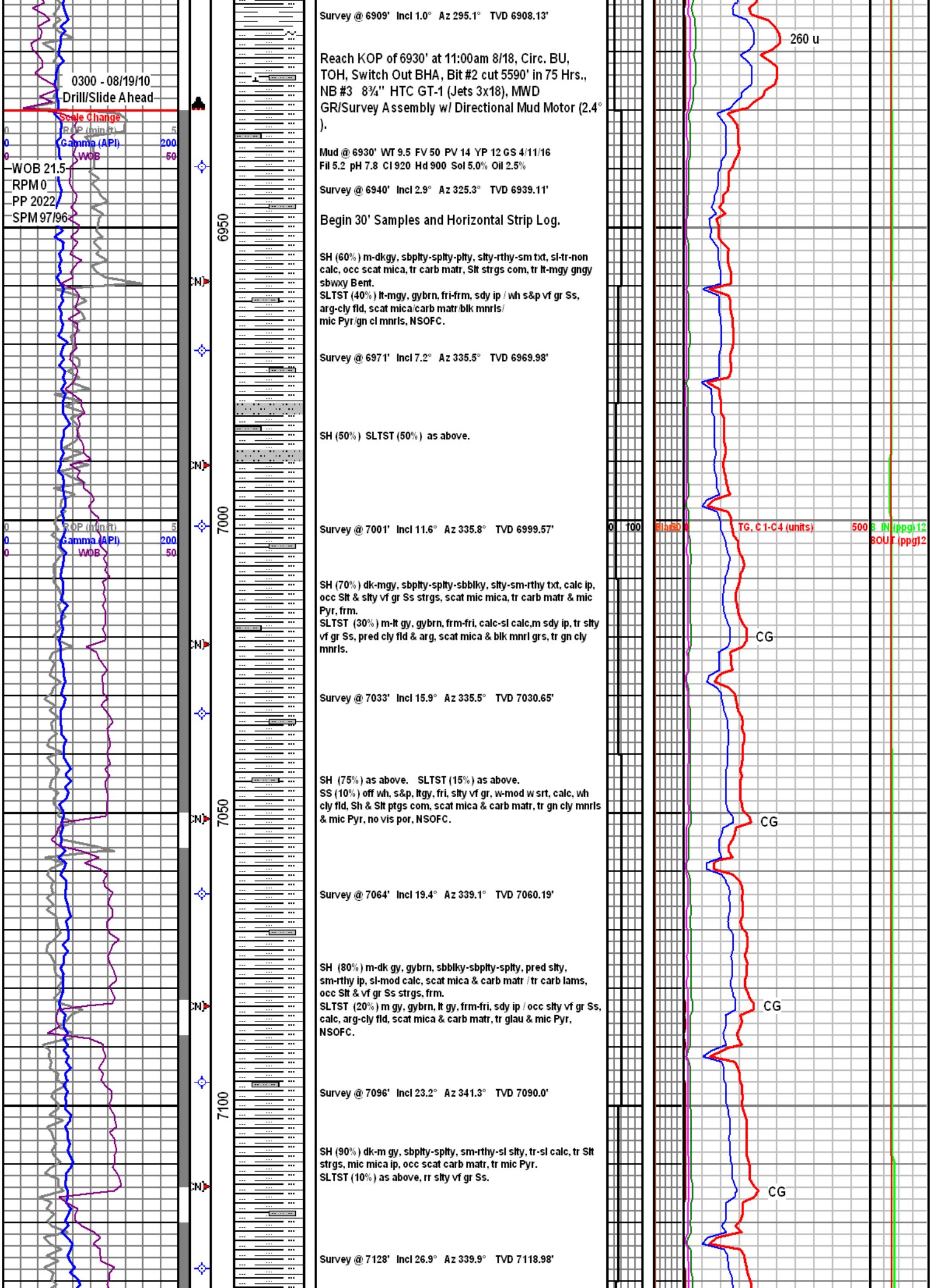
SH (50%) m gy, mod frm, sb blky- sb plty, sm carb spks/inclus & carb micro lams, non-sl calc; gen slty gdg to:
SLTST (50%) m gy-brn gy, frm, blky, rthy, carb spks & micro lams, tr musc mica spks, tr vf dism pyr; tr lt gy vf gr sdy micro lams, sl-mod calc.

SH (60%) m gy, mod frm, sb blky- sb plty, sm carb spks/inclus & carb micro lams, non-sl calc; gen slty gdg to:
SLTST (40%) m gy-brn gy, frm, blky, rthy, carb spks & micro lams, tr musc mica spks, tr vf dism pyr; tr SS micro lams, off wh-lt gy, l/u vf gr, s&p w/dk min grs, slty & argil, sl-mod calc.

SH (70%) m gy, mod frm, sb blky- sb plty, sm carb spks/inclus & carb micro lams, non-sl calc; gen v slty gdg to:
SLTST (30%) m gy-brn gy, frm, blky, rthy, carb spks & micro lams, tr musc mica spks, tr vf dism pyr; tr SS micro lams, off wh-lt gy, l/u vf gr, s&p w/dk min grs, slty & argil, sl-mod calc.
MARLST (Tr) tn-pl lt brn, mic gran, hd dns, brit, blky, tr m mica spks/inclus.

SH (85%) m-dk gy, sbplty-sbblky-splty, sl slty-sm txt, sl calc, scat mic mica & carb spks, tr-occ Slt & slty vf gr Ss strgs & ptgs, tr mic Pyr & plnt remn, frm.
SLTST/SS (15%) m gy, gybrn, s&p, wh, frm-fri, pred Sltst & sdy Sltst, slty vf gr Ss ip, calc, scat mica/gn cly mnrls/blk mnrls & carb matr/mic Pyr, NSOFC.


ROP (min/ft)
Gamma (API)
WOB
6700
6750
6800
6850
6900
SH (85%) m-dk gy, sbplty-sbblky-splty, sl slty-sm txt, sl calc, scat mic mica & carb spks, tr-occ Slt & slty vf gr Ss strgs & ptgs, tr mic Pyr & plnt remn, frm.
SLTST/SS (15%) m gy, gybrn, s&p, wh, frm-fri, pred Sltst & sdy Sltst, slty vf gr Ss ip, calc, scat mica/gn cly mnrls/blk mnrls & carb matr/mic Pyr, NSOFC.
SH (70%) m-dk gy, gybrn, sbplty-sbblky, sl-mod slty txt, sbchky ip, sl-mod calc, occ Slt & slty vf gr Ss strgs & ptgs,, scat mica, tr carb matr, frm.
SS/SLTST (30%) wh, ltgy, s&p, pred slty vf gr Ss, sdy Sltst ip, fri-frm, sbang-sbrnd, mod w srt, Calc cmt, cly fld, scat mica, Sh & Slt ptgs com, tr glau, no vis por, NSOFC.
Survey @ 6785' Incl 0.8° Az 267.6° TVD 6784.14'
TG, C1-C4 (units)
CG
SH (70%) gybrn, m-dk gy, brn, sbplty-sbblky-splty, slty-sm-sbwxy, calc ip, Slt & vf gr Ss strgs com, occ scat mica, tr carb spks & mic Pyr, frm-fri.
SLTST/SS (30%) lt-m gy, s&p, wh tan, fri-frm, pred sdy Sltst, slty vf gr Ss ip, calc, cly fld, arg ip / abnt Sh ptgs, scat mica/glau/ carb matr/blk mnrls, no vis por, NSOFC.
Survey @ 6879' Incl 0.8° Az 288.1° TVD 6878.13'
VS 12.89'
SH (80%) m gy, gybrn-brn, sbplty-sbblky, pred slty txt, tr sm-sbwxy, sl-mod calc, Slt & vf gr Ss strgs com, scat mica & carb specs, tr gn cly mnrls & mic Pyr, frm-fri.
SLTST/SS (20%) lt-m gy, s&p, wh tan, fri-frm, pred sdy Sltst, slty vf gr Ss ip, calc, cly fld, arg ip / abnt Sh ptgs, scat mica/glau/ carb matr/blk mnrls, no vis por, NSOFC.



Survey @ 6909' Incl 1.0° Az 295.1° TVD 6908.13'

Reach KOP of 6930' at 11:00am 8/18, Circ. BU, TOH, Switch Out BHA, Bit #2 cut 5590' in 75 Hrs., NB #3 8¾" HTC GT-1 (Jets 3x18), MWD GR/Survey Assembly w/ Directional Mud Motor (2.4°).

Mud @ 6930' WT 9.5 FV 50 PV 14 YP 12 GS 4/11/16
Fil 5.2 pH 7.8 Cl 920 Hd 900 Sol 5.0% Oil 2.5%

Survey @ 6940' Incl 2.9° Az 325.3° TVD 6939.11'

Begin 30' Samples and Horizontal Strip Log.

SH (60%) m-dkgy, sbplty-splty-plty, slty-rthy-sm txt, sl-tr-non calc, occ scat mica, tr carb matr, Slt strgs com, tr lt-mgy gngy sbwxy Bent.
SLTST (40%) lt-mgy, gybrn, fri-frm, sdy ip / wh s&p vf gr Ss, arg-cly fld, scat mica/carb matr/blk mnrls/ mic Pyr/gn cl mnrls, NSOFC.

Survey @ 6971' Incl 7.2° Az 335.5° TVD 6969.98'

SH (50%) SLTST (50%) as above.

Survey @ 7001' Incl 11.6° Az 335.8° TVD 6999.57'

SH (70%) dk-mgy, sbplty-splty-sbblky, slty-sm-rthy txt, calc ip, occ Slt & slty vf gr Ss strgs, scat mic mica, tr carb matr & mic Pyr, frm.
SLTST (30%) m-lt gy, gybrn, frm-fri, calc-sl calc,m sdy ip, tr slty vf gr Ss, pred cly fld & arg, scat mica & blk mnrl grs, tr gn cly mnrls.

Survey @ 7033' Incl 15.9° Az 335.5° TVD 7030.65'

SH (75%) as above. SLTST (15%) as above.
SS (10%) off wh, s&p, ltgy, fri, slty vf gr, w-mod w srt, calc, wh cly fld, Sh & Slt ptgs com, scat mica & carb matr, tr gn cly mnrls & mic Pyr, no vis por, NSOFC.

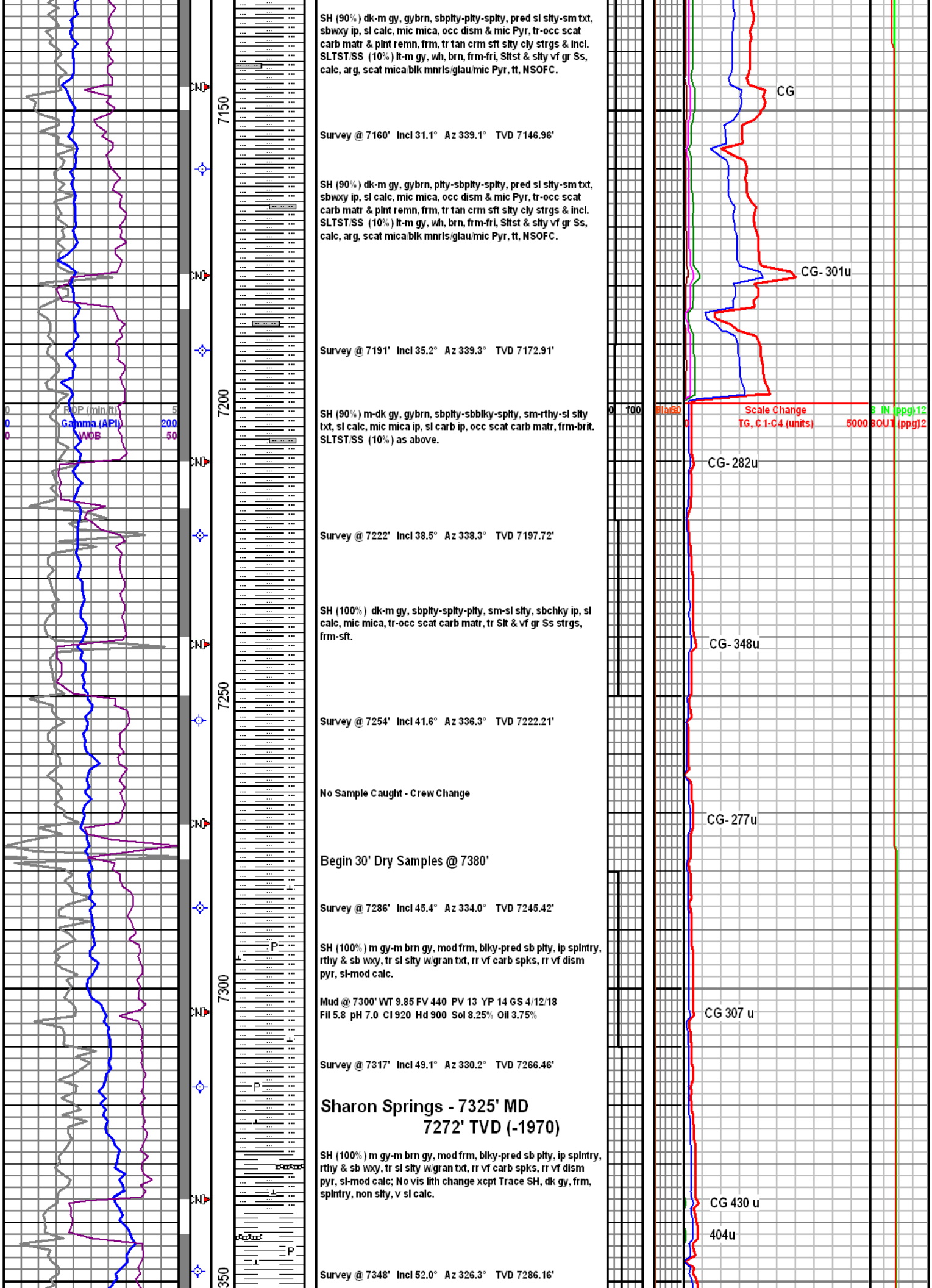
Survey @ 7064' Incl 19.4° Az 339.1° TVD 7060.19'

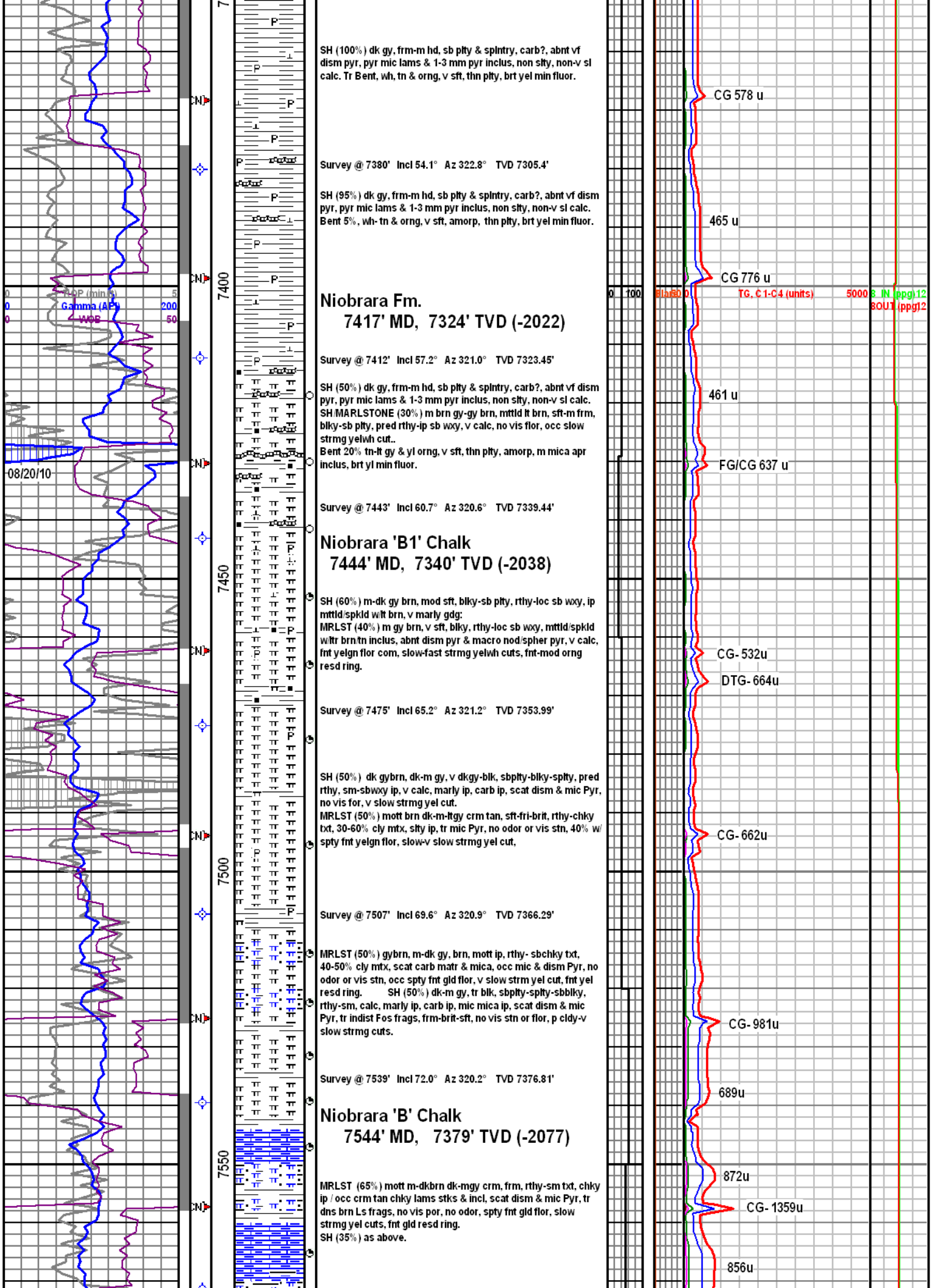
SH (80%) m-dk gy, gybrn, sbblky-sbplty-splty, pred slty, sm-rthy ip, sl-mod calc, scat mica & carb matr / tr carb lams, occ Slt & vf gr Ss strgs, frm.
SLTST (20%) m gy, gybrn, lt gy, frm-fri, sdy ip / occ slty vf gr Ss, calc, arg-cly fld, scat mica & carb matr, tr glau & mic Pyr, NSOFC.

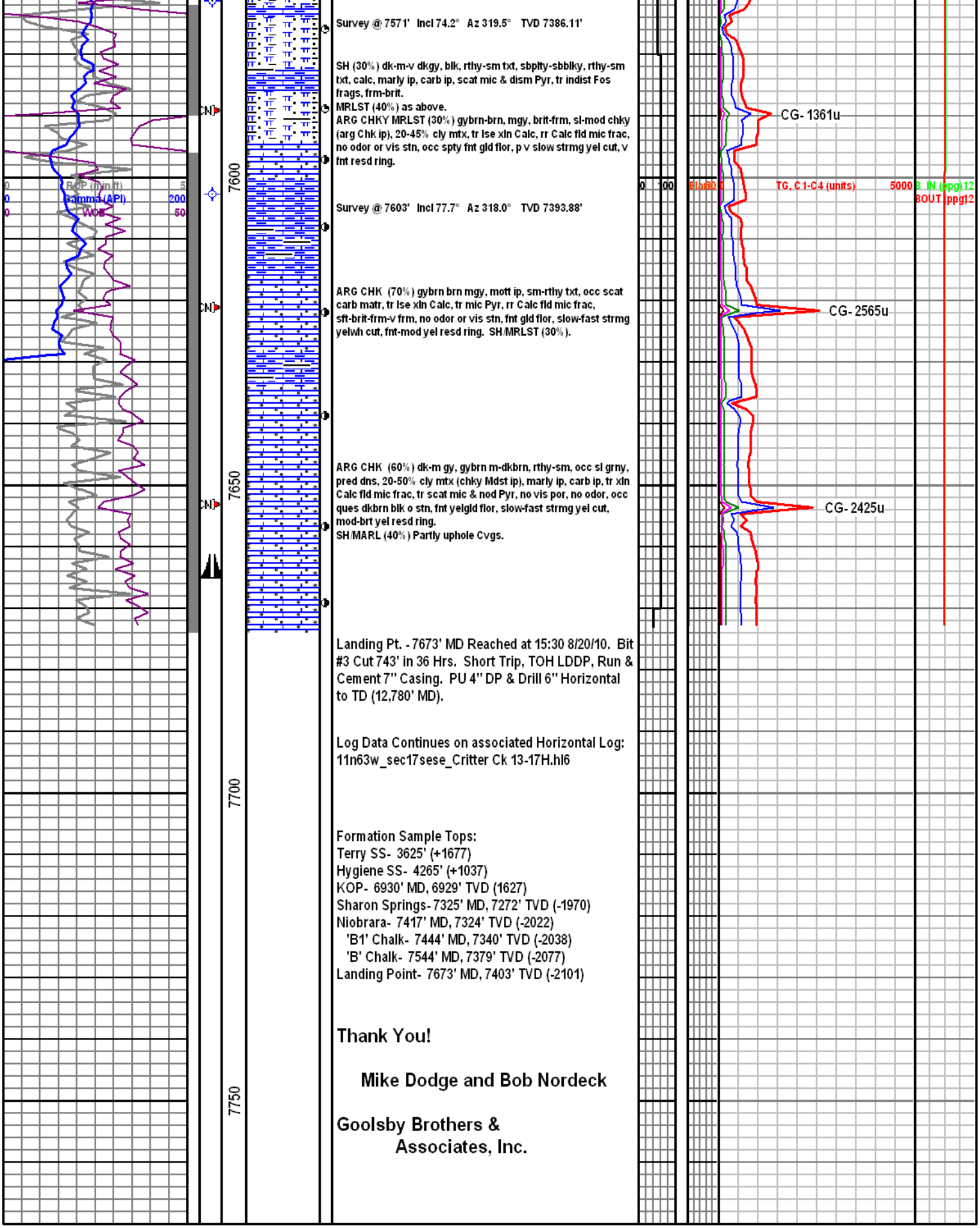
Survey @ 7096' Incl 23.2° Az 341.3° TVD 7090.0'

SH (90%) dk-m gy, sbplty-splty, sm-rthy-sl slty, tr-sl calc, tr Slt strgs, mic mica ip, occ scat carb matr, tr mic Pyr.
SLTST (10%) as above, rr slty vf gr Ss.

Survey @ 7128' Incl 26.9° Az 339.9° TVD 7118.98'


ROP (min/ft)
Gamma (API)
WOB
7150
7200
7250
7300
7350
SH (90%) dk-m gy, gybrn, sbplty-plty-splty, pred sl slty-sm txt, sbwxy ip, sl calc, mic mica, occ dism & mic Pyr, tr-occ scat carb matr & plnt remn, frm, tr tan crm sft slty cly strgs & incl. SLTST/SS (10%) lt-m gy, wh, brn, frm-fri, Sltst & slty vf gr Ss, calc, arg, scat mica/blk mnrls/glau/mic Pyr, tt, NSOFC.
Survey @ 7160' Incl 31.1° Az 339.1° TVD 7146.96'
SH (90%) dk-m gy, gybrn, plty-sbplty-splty, pred sl slty-sm txt, sbwxy ip, sl calc, mic mica, occ dism & mic Pyr, tr-occ scat carb matr & plnt remn, frm, tr tan crm sft slty cly strgs & incl. SLTST/SS (10%) lt-m gy, wh, brn, frm-fri, Sltst & slty vf gr Ss, calc, arg, scat mica/blk mnrls/glau/mic Pyr, tt, NSOFC.
Survey @ 7191' Incl 35.2° Az 339.3° TVD 7172.91'
SH (90%) m-dk gy, gybrn, sbplty-sbblky-splty, sm-rthy-sl slty txt, sl calc, mic mica ip, sl carb ip, occ scat carb matr, frm-brit. SLTST/SS (10%) as above.
Survey @ 7222' Incl 38.5° Az 338.3° TVD 7197.72'
SH (100%) dk-m gy, sbplty-splty-plty, sm-sl slty, sbchky ip, sl calc, mic mica, tr-occ scat carb matr, tr Slt & vf gr Ss strgs, frm-sft.
Survey @ 7254' Incl 41.6° Az 336.3° TVD 7222.21'
No Sample Caught - Crew Change
Begin 30' Dry Samples @ 7380'
Survey @ 7286' Incl 45.4° Az 334.0° TVD 7245.42'
SH (100%) m gy-m brn gy, mod frm, blky-pred sb plty, ip splntry, rthy & sb wxy, tr sl slty w/gran txt, rr vf carb spks, rr vf dism pyr, sl-mod calc.
Mud @ 7300' WT 9.85 FV 440 PV 13 YP 14 GS 4/12/18
Fil 5.8 pH 7.0 Cl 920 Hd 900 Sol 8.25% Oil 3.75%
Survey @ 7317' Incl 49.1° Az 330.2° TVD 7266.46'
Sharon Springs - 7325' MD
7272' TVD (-1970)
SH (100%) m gy-m brn gy, mod frm, blky-pred sb plty, ip splntry, rthy & sb wxy, tr sl slty w/gran txt, rr vf carb spks, rr vf dism pyr, sl-mod calc; No vis lith change xcpt Trace SH, dk gy, frm, splntry, non slty, v sl calc.
Survey @ 7348' Incl 52.0° Az 326.3° TVD 7286.16'
CG
CG- 301u
CG- 282u
CG- 348u
CG- 277u
CG 307 u
CG 430 u
404u
Scale Change
TG, C1-C4 (units)
5000
IN (ppg)12
OUT (ppg)12


ROP (min/ft)
Gamma (API)
WOB
08/20/10
7400
7450
7500
7550
SH (100%) dk gy, frm-m hd, sb plty & splntry, carb?, abnt vf dism pyr, pyr mic lams & 1-3 mm pyr inclus, non slty, non-v sl calc. Tr Bent, wh, tn & orng, v sft, thn plty, brt yel min fluor.
Survey @ 7380' Incl 54.1° Az 322.8° TVD 7305.4'
SH (95%) dk gy, frm-m hd, sb plty & splntry, carb?, abnt vf dism pyr, pyr mic lams & 1-3 mm pyr inclus, non slty, non-v sl calc. Bent 5%, wh- tn & orng, v sft, amorp, thn plty, brt yel min fluor.
Niobrara Fm.
7417' MD, 7324' TVD (-2022)
Survey @ 7412' Incl 57.2° Az 321.0° TVD 7323.45'
SH (50%) dk gy, frm-m hd, sb plty & splntry, carb?, abnt vf dism pyr, pyr mic lams & 1-3 mm pyr inclus, non slty, non-v sl calc.
SH/MARLSTONE (30%) m brn gy-gy brn, mttld lt brn, sft-m frm, blky-sb plty, pred rthy-ip sb wxy, v calc, no vis flor, occ slow strmg yelwh cut..
Bent 20% tn-lt gy & yl orng, v sft, thn plty, amorp, m mica apr inclus, brt yl min fluor.
Survey @ 7443' Incl 60.7° Az 320.6° TVD 7339.44'
Niobrara 'B1' Chalk
7444' MD, 7340' TVD (-2038)
SH (60%) m-dk gy brn, mod sft, blky-sb plty, rthy-loc sb wxy, ip mttld/spkld w/lt brn, v marly gdg:
MRLST (40%) m gy brn, v sft, blky, rthy-loc sb wxy, mttld/spkld w/ltr brn/tn inclus, abnt dism pyr & macro nod/spher pyr, v calc, fnt yelgn flor com, slow-fast strmg yelwh cuts, fnt-mod orng resd ring.
Survey @ 7475' Incl 65.2° Az 321.2° TVD 7353.99'
SH (50%) dk gybrn, dk-m gy, v dkgy-blk, sbplty-blky-splty, pred rthy, sm-sbwxy ip, v calc, marly ip, carb ip, scat dism & mic Pyr, no vis for, v slow strmg yel cut.
MRLST (50%) mott brn dk-m-ltgy crm tan, sft-fri-brit, rthy-chky txt, 30-60% cly mtx, slty ip, tr mic Pyr, no odor or vis stn, 40% w/ spty fnt yelgn flor, slow-v slow strmg yel cut,
Survey @ 7507' Incl 69.6° Az 320.9° TVD 7366.29'
MRLST (50%) gybrn, m-dk gy, brn, mott ip, rthy- sbchky txt, 40-50% cly mtx, scat carb matr & mica, occ mic & dism Pyr, no odor or vis stn, occ spty fnt gld flor, v slow strm yel cut, fnt yel resd ring. SH (50%) dk-m gy, tr blk, sbplty-splty-sbblky, rthy-sm, calc, marly ip, carb ip, mic mica ip, scat dism & mic Pyr, tr indist Fos frags, frm-brit-sft, no vis stn or flor, p cldy-v slow strmg cuts.
Survey @ 7539' Incl 72.0° Az 320.2° TVD 7376.81'
Niobrara 'B' Chalk
7544' MD, 7379' TVD (-2077)
MRLST (65%) mott m-dkbrn dk-mgy crm, frm, rthy-sm txt, chky ip / occ crm tan chky lams stks & incl, scat dism & mic Pyr, tr dns brn Ls frags, no vis por, no odor, spty fnt gld flor, slow strmg yel cuts, fnt gld resd ring.
SH (35%) as above.
CG 578 u
465 u
CG 776 u
TG, C1-C4 (units)
MWIN (ppg)
MWOUT (ppg)
461 u
FG/CG 637 u
CG- 532u
DTG- 664u
CG- 662u
CG- 981u
689u
872u
CG- 1359u
856u


ROP (min/ft)
Gamma (API)
WOB
7600
7650
7700
7750
CN
CN
CN
Survey @ 7571' Incl 74.2° Az 319.5° TVD 7386.11'
SH (30%) dk-m-v dkgy, blk, rthy-sm txt, sbplty-sbblky, rthy-sm txt, calc, marly ip, carb ip, scat mic & dism Pyr, tr indist Fos frags, frm-brit.
MRLST (40%) as above.
ARG CHKY MRLST (30%) gybrn-brn, mgy, brit-frm, sl-mod chky (arg Chk ip), 20-45% cly mtx, tr lse xln Calc, rr Calc fld mic frac, no odor or vis stn, occ spty fnt gld flor, p v slow strmg yel cut, v fnt resd ring.
Survey @ 7603' Incl 77.7° Az 318.0° TVD 7393.88'
ARG CHK (70%) gybrn brn mgy, mott ip, sm-rthy txt, occ scat carb matr, tr lse xln Calc, tr mic Pyr, rr Calc fld mic frac, sft-brit-frm-v frm, no odor or vis stn, fnt gld flor, slow-fast strmg yelwh cut, fnt-mod yel resd ring. SH/MRLST (30%).
ARG CHK (60%) dk-m gy, gybrn m-dkbrn, rthy-sm, occ sl grny, pred dns, 20-50% cly mtx (chky Mdst ip), marly ip, carb ip, tr xln Calc fld mic frac, tr scat mic & nod Pyr, no vis por, no odor, occ ques dkbrn blk o stn, fnt yelgld flor, slow-fast strmg yel cut, mod-brt yel resd ring.
SH/MARL (40%) Partly uphole Cvgs.
Landing Pt. - 7673' MD Reached at 15:30 8/20/10. Bit #3 Cut 743' in 36 Hrs. Short Trip, TOH LDDP, Run & Cement 7" Casing. PU 4" DP & Drill 6" Horizontal to TD (12,780' MD).
Log Data Continues on associated Horizontal Log: 11n63w_sec17sese_Critter Ck 13-17H.hl6
Formation Sample Tops:
Terry SS- 3625' (+1677)
Hygiene SS- 4265' (+1037)
KOP- 6930' MD, 6929' TVD (1627)
Sharon Springs- 7325' MD, 7272' TVD (-1970)
Niobrara- 7417' MD, 7324' TVD (-2022)
'B1' Chalk- 7444' MD, 7340' TVD (-2038)
'B' Chalk- 7544' MD, 7379' TVD (-2077)
Landing Point- 7673' MD, 7403' TVD (-2101)
Thank You!
Mike Dodge and Bob Nordeck
Goolsby Brothers & Associates, Inc.
CG- 1361u
CG- 2565u
CG- 2425u
TG, C1-C4 (units)