# Mid Continent Well Logging Service, Inc.

CONTINUOUS WELL LOGGING / COMPLETE HYDROCARBON ANALYSIS

2222 WESTPARK DR. STE. A
NORMAN, OK 73069
OFFICE (405) 360-7333
OPERATIONS (405) 590-3655
SALES (405) 203-9989

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

| | | | |
|---|---|---|---|
| **Well Name:** | **Milly 3020 1-19** | | |
| **Location:** | **Section 19, T30S, R20W** | | |
| **License Number:** | **15-097-21765-00-00** | **Region:** | **Kiowa Co. KS** |
| **Spud Date:** | **08/07/2013** | **Drilling Completed:** | **08/15/2013** |
| **Surface Coordinates:** | **SHL: 740' FSL & 1,980' FWL of Section 19, T30S, R20W** | | |
| **Bottom Hole Coordinates:** | **Report for: Ms. Kathy Gentry**<br>**Loggers: Mr. Bill Larzelere & Mr. Nathaniel Odum** | | |
| **Ground Elevation (ft):** | **2,209'** | **K.B. Elevation (ft):** | **2,225'** |
| **Logged Interval (ft):** | **1,500'** **To: 6,322'** | **Total Depth (ft):** | **6,322'** |
| **Formation:** | **Arbuckle** | | |
| **Type of Drilling Fluid:** | **Water/Native Mud** | | |

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

## OPERATOR

**Company:** **Sandridge Energy, INC.**
**Address:** **123 Robert S. Kerr Avenue, Ste. 2430**
**Oklahoma City, Oklahoma 73102-6406**

## GEOLOGIST

**Name:** **Kathy Gentry**
**Company:** **Sandridge Energy, Inc**
**Address:** **123 Robert S. Kerr Avenue, Ste. 2430**
**Oklahoma City, Oklahoma 73102-6406**

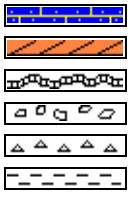
## Cores

## DSTs

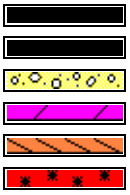
## Comments

Mud Company: Chaparral Drilling Fluids

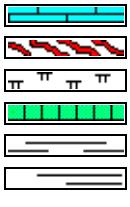
## ROCK TYPES



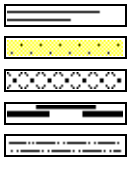
Sndylm
Anhy
Bent
Brec
Cht
Clyst



Coal
Leach
Congl
Dol
Gyp
Igne



Lmst
Meta
Mrlst
Salt
Shale
Shcol



Shgy
Ss
Till
Hotsh
Sltst

## 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
Ssstrg
Sltstrg

### TEXTURE

Boundst
Chalky
Cryxln
Earthy
Finexln
Grainst
Lithogr
Microxln
Mudst
Packst
Wackest

## OTHER SYMBOLS

### POROSITY

Earthy
Fenest
Fracture
Inter
Moldic
Organic
Pinpoint
Vuggy
New symbol
New symbol
Sndylm
New symbol

### SORTING

Well
Moderate
Poor

### ROUNDING

Rounded
Subrnd
Subang
Angular

### OIL SHOW

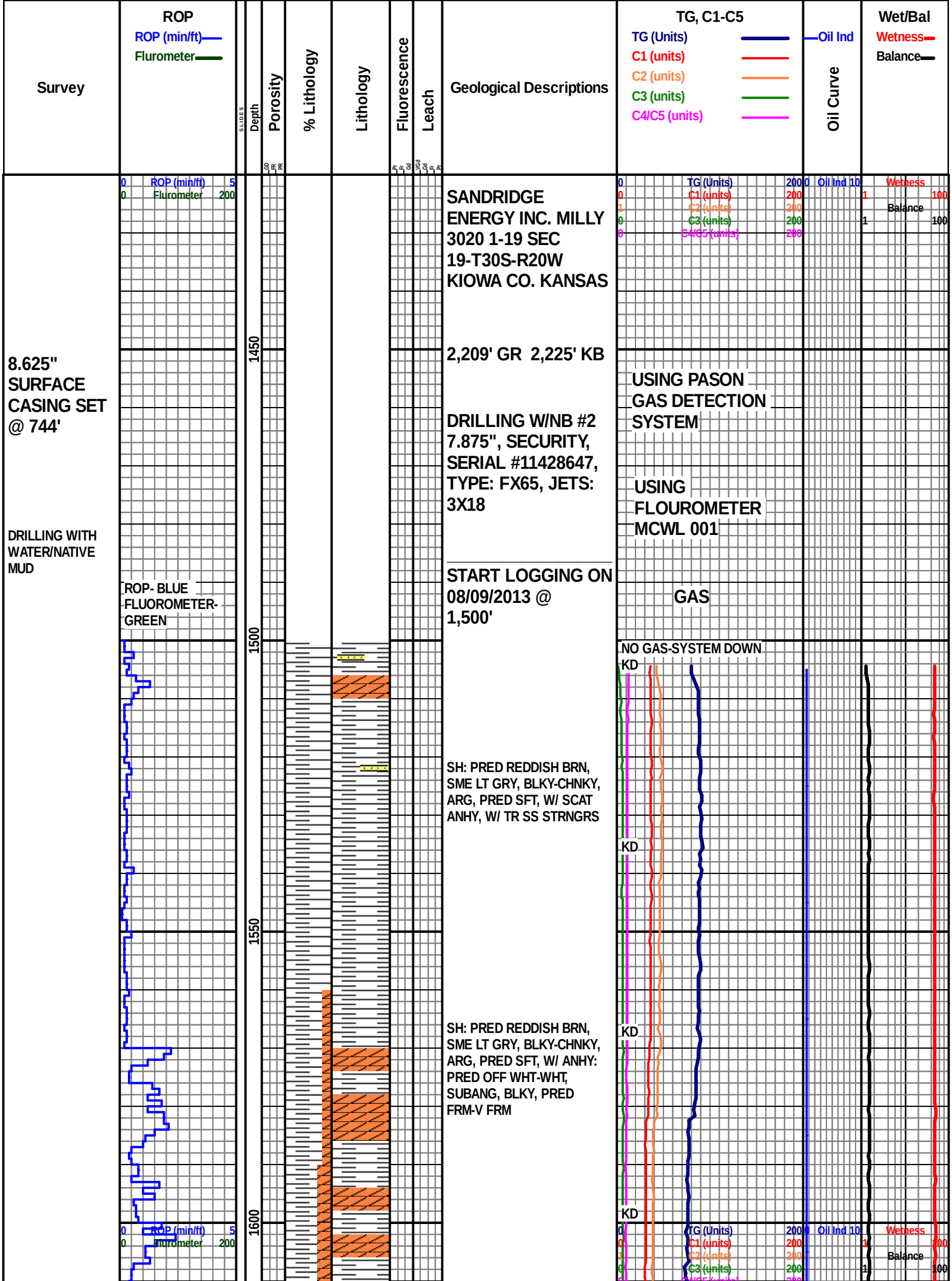
Even
Spotted
Ques
Dead

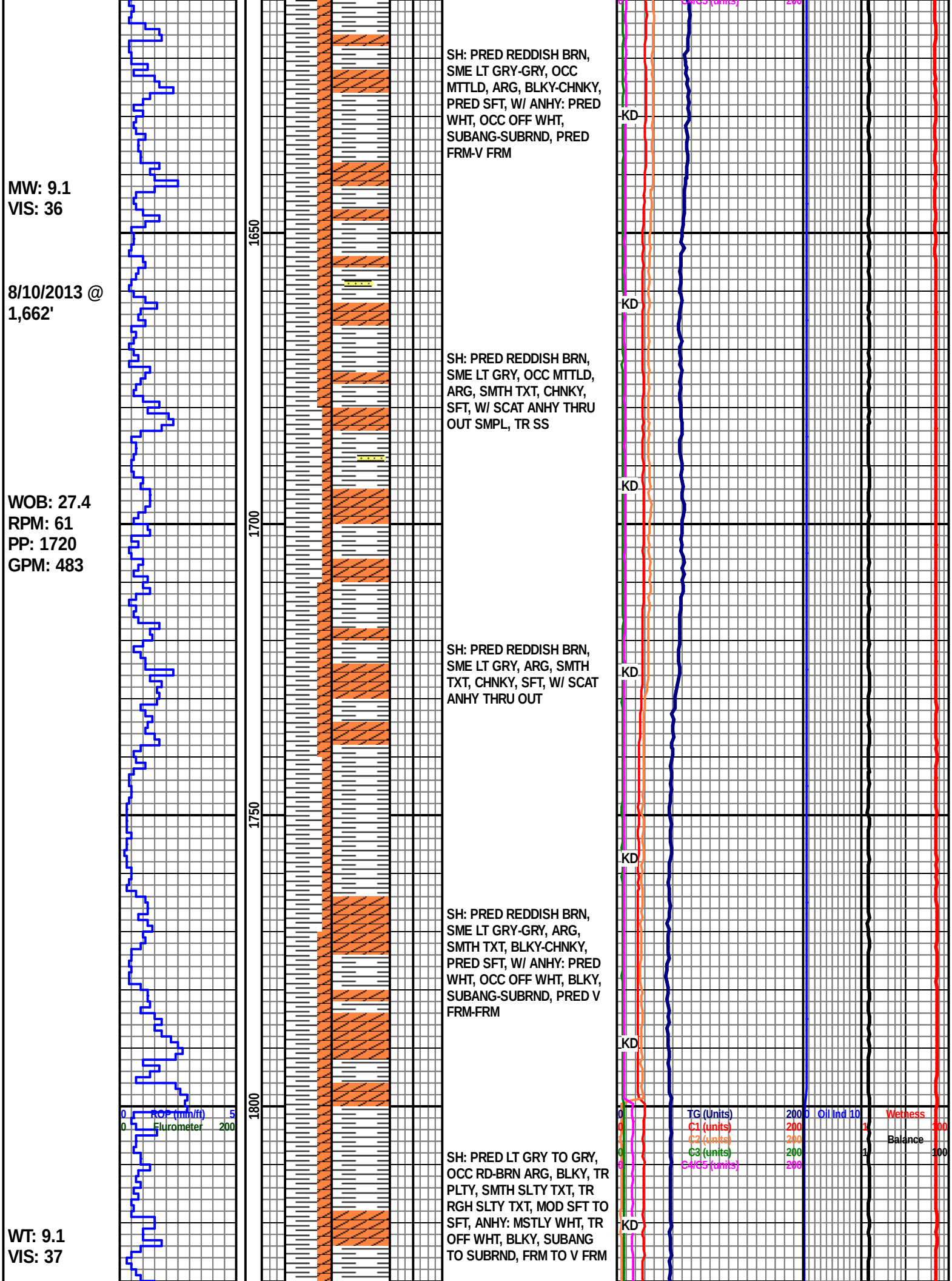
### INTERVAL

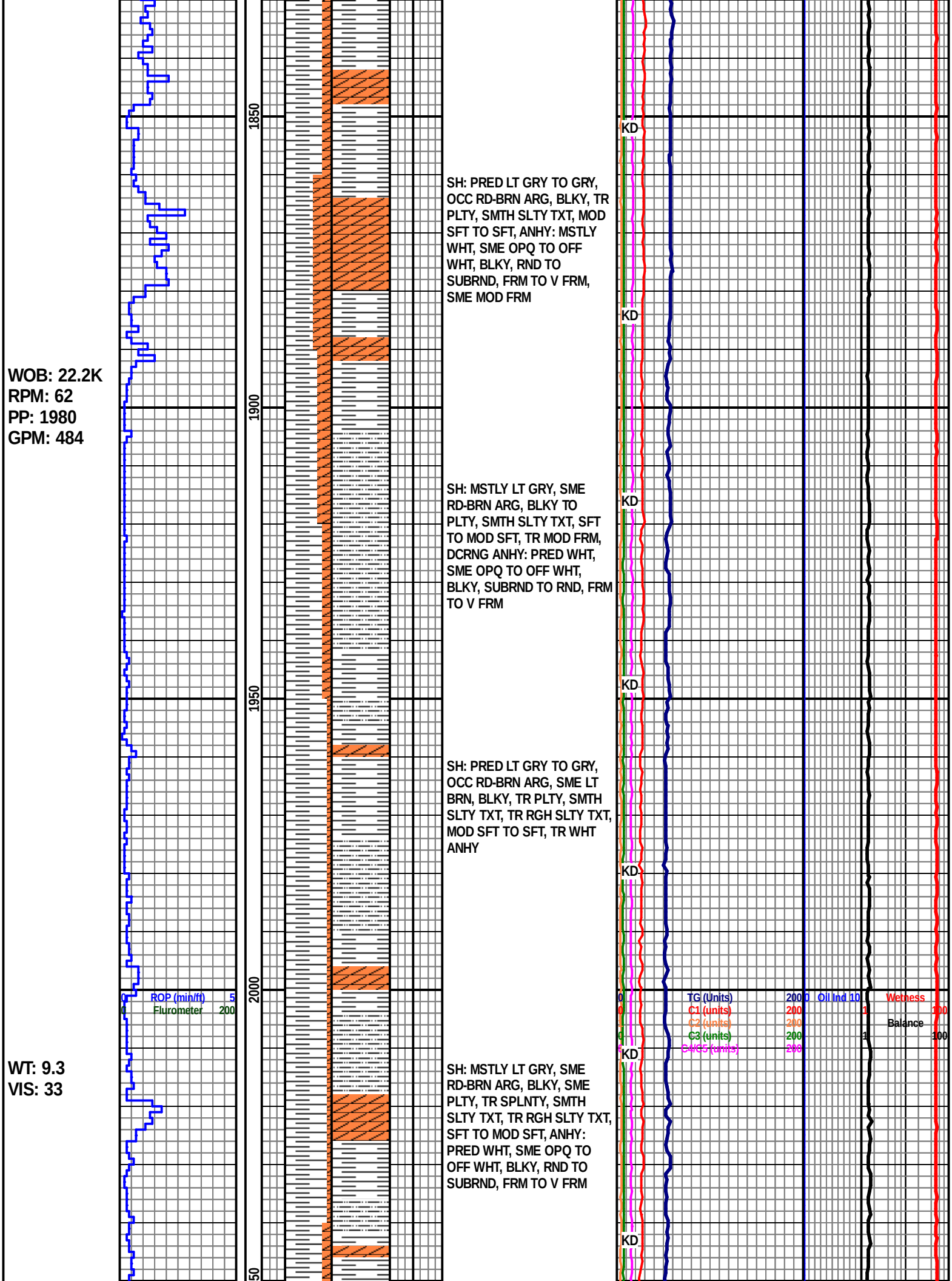
Core
Dst

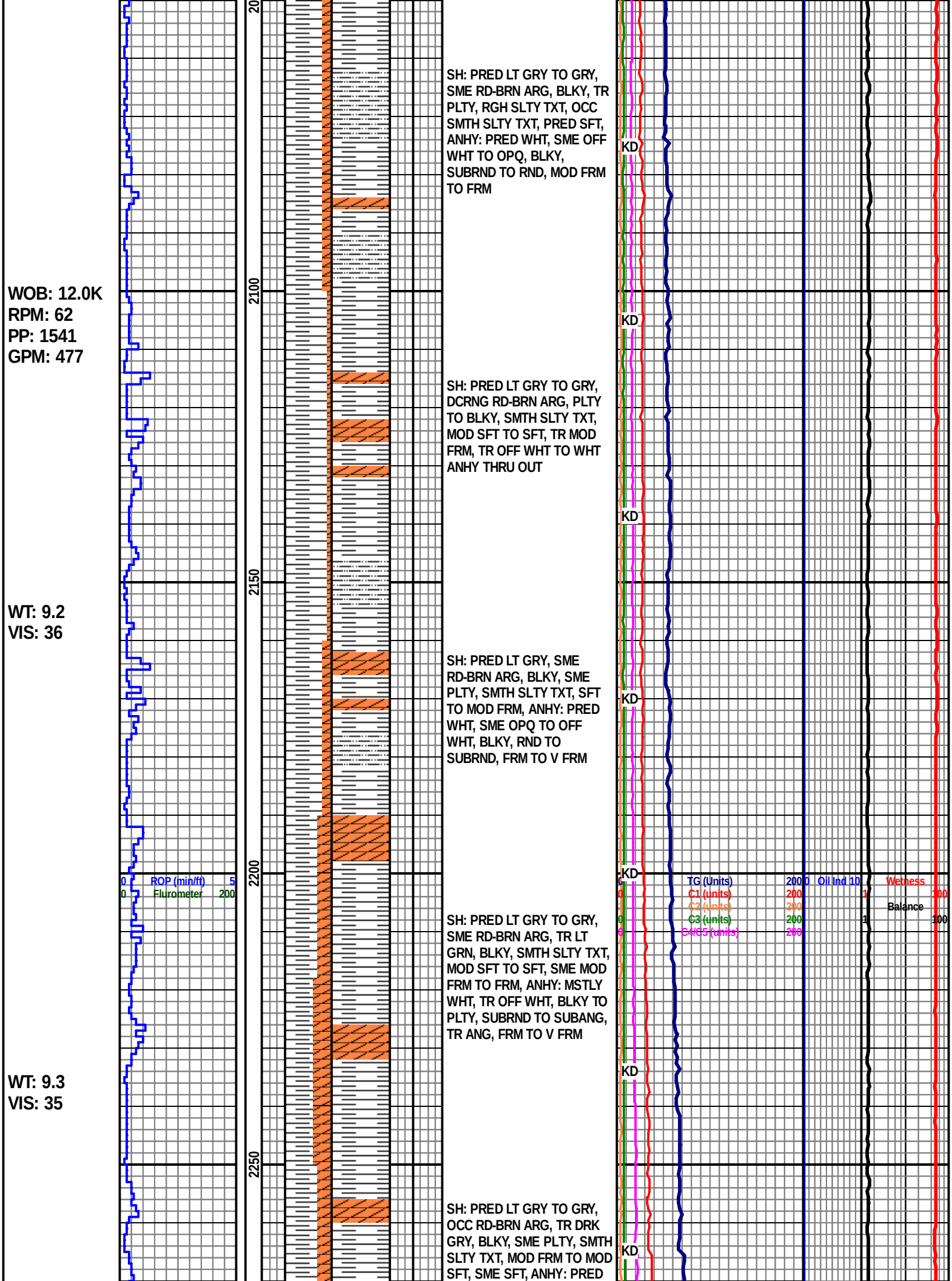
### EVENT

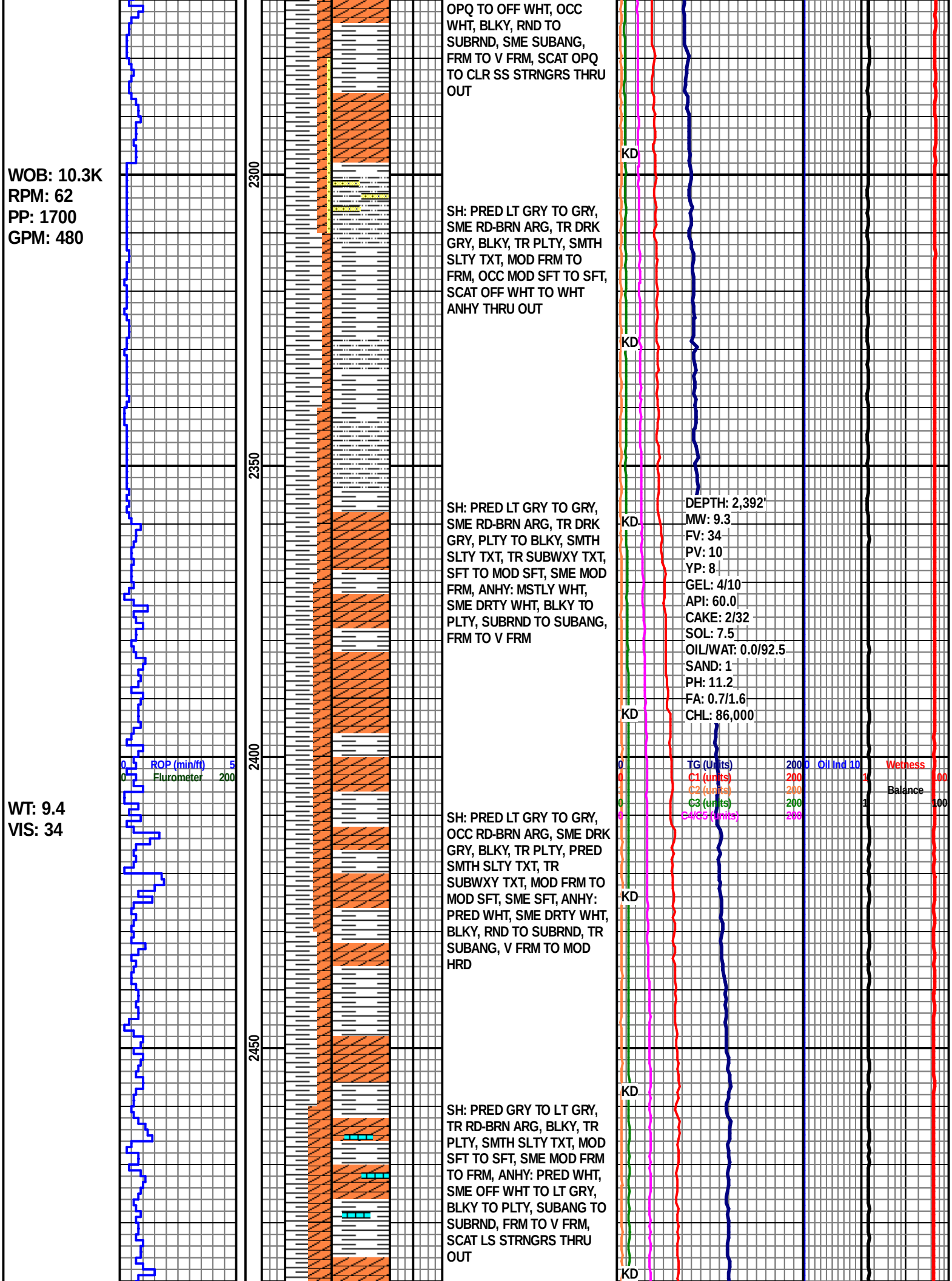
Rft
Sidewall

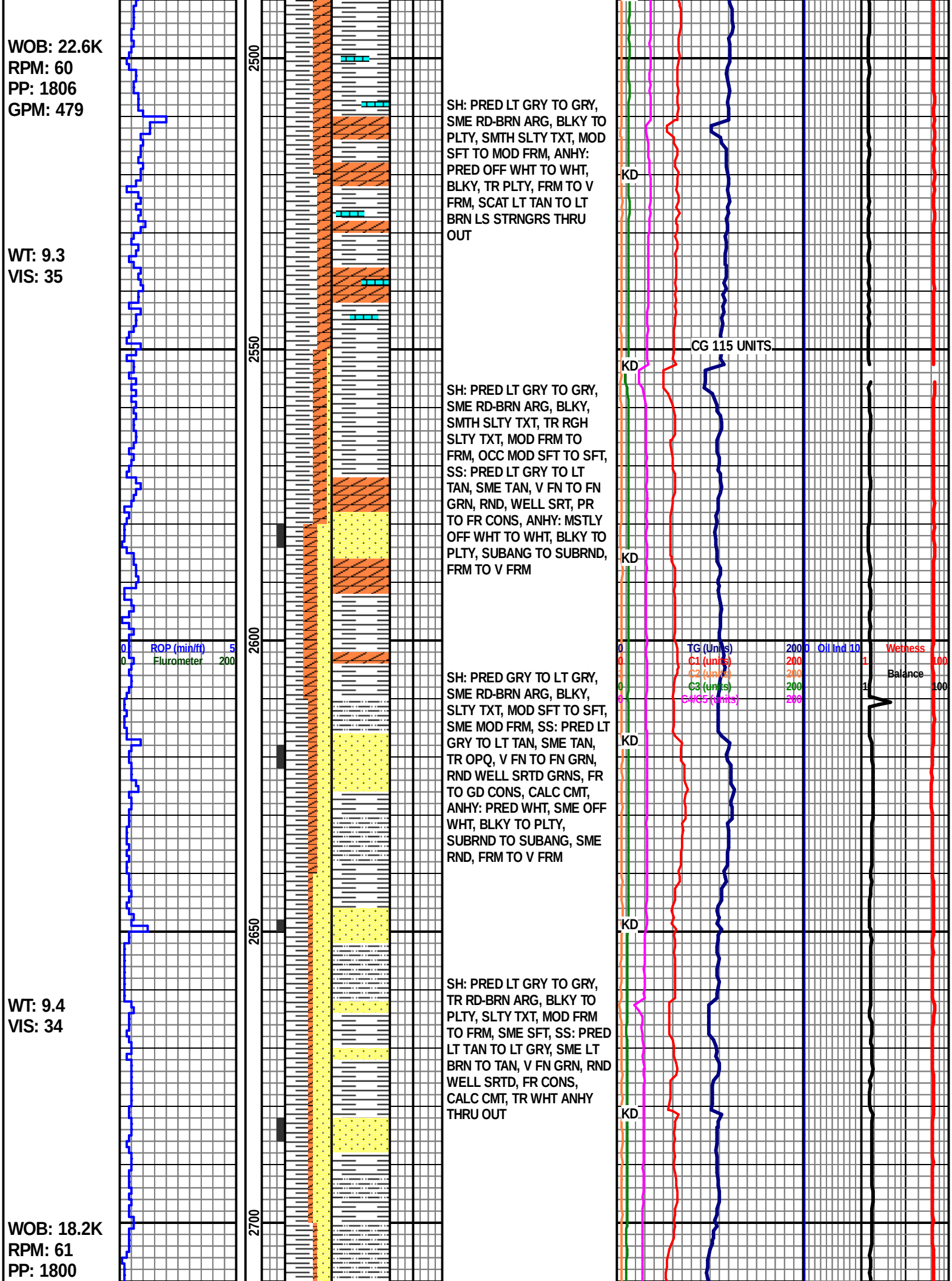

Survey
ROP
ROP (min/ft)
Flurometer
SLIDES
Depth
Porosity
% Lithology
Lithology
Fluorescence
Leach
Geological Descriptions
TG, C1-C5
TG (Units)
C1 (units)
C2 (units)
C3 (units)
C4/C5 (units)
Oil Ind
Oil Curve
Wet/Bal
Wetness
Balance
0 ROP (min/ft) 5
0 Flurometer 200
0 TG (Units) 200
0 C1 (units) 200
1 C2 (units) 200
0 C3 (units) 200
0 C4/C5 (units) 200
0 Oil Ind 10
Wetness
1 100
Balance
1 100
1450
1500
1550
1600
SANDRIDGE ENERGY INC. MILLY 3020 1-19 SEC 19-T30S-R20W KIOWA CO. KANSAS
2,209' GR 2,225' KB
USING PASON GAS DETECTION SYSTEM
DRILLING W/NB #2 7.875", SECURITY, SERIAL #11428647, TYPE: FX65, JETS: 3X18
USING FLOUROMETER MCWL 001
START LOGGING ON 08/09/2013 @ 1,500'
GAS
8.625" SURFACE CASING SET @ 744'
DRILLING WITH WATER/NATIVE MUD
ROP- BLUE
FLUOROMETER- GREEN
NO GAS-SYSTEM DOWN
KD
KD
KD
KD
SH: PRED REDDISH BRN, SME LT GRY, BLKY-CHNKY, ARG, PRED SFT, W/ SCAT ANHY, W/ TR SS STRNGRS
SH: PRED REDDISH BRN, SME LT GRY, BLKY-CHNKY, ARG, PRED SFT, W/ ANHY: PRED OFF WHT-WHT, SUBANG, BLKY, PRED FRM-V FRM

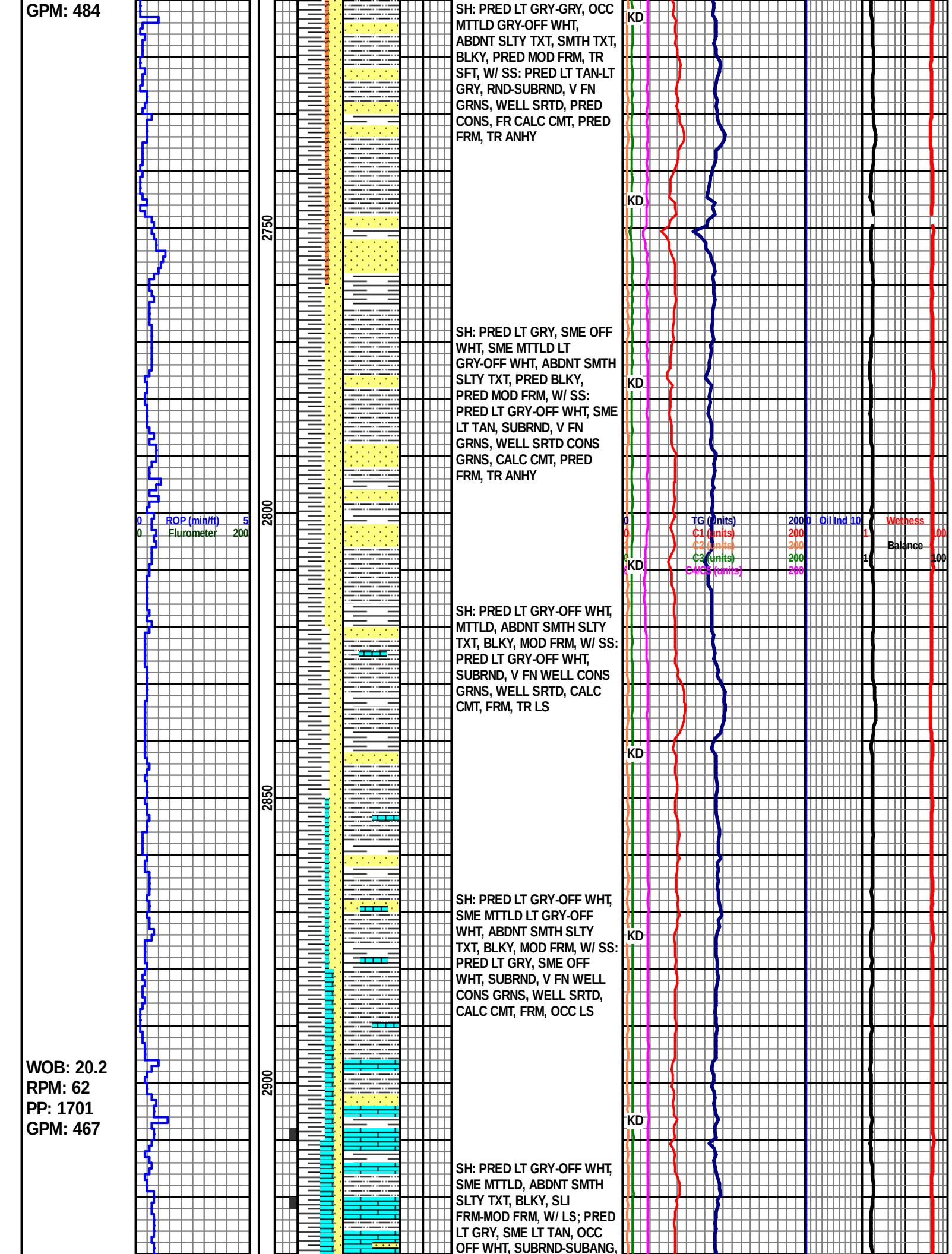

MW: 9.1
VIS: 36
8/10/2013 @ 1,662'
WOB: 27.4
RPM: 61
PP: 1720
GPM: 483
WT: 9.1
VIS: 37
1650
1700
1750
1800
SH: PRED REDDISH BRN, SME LT GRY-GRY, OCC MTTLD, ARG, BLKY-CHNKY, PRED SFT, W/ ANHY: PRED WHT, OCC OFF WHT, SUBANG-SUBRND, PRED FRM-V FRM
SH: PRED REDDISH BRN, SME LT GRY, OCC MTTLD, ARG, SMTH TXT, CHNKY, SFT, W/ SCAT ANHY THRU OUT SMPL, TR SS
SH: PRED REDDISH BRN, SME LT GRY, ARG, SMTH TXT, CHNKY, SFT, W/ SCAT ANHY THRU OUT
SH: PRED REDDISH BRN, SME LT GRY-GRY, ARG, SMTH TXT, BLKY-CHNKY, PRED SFT, W/ ANHY: PRED WHT, OCC OFF WHT, BLKY, SUBANG-SUBRND, PRED V FRM-FRM
SH: PRED LT GRY TO GRY, OCC RD-BRN ARG, BLKY, TR PLTY, SMTH SLTY TXT, TR RGH SLTY TXT, MOD SFT TO SFT, ANHY: MSTLY WHT, TR OFF WHT, BLKY, SUBANG TO SUBRND, FRM TO V FRM
KD
ROP (mm/ft)
Flurometer
TG (Units)
C1 (units)
C2 (units)
C3 (units)
C4/C5 (units)
Oil Ind 10
Wetness
Balance

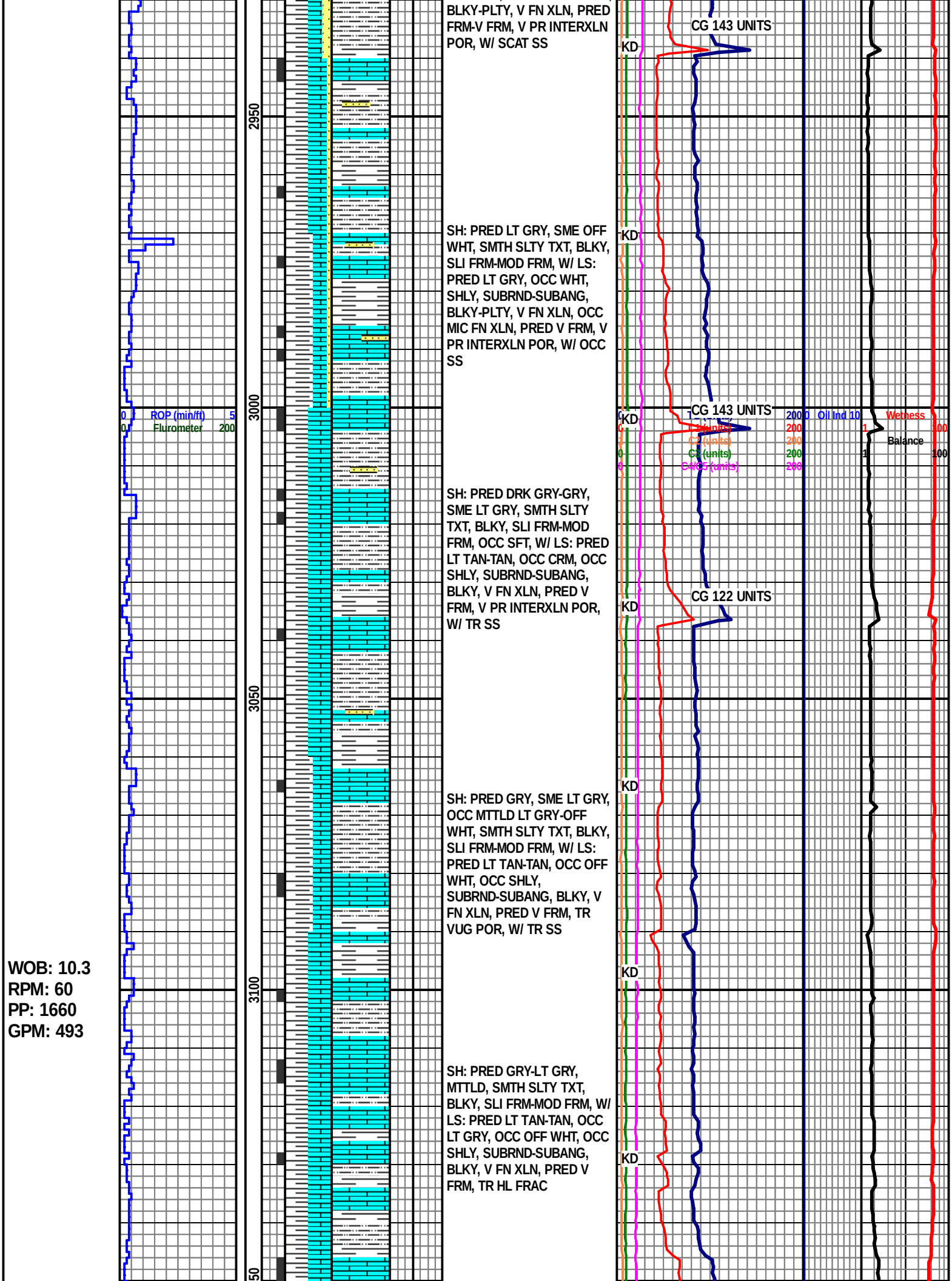

WOB: 22.2K
RPM: 62
PP: 1980
GPM: 484
WT: 9.3
VIS: 33
1850
1900
1950
2000
2050
ROP (min/ft) 0 5
Flurometer 0 200
SH: PRED LT GRY TO GRY, OCC RD-BRN ARG, BLKY, TR PLTY, SMTH SLTY TXT, MOD SFT TO SFT, ANHY: MSTLY WHT, SME OPQ TO OFF WHT, BLKY, RND TO SUBRND, FRM TO V FRM, SME MOD FRM
SH: MSTLY LT GRY, SME RD-BRN ARG, BLKY TO PLTY, SMTH SLTY TXT, SFT TO MOD SFT, TR MOD FRM, DCRNG ANHY: PRED WHT, SME OPQ TO OFF WHT, BLKY, SUBRND TO RND, FRM TO V FRM
SH: PRED LT GRY TO GRY, OCC RD-BRN ARG, SME LT BRN, BLKY, TR PLTY, SMTH SLTY TXT, TR RGH SLTY TXT, MOD SFT TO SFT, TR WHT ANHY
SH: MSTLY LT GRY, SME RD-BRN ARG, BLKY, SME PLTY, TR SPLNTY, SMTH SLTY TXT, TR RGH SLTY TXT, SFT TO MOD SFT, ANHY: PRED WHT, SME OPQ TO OFF WHT, BLKY, RND TO SUBRND, FRM TO V FRM
KD
TG (Units) 0 200
C1 (units) 0 200
C2 (units) 0 200
C3 (units) 0 200
C4/C5 (units) 0 200
Oil Ind 10 1 1
Wetness 100 100
Balance

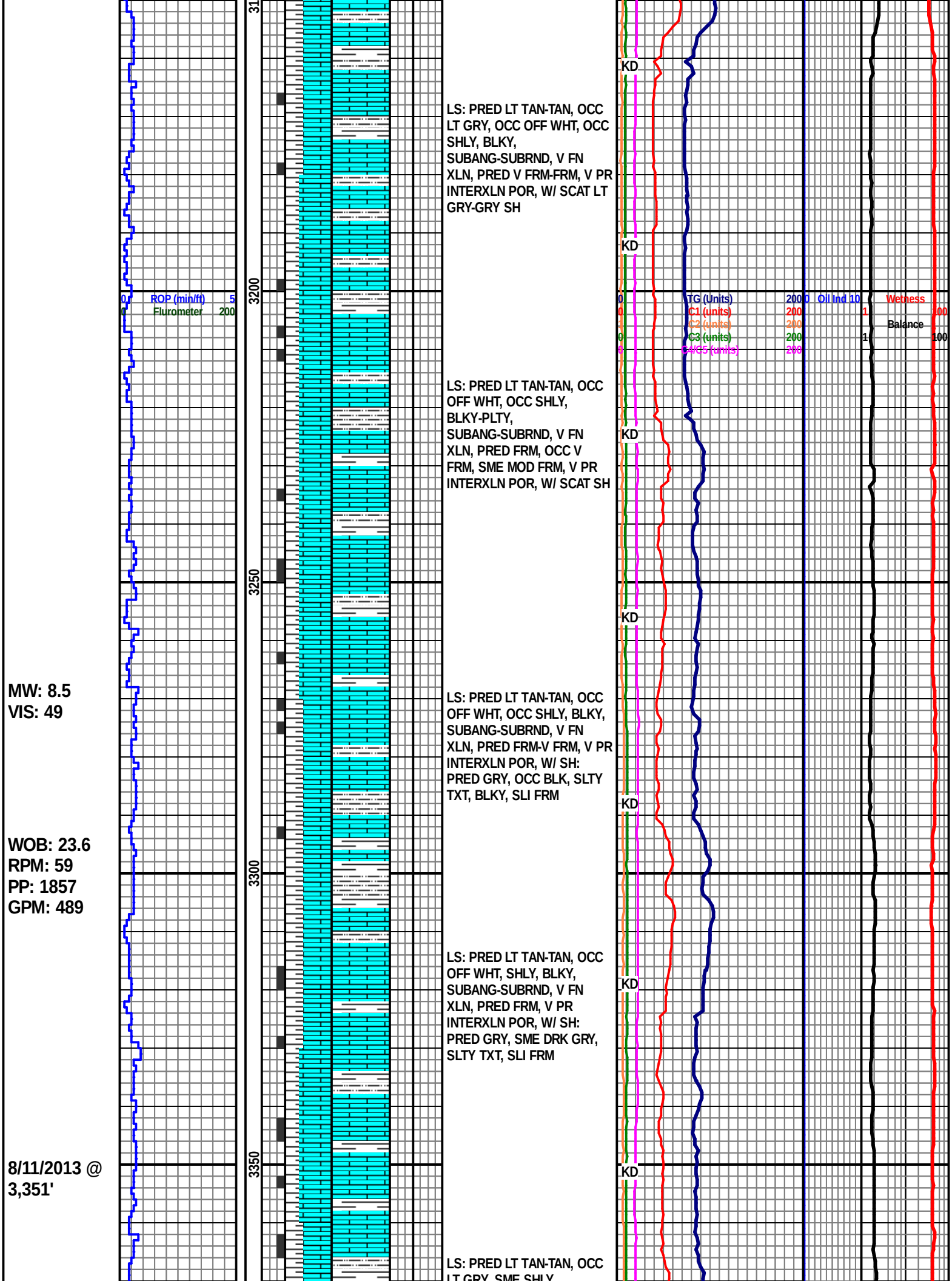

WOB: 12.0K
RPM: 62
PP: 1541
GPM: 477
WT: 9.2
VIS: 36
WT: 9.3
VIS: 35
2100
2150
2200
2250
SH: PRED LT GRY TO GRY, SME RD-BRN ARG, BLKY, TR PLTY, RGH SLTY TXT, OCC SMTH SLTY TXT, PRED SFT, ANHY: PRED WHT, SME OFF WHT TO OPQ, BLKY, SUBRND TO RND, MOD FRM TO FRM
SH: PRED LT GRY TO GRY, DCRNG RD-BRN ARG, PLTY TO BLKY, SMTH SLTY TXT, MOD SFT TO SFT, TR MOD FRM, TR OFF WHT TO WHT ANHY THRU OUT
SH: PRED LT GRY, SME RD-BRN ARG, BLKY, SME PLTY, SMTH SLTY TXT, SFT TO MOD FRM, ANHY: PRED WHT, SME OPQ TO OFF WHT, BLKY, RND TO SUBRND, FRM TO V FRM
SH: PRED LT GRY TO GRY, SME RD-BRN ARG, TR LT GRN, BLKY, SMTH SLTY TXT, MOD SFT TO SFT, SME MOD FRM TO FRM, ANHY: MSTLY WHT, TR OFF WHT, BLKY TO PLTY, SUBRND TO SUBANG, TR ANG, FRM TO V FRM
SH: PRED LT GRY TO GRY, OCC RD-BRN ARG, TR DRK GRY, BLKY, SME PLTY, SMTH SLTY TXT, MOD FRM TO MOD SFT, SME SFT, ANHY: PRED
KD
0 ROP (min/ft) 5
0 Flurometer 200
TG (Units) 2000
C1 (units) 200
C2 (units) 200
C3 (units) 200
C4/iC5 (units) 200
Oil Ind 10
1
Wetness 200
Balance
1 100

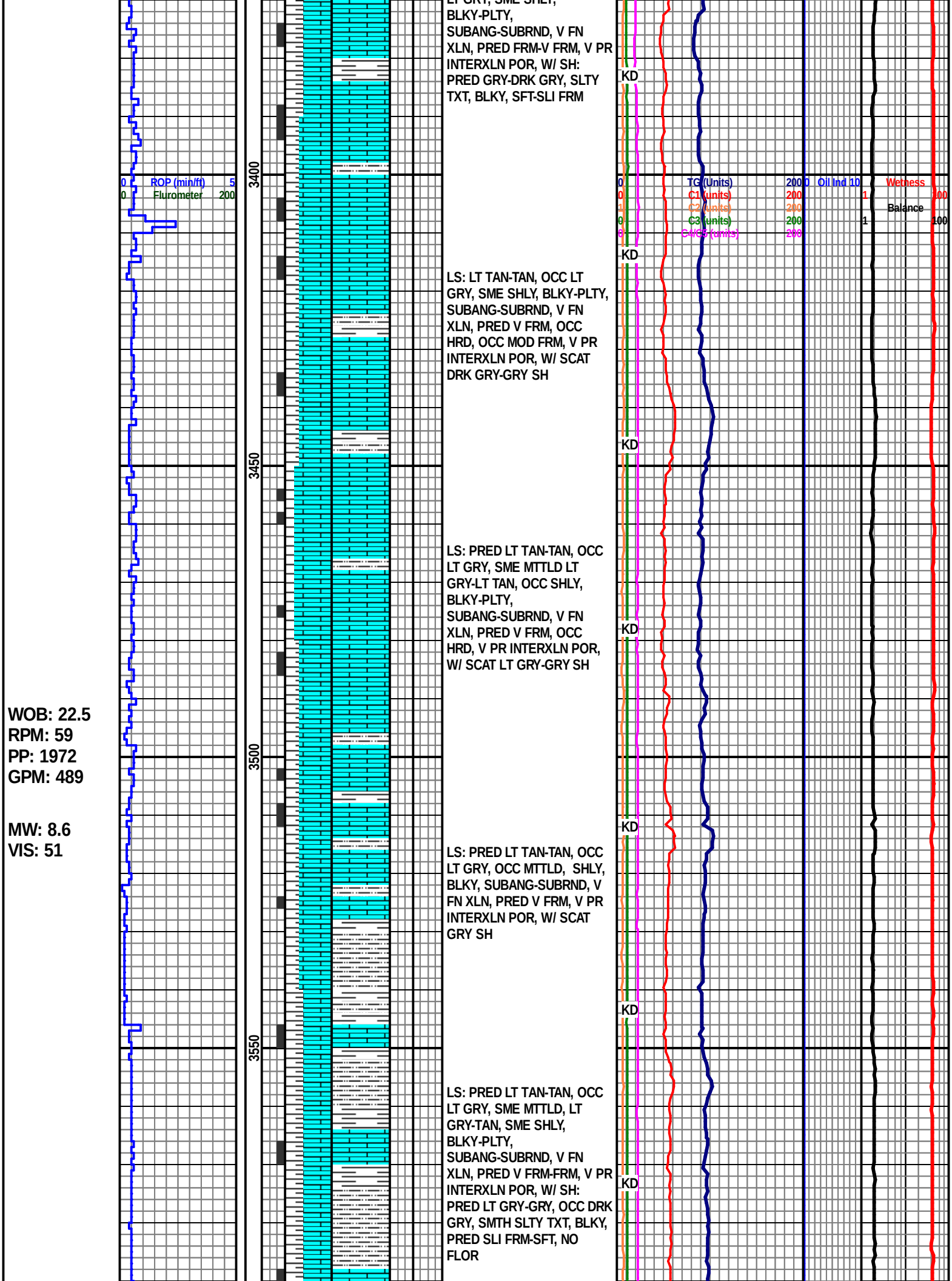

OPQ TO OFF WHT, OCC WHT, BLKY, RND TO SUBRND, SME SUBANG, FRM TO V FRM, SCAT OPQ TO CLR SS STRNGRS THRU OUT
KD
WOB: 10.3K
RPM: 62
PP: 1700
GPM: 480
2300
SH: PRED LT GRY TO GRY, SME RD-BRN ARG, TR DRK GRY, BLKY, TR PLTY, SMTH SLTY TXT, MOD FRM TO FRM, OCC MOD SFT TO SFT, SCAT OFF WHT TO WHT ANHY THRU OUT
KD
2350
SH: PRED LT GRY TO GRY, SME RD-BRN ARG, TR DRK GRY, PLTY TO BLKY, SMTH SLTY TXT, TR SUBWXY TXT, SFT TO MOD SFT, SME MOD FRM, ANHY: MSTLY WHT, SME DRTY WHT, BLKY TO PLTY, SUBRND TO SUBANG, FRM TO V FRM
KD
DEPTH: 2,392'
MW: 9.3
FV: 34
PV: 10
YP: 8
GEL: 4/10
API: 60.0
CAKE: 2/32
SOL: 7.5
OIL/WAT: 0.0/92.5
SAND: 1
PH: 11.2
FA: 0.7/1.6
CHL: 86,000
KD
2400
0 ROP (min/ft) 5
0 Flurometer 200
0 TG (Units) 2000
0 C1 (units) 200
C2 (units) 200
0 C3 (units) 200
C4/C5 (units) 200
0 Oil Ind 10
Wetness
0 100
Balance
0 100
WT: 9.4
VIS: 34
SH: PRED LT GRY TO GRY, OCC RD-BRN ARG, SME DRK GRY, BLKY, TR PLTY, PRED SMTH SLTY TXT, TR SUBWXY TXT, MOD FRM TO MOD SFT, SME SFT, ANHY: PRED WHT, SME DRTY WHT, BLKY, RND TO SUBRND, TR SUBANG, V FRM TO MOD HRD
KD
2450
SH: PRED GRY TO LT GRY, TR RD-BRN ARG, BLKY, TR PLTY, SMTH SLTY TXT, MOD SFT TO SFT, SME MOD FRM TO FRM, ANHY: PRED WHT, SME OFF WHT TO LT GRY, BLKY TO PLTY, SUBANG TO SUBRND, FRM TO V FRM, SCAT LS STRNGRS THRU OUT
KD

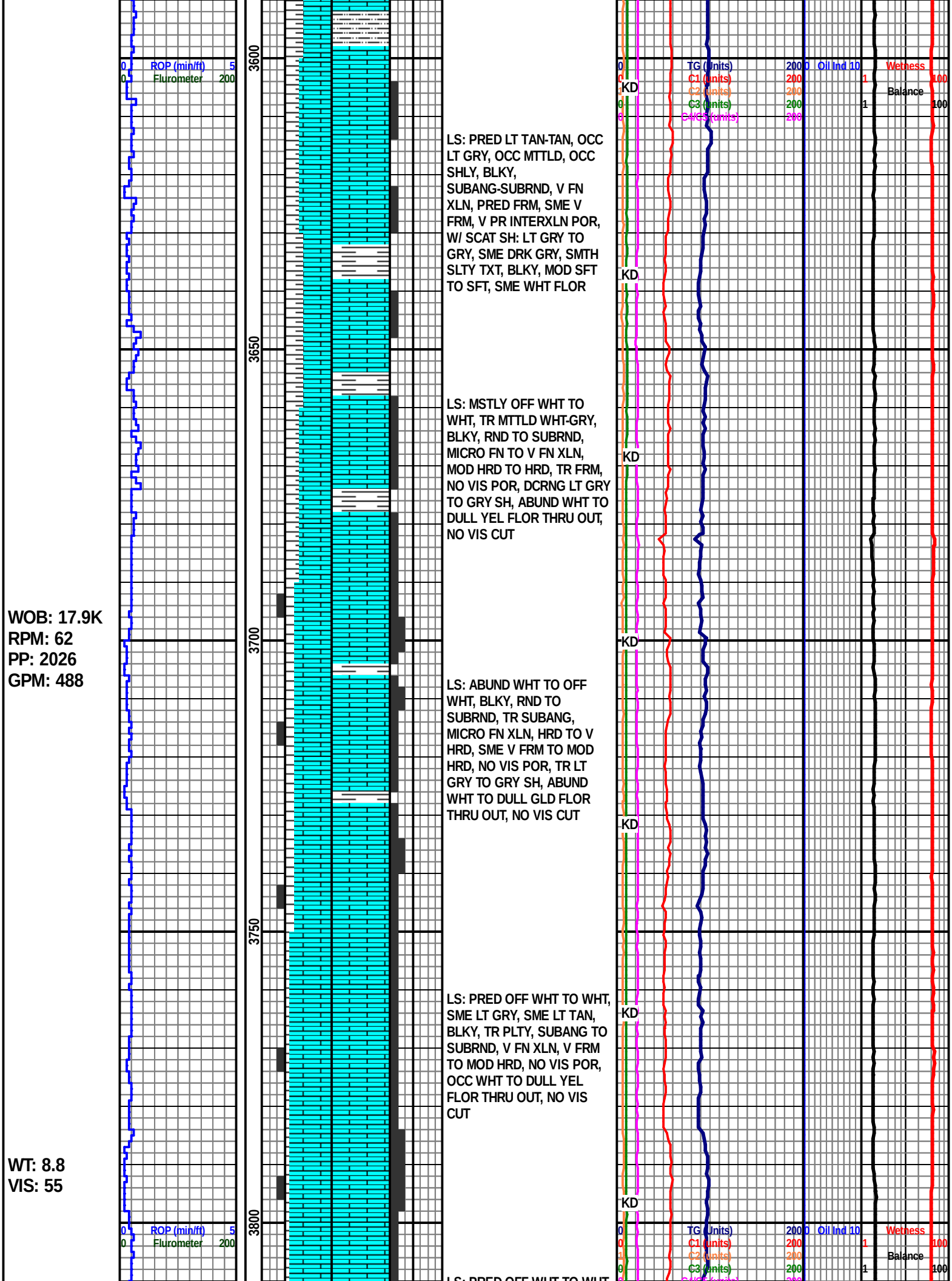

WOB: 22.6K
RPM: 60
PP: 1806
GPM: 479
WT: 9.3
VIS: 35
WT: 9.4
VIS: 34
WOB: 18.2K
RPM: 61
PP: 1800
2500
2550
2600
2650
2700
SH: PRED LT GRY TO GRY, SME RD-BRN ARG, BLKY TO PLTY, SMTH SLTY TXT, MOD SFT TO MOD FRM, ANHY: PRED OFF WHT TO WHT, BLKY, TR PLTY, FRM TO V FRM, SCAT LT TAN TO LT BRN LS STRNGRS THRU OUT
SH: PRED LT GRY TO GRY, SME RD-BRN ARG, BLKY, SMTH SLTY TXT, TR RGH SLTY TXT, MOD FRM TO FRM, OCC MOD SFT TO SFT, SS: PRED LT GRY TO LT TAN, SME TAN, V FN TO FN GRN, RND, WELL SRT, PR TO FR CONS, ANHY: MSTLY OFF WHT TO WHT, BLKY TO PLTY, SUBANG TO SUBRND, FRM TO V FRM
SH: PRED GRY TO LT GRY, SME RD-BRN ARG, BLKY, SLTY TXT, MOD SFT TO SFT, SME MOD FRM, SS: PRED LT GRY TO LT TAN, SME TAN, TR OPQ, V FN TO FN GRN, RND WELL SRTD GRNS, FR TO GD CONS, CALC CMT, ANHY: PRED WHT, SME OFF WHT, BLKY TO PLTY, SUBRND TO SUBANG, SME RND, FRM TO V FRM
SH: PRED LT GRY TO GRY, TR RD-BRN ARG, BLKY TO PLTY, SLTY TXT, MOD FRM TO FRM, SME SFT, SS: PRED LT TAN TO LT GRY, SME LT BRN TO TAN, V FN GRN, RND WELL SRTD, FR CONS, CALC CMT, TR WHT ANHY THRU OUT
KD
CG 115 UNITS
0 ROP (min/ft) 5
0 Flurometer 200
0 TG (Units) 200
0 C1 (units) 200
0 C2 (units) 200
0 C3 (units) 200
0 C4/C5 (Units) 200
0 Oil Ind 10
1 Wetness 100
Balance
1 100

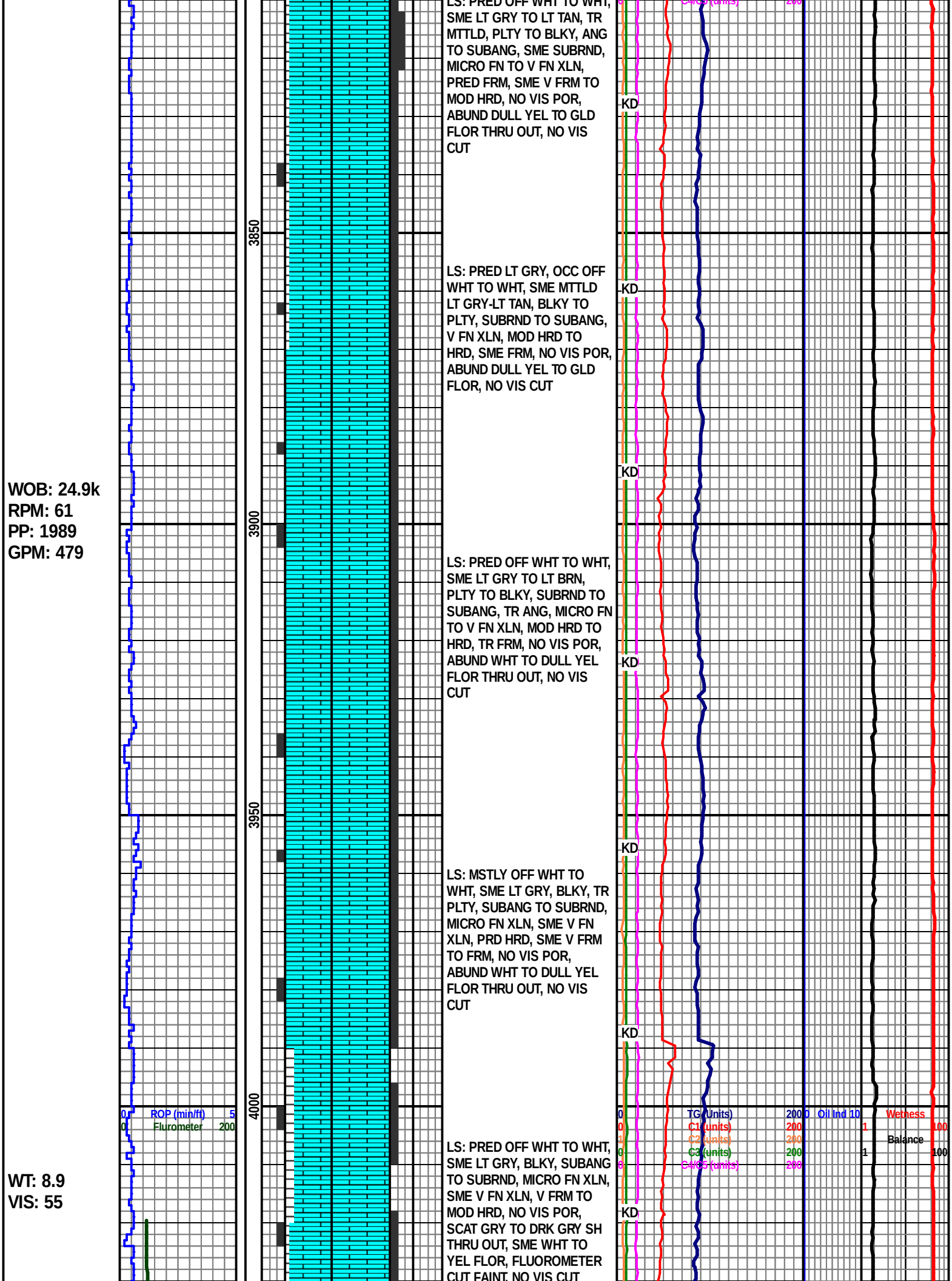

GPM: 484
SH: PRED LT GRY-GRY, OCC MTTLD GRY-OFF WHT, ABDNT SLTY TXT, SMTH TXT, BLKY, PRED MOD FRM, TR SFT, W/ SS: PRED LT TAN-LT GRY, RND-SUBRND, V FN GRNS, WELL SRTD, PRED CONS, FR CALC CMT, PRED FRM, TR ANHY
KD
2750
SH: PRED LT GRY, SME OFF WHT, SME MTTLD LT GRY-OFF WHT, ABDNT SMTH SLTY TXT, PRED BLKY, PRED MOD FRM, W/ SS: PRED LT GRY-OFF WHT, SME LT TAN, SUBRND, V FN GRNS, WELL SRTD CONS GRNS, CALC CMT, PRED FRM, TR ANHY
2800
0 ROP (min/ft) 5
0 Flurometer 200
0 TG (Units) 2000
0 C1 (units) 200
C2 (units) 200
0 C3 (units) 200
C4/C5 (units) 200
Oil Ind 10
1 Wetness 100
1 Balance 100
SH: PRED LT GRY-OFF WHT, MTTLD, ABDNT SMTH SLTY TXT, BLKY, MOD FRM, W/ SS: PRED LT GRY-OFF WHT, SUBRND, V FN WELL CONS GRNS, WELL SRTD, CALC CMT, FRM, TR LS
2850
SH: PRED LT GRY-OFF WHT, SME MTTLD LT GRY-OFF WHT, ABDNT SMTH SLTY TXT, BLKY, MOD FRM, W/ SS: PRED LT GRY, SME OFF WHT, SUBRND, V FN WELL CONS GRNS, WELL SRTD, CALC CMT, FRM, OCC LS
WOB: 20.2
RPM: 62
PP: 1701
GPM: 467
2900
SH: PRED LT GRY-OFF WHT, SME MTTLD, ABDNT SMTH SLTY TXT, BLKY, SLI FRM-MOD FRM, W/ LS; PRED LT GRY, SME LT TAN, OCC OFF WHT, SUBRND-SUBANG,

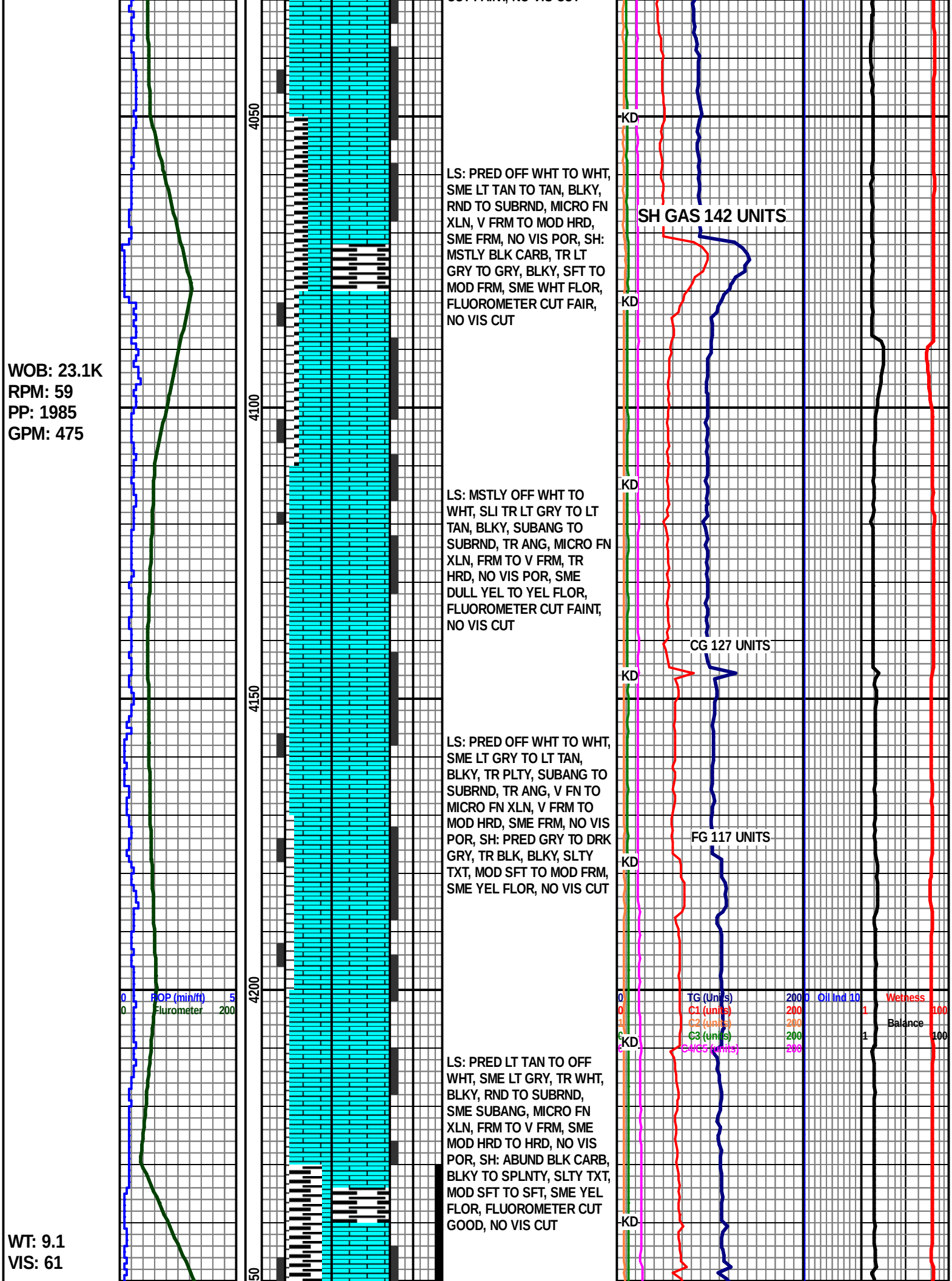

BLKY-PLTY, V FN XLN, PRED FRM-V FRM, V PR INTERXLN POR, W/ SCAT SS
CG 143 UNITS
KD
SH: PRED LT GRY, SME OFF WHT, SMTH SLTY TXT, BLKY, SLI FRM-MOD FRM, W/ LS: PRED LT GRY, OCC WHT, SHLY, SUBRND-SUBANG, BLKY-PLTY, V FN XLN, OCC MIC FN XLN, PRED V FRM, V PR INTERXLN POR, W/ OCC SS
2950
3000
ROP (min/ft)
Flurometer
CG 143 UNITS
C1 (units)
C2 (units)
Oil Ind 10
Wetness
Balance
SH: PRED DRK GRY-GRY, SME LT GRY, SMTH SLTY TXT, BLKY, SLI FRM-MOD FRM, OCC SFT, W/ LS: PRED LT TAN-TAN, OCC CRM, OCC SHLY, SUBRND-SUBANG, BLKY, V FN XLN, PRED V FRM, V PR INTERXLN POR, W/ TR SS
CG 122 UNITS
3050
SH: PRED GRY, SME LT GRY, OCC MTTLD LT GRY-OFF WHT, SMTH SLTY TXT, BLKY, SLI FRM-MOD FRM, W/ LS: PRED LT TAN-TAN, OCC OFF WHT, OCC SHLY, SUBRND-SUBANG, BLKY, V FN XLN, PRED V FRM, TR VUG POR, W/ TR SS
3100
SH: PRED GRY-LT GRY, MTTLD, SMTH SLTY TXT, BLKY, SLI FRM-MOD FRM, W/ LS: PRED LT TAN-TAN, OCC LT GRY, OCC OFF WHT, OCC SHLY, SUBRND-SUBANG, BLKY, V FN XLN, PRED V FRM, TR HL FRAC
WOB: 10.3
RPM: 60
PP: 1660
GPM: 493

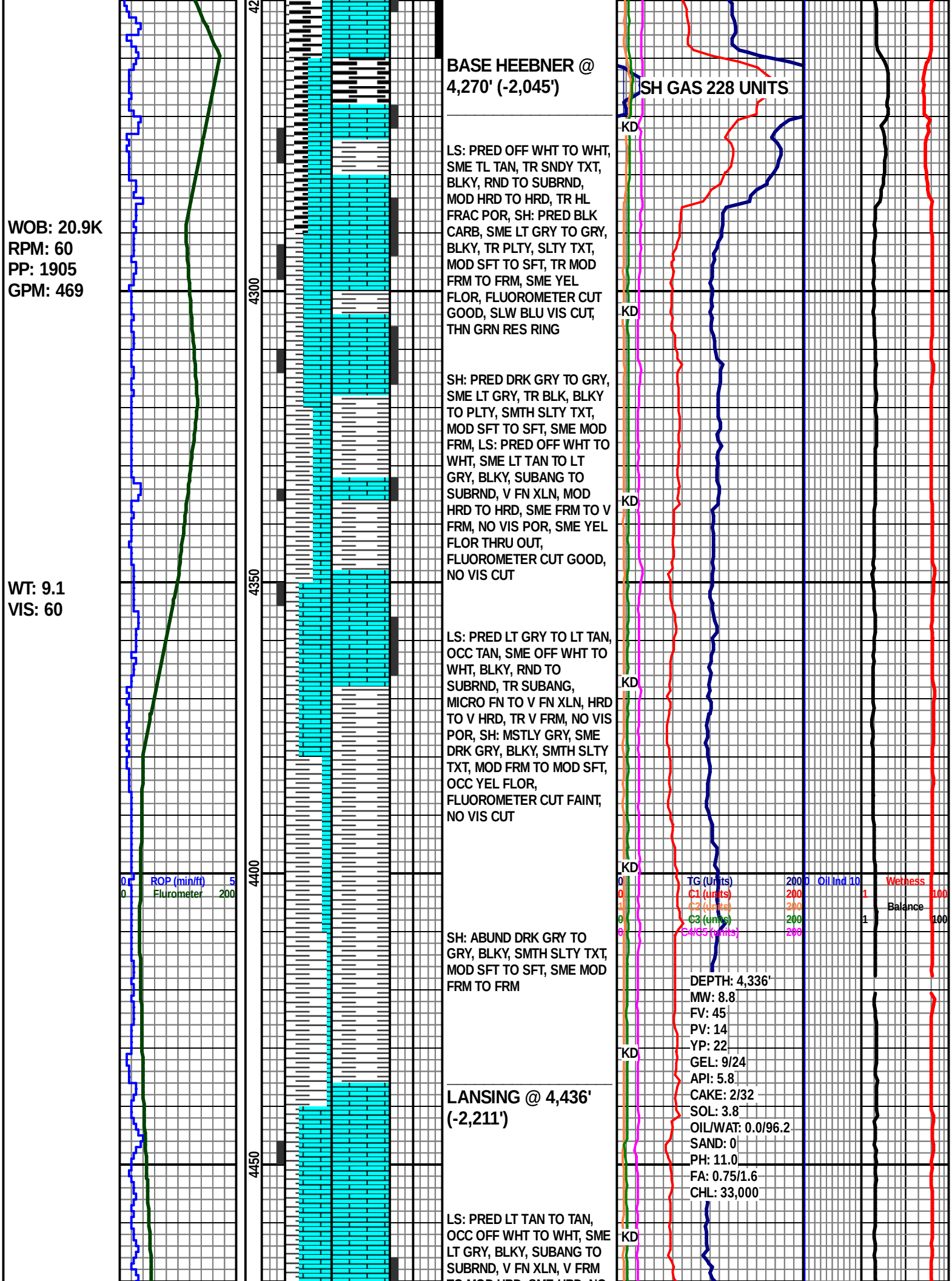

ROP (min/ft)
Flurometer
TG (Units)
C1 (units)
C2 (units)
C3 (units)
C4/C5 (units)
Oil Ind 10
Wetness
Balance
3200
3250
3300
3350
KD
LS: PRED LT TAN-TAN, OCC LT GRY, OCC OFF WHT, OCC SHLY, BLKY, SUBANG-SUBRND, V FN XLN, PRED V FRM-FRM, V PR INTERXLN POR, W/ SCAT LT GRY-GRY SH
LS: PRED LT TAN-TAN, OCC OFF WHT, OCC SHLY, BLKY-PLTY, SUBANG-SUBRND, V FN XLN, PRED FRM, OCC V FRM, SME MOD FRM, V PR INTERXLN POR, W/ SCAT SH
LS: PRED LT TAN-TAN, OCC OFF WHT, OCC SHLY, BLKY, SUBANG-SUBRND, V FN XLN, PRED FRM-V FRM, V PR INTERXLN POR, W/ SH: PRED GRY, OCC BLK, SLTY TXT, BLKY, SLI FRM
LS: PRED LT TAN-TAN, OCC OFF WHT, SHLY, BLKY, SUBANG-SUBRND, V FN XLN, PRED FRM, V PR INTERXLN POR, W/ SH: PRED GRY, SME DRK GRY, SLTY TXT, SLI FRM
LS: PRED LT TAN-TAN, OCC
MW: 8.5
VIS: 49
WOB: 23.6
RPM: 59
PP: 1857
GPM: 489
8/11/2013 @ 3,351'


BLKY-PLTY,
SUBANG-SUBRND, V FN
XLN, PRED FRM-V FRM, V PR
INTERXLN POR, W/ SH:
PRED GRY-DRK GRY, SLTY
TXT, BLKY, SFT-SLI FRM
KD
0 ROP (min/ft) 5
0 Flurometer 200
0 TG (Units) 200
0 C1 (units) 200
1 C2 (units) 200
0 C3 (units) 200
0 C4/C3 (units) 200
0 Oil Ind 10
Wetness
1 100
Balance
1 100
3400
LS: LT TAN-TAN, OCC LT
GRY, SME SHLY, BLKY-PLTY,
SUBANG-SUBRND, V FN
XLN, PRED V FRM, OCC
HRD, OCC MOD FRM, V PR
INTERXLN POR, W/ SCAT
DRK GRY-GRY SH
3450
LS: PRED LT TAN-TAN, OCC
LT GRY, SME MTTLD LT
GRY-LT TAN, OCC SHLY,
BLKY-PLTY,
SUBANG-SUBRND, V FN
XLN, PRED V FRM, OCC
HRD, V PR INTERXLN POR,
W/ SCAT LT GRY-GRY SH
WOB: 22.5
RPM: 59
PP: 1972
GPM: 489
MW: 8.6
VIS: 51
3500
LS: PRED LT TAN-TAN, OCC
LT GRY, OCC MTTLD, SHLY,
BLKY, SUBANG-SUBRND, V
FN XLN, PRED V FRM, V PR
INTERXLN POR, W/ SCAT
GRY SH
3550
LS: PRED LT TAN-TAN, OCC
LT GRY, SME MTTLD, LT
GRY-TAN, SME SHLY,
BLKY-PLTY,
SUBANG-SUBRND, V FN
XLN, PRED V FRM-FRM, V PR
INTERXLN POR, W/ SH:
PRED LT GRY-GRY, OCC DRK
GRY, SMTH SLTY TXT, BLKY,
PRED SLI FRM-SFT, NO
FLOR

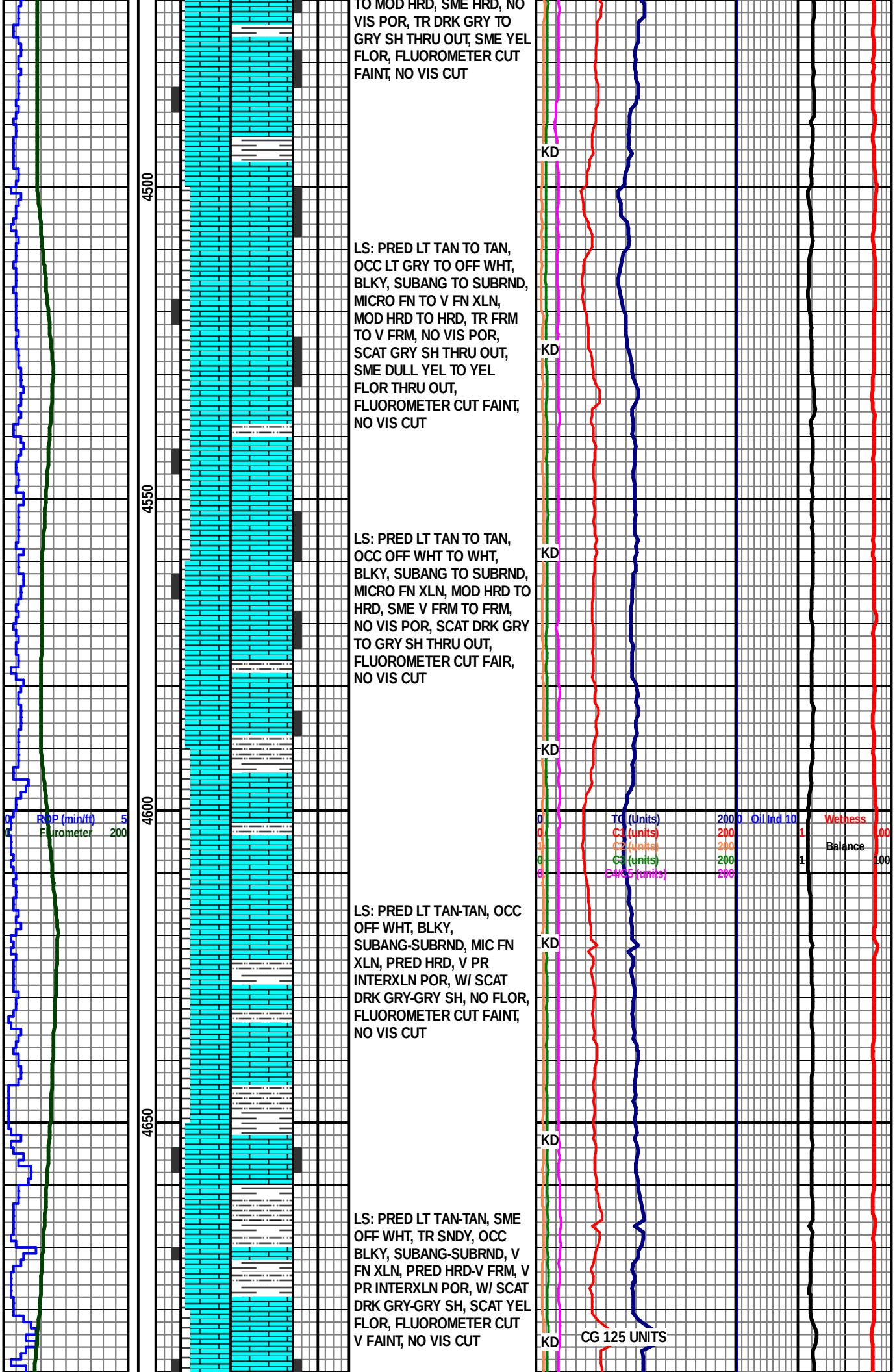

0 ROP (min/ft) 5
0 Flurometer 200
3600
3650
3700
3750
3800
LS: PRED LT TAN-TAN, OCC LT GRY, OCC MTTLD, OCC SHLY, BLKY, SUBANG-SUBRND, V FN XLN, PRED FRM, SME V FRM, V PR INTERXLN POR, W/ SCAT SH: LT GRY TO GRY, SME DRK GRY, SMTH SLTY TXT, BLKY, MOD SFT TO SFT, SME WHT FLOR
LS: MSTLY OFF WHT TO WHT, TR MTTLD WHT-GRY, BLKY, RND TO SUBRND, MICRO FN TO V FN XLN, MOD HRD TO HRD, TR FRM, NO VIS POR, DCRNG LT GRY TO GRY SH, ABUND WHT TO DULL YEL FLOR THRU OUT, NO VIS CUT
LS: ABUND WHT TO OFF WHT, BLKY, RND TO SUBRND, TR SUBANG, MICRO FN XLN, HRD TO V HRD, SME V FRM TO MOD HRD, NO VIS POR, TR LT GRY TO GRY SH, ABUND WHT TO DULL GLD FLOR THRU OUT, NO VIS CUT
LS: PRED OFF WHT TO WHT, SME LT GRY, SME LT TAN, BLKY, TR PLTY, SUBANG TO SUBRND, V FN XLN, V FRM TO MOD HRD, NO VIS POR, OCC WHT TO DULL YEL FLOR THRU OUT, NO VIS CUT
KD
0 TG (Units) 2000 Oil Ind 10 Wetness
C1 (units) 200 1 100
C2 (units) 200 Balance
C3 (units) 200 1 100
C4/C5 (units) 200
WOB: 17.9K
RPM: 62
PP: 2026
GPM: 488
WT: 8.8
VIS: 55


LS: PRED OFF WHT TO WHT, SME LT GRY TO LT TAN, TR MTTLD, PLTY TO BLKY, ANG TO SUBANG, SME SUBRND, MICRO FN TO V FN XLN, PRED FRM, SME V FRM TO MOD HRD, NO VIS POR, ABUND DULL YEL TO GLD FLOR THRU OUT, NO VIS CUT
KD
LS: PRED LT GRY, OCC OFF WHT TO WHT, SME MTTLD LT GRY-LT TAN, BLKY TO PLTY, SUBRND TO SUBANG, V FN XLN, MOD HRD TO HRD, SME FRM, NO VIS POR, ABUND DULL YEL TO GLD FLOR, NO VIS CUT
KD
WOB: 24.9k
RPM: 61
PP: 1989
GPM: 479
LS: PRED OFF WHT TO WHT, SME LT GRY TO LT BRN, PLTY TO BLKY, SUBRND TO SUBANG, TR ANG, MICRO FN TO V FN XLN, MOD HRD TO HRD, TR FRM, NO VIS POR, ABUND WHT TO DULL YEL FLOR THRU OUT, NO VIS CUT
KD
LS: MSTLY OFF WHT TO WHT, SME LT GRY, BLKY, TR PLTY, SUBANG TO SUBRND, MICRO FN XLN, SME V FN XLN, PRD HRD, SME V FRM TO FRM, NO VIS POR, ABUND WHT TO DULL YEL FLOR THRU OUT, NO VIS CUT
KD
WT: 8.9
VIS: 55
LS: PRED OFF WHT TO WHT, SME LT GRY, BLKY, SUBANG TO SUBRND, MICRO FN XLN, SME V FN XLN, V FRM TO MOD HRD, NO VIS POR, SCAT GRY TO DRK GRY SH THRU OUT, SME WHT TO YEL FLOR, FLUOROMETER CUT FAINT, NO VIS CUT
KD
3850
3900
3950
4000
ROP (min/ft)
Flurometer
TG (units)
C1 (units)
C2 (units)
C3 (units)
C4/C5 (units)
Oil Ind
Wetness
Balance


WOB: 23.1K
RPM: 59
PP: 1985
GPM: 475
WT: 9.1
VIS: 61
4050
4100
4150
4200
0 ROP (min/ft) 5
0 Flurometer 200
LS: PRED OFF WHT TO WHT, SME LT TAN TO TAN, BLKY, RND TO SUBRND, MICRO FN XLN, V FRM TO MOD HRD, SME FRM, NO VIS POR, SH: MSTLY BLK CARB, TR LT GRY TO GRY, BLKY, SFT TO MOD FRM, SME WHT FLOR, FLUOROMETER CUT FAIR, NO VIS CUT
LS: MSTLY OFF WHT TO WHT, SLI TR LT GRY TO LT TAN, BLKY, SUBANG TO SUBRND, TR ANG, MICRO FN XLN, FRM TO V FRM, TR HRD, NO VIS POR, SME DULL YEL TO YEL FLOR, FLUOROMETER CUT FAINT, NO VIS CUT
LS: PRED OFF WHT TO WHT, SME LT GRY TO LT TAN, BLKY, TR PLTY, SUBANG TO SUBRND, TR ANG, V FN TO MICRO FN XLN, V FRM TO MOD HRD, SME FRM, NO VIS POR, SH: PRED GRY TO DRK GRY, TR BLK, BLKY, SLTY TXT, MOD SFT TO MOD FRM, SME YEL FLOR, NO VIS CUT
LS: PRED LT TAN TO OFF WHT, SME LT GRY, TR WHT, BLKY, RND TO SUBRND, SME SUBANG, MICRO FN XLN, FRM TO V FRM, SME MOD HRD TO HRD, NO VIS POR, SH: ABUND BLK CARB, BLKY TO SPLNTY, SLTY TXT, MOD SFT TO SFT, SME YEL FLOR, FLUOROMETER CUT GOOD, NO VIS CUT
KD
SH GAS 142 UNITS
CG 127 UNITS
FG 117 UNITS
0 TG (Units) 200
0 C1 (units) 200
C2 (units)
C3 (units)
C4/C5 (units)
0 Oil Ind 10 1
Wetness 100
Balance
1 100


WOB: 20.9K
RPM: 60
PP: 1905
GPM: 469
WT: 9.1
VIS: 60
4300
4350
4400
4450
BASE HEEBNER @ 4,270' (-2,045')
SH GAS 228 UNITS
KD
LS: PRED OFF WHT TO WHT, SME TL TAN, TR SNDY TXT, BLKY, RND TO SUBRND, MOD HRD TO HRD, TR HL FRAC POR, SH: PRED BLK CARB, SME LT GRY TO GRY, BLKY, TR PLTY, SLTY TXT, MOD SFT TO SFT, TR MOD FRM TO FRM, SME YEL FLOR, FLUOROMETER CUT GOOD, SLW BLU VIS CUT, THN GRN RES RING
SH: PRED DRK GRY TO GRY, SME LT GRY, TR BLK, BLKY TO PLTY, SMTH SLTY TXT, MOD SFT TO SFT, SME MOD FRM, LS: PRED OFF WHT TO WHT, SME LT TAN TO LT GRY, BLKY, SUBANG TO SUBRND, V FN XLN, MOD HRD TO HRD, SME FRM TO V FRM, NO VIS POR, SME YEL FLOR THRU OUT, FLUOROMETER CUT GOOD, NO VIS CUT
LS: PRED LT GRY TO LT TAN, OCC TAN, SME OFF WHT TO WHT, BLKY, RND TO SUBRND, TR SUBANG, MICRO FN TO V FN XLN, HRD TO V HRD, TR V FRM, NO VIS POR, SH: MSTLY GRY, SME DRK GRY, BLKY, SMTH SLTY TXT, MOD FRM TO MOD SFT, OCC YEL FLOR, FLUOROMETER CUT FAINT, NO VIS CUT
ROP (min/ft) 0 5
Flurometer 0 200
TG (Units) 0 2000
C1 (units) 0 200
C2 (units) 0 200
C3 (units) 0 200
C4/iC5 (units) 0 200
Oil Ind 10 1
Wetness 1 100
Balance 1 100
SH: ABUND DRK GRY TO GRY, BLKY, SMTH SLTY TXT, MOD SFT TO SFT, SME MOD FRM TO FRM
DEPTH: 4,336'
MW: 8.8
FV: 45
PV: 14
YP: 22
GEL: 9/24
API: 5.8
CAKE: 2/32
SOL: 3.8
OIL/WAT: 0.0/96.2
SAND: 0
PH: 11.0
FA: 0.75/1.6
CHL: 33,000
LANSING @ 4,436' (-2,211')
LS: PRED LT TAN TO TAN, OCC OFF WHT TO WHT, SME LT GRY, BLKY, SUBANG TO SUBRND, V FN XLN, V FRM

WOB: 24.3K
RPM: 61
PP: 2219
GPM: 485



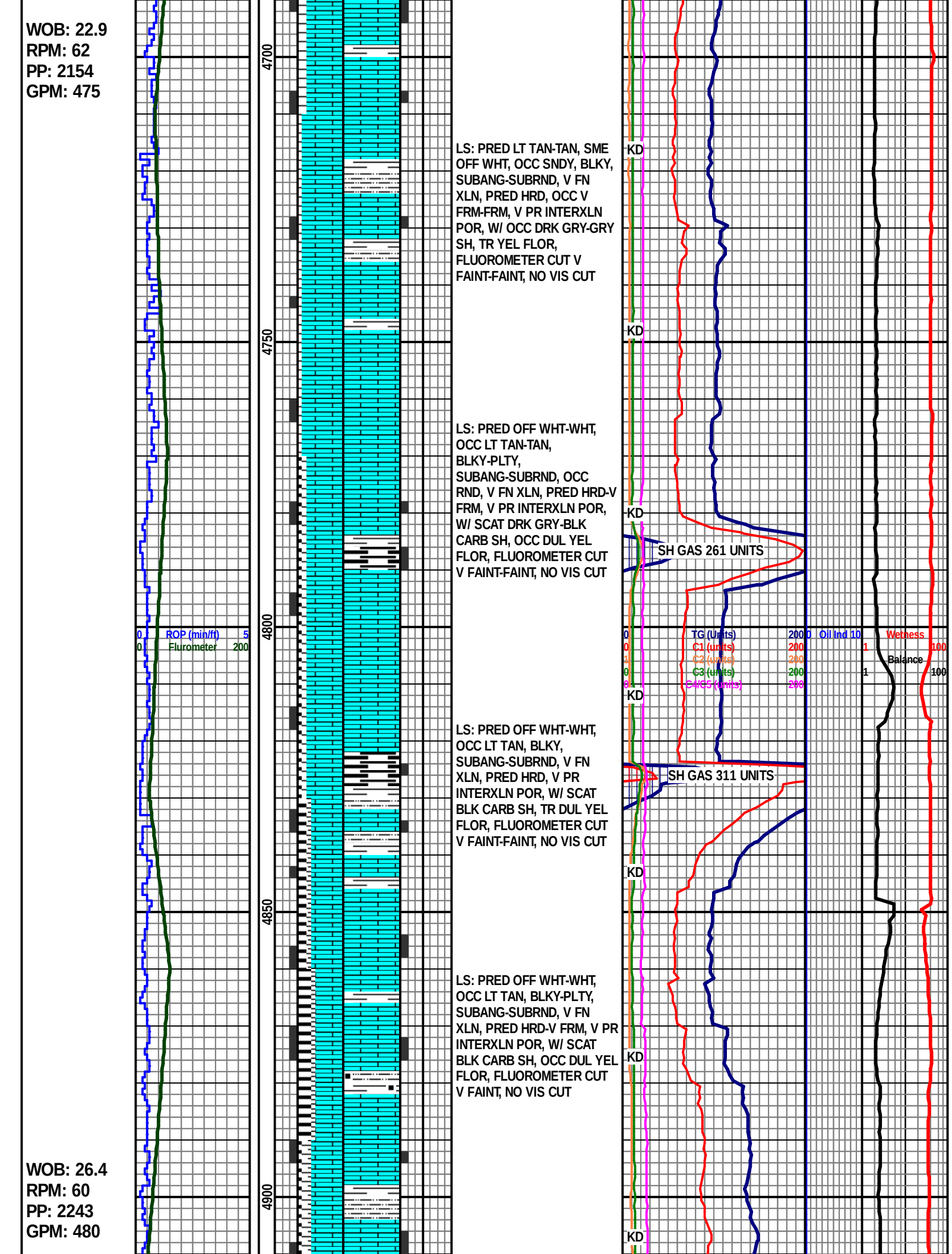

TO MOD HRD, SME HRD, NO VIS POR, TR DRK GRY TO GRY SH THRU OUT, SME YEL FLOR, FLUOROMETER CUT FAINT, NO VIS CUT

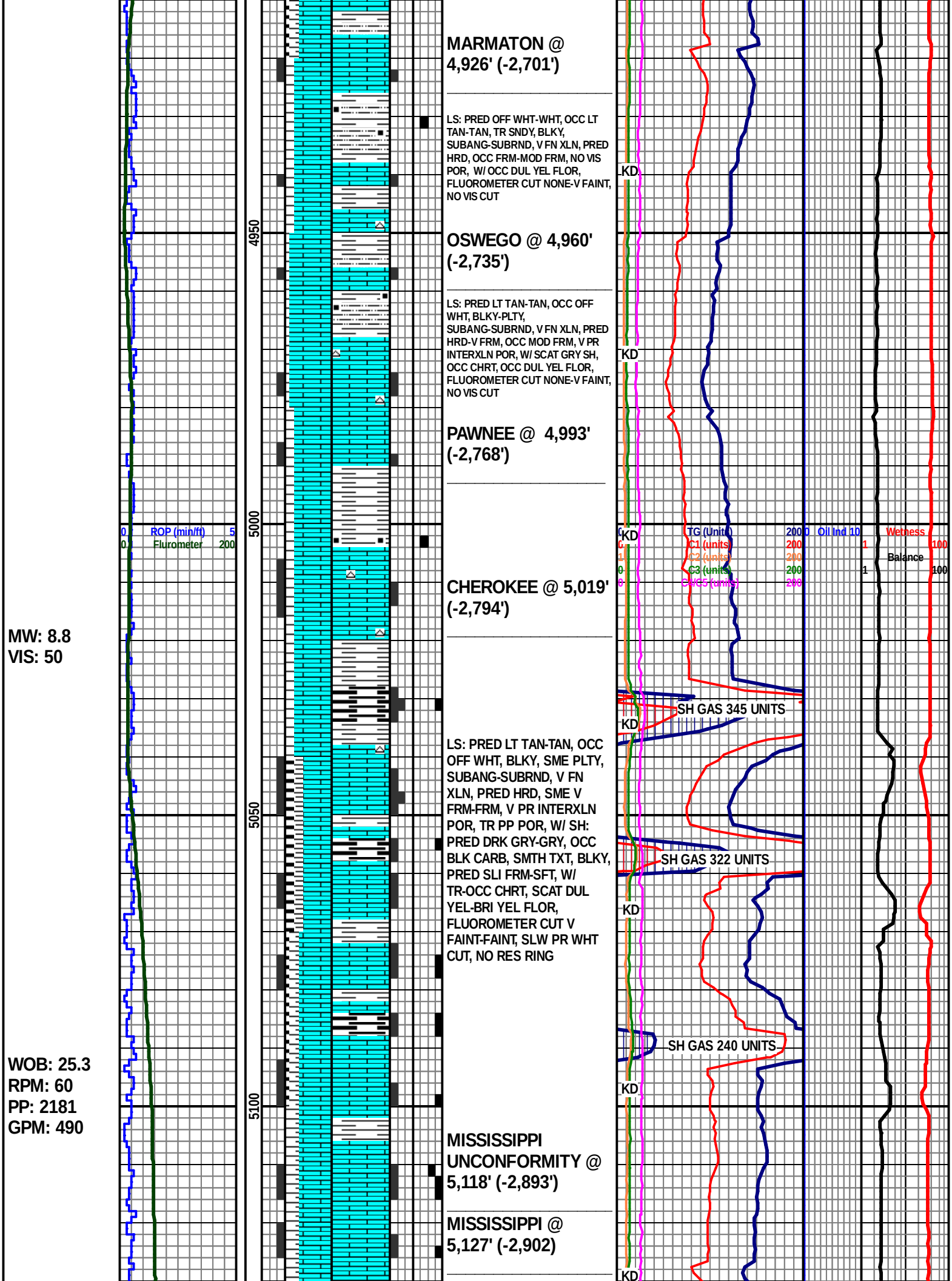
LS: PRED LT TAN TO TAN, OCC LT GRY TO OFF WHT, BLKY, SUBANG TO SUBRND, MICRO FN TO V FN XLN, MOD HRD TO HRD, TR FRM TO V FRM, NO VIS POR, SCAT GRY SH THRU OUT, SME DULL YEL TO YEL FLOR THRU OUT, FLUOROMETER CUT FAINT, NO VIS CUT

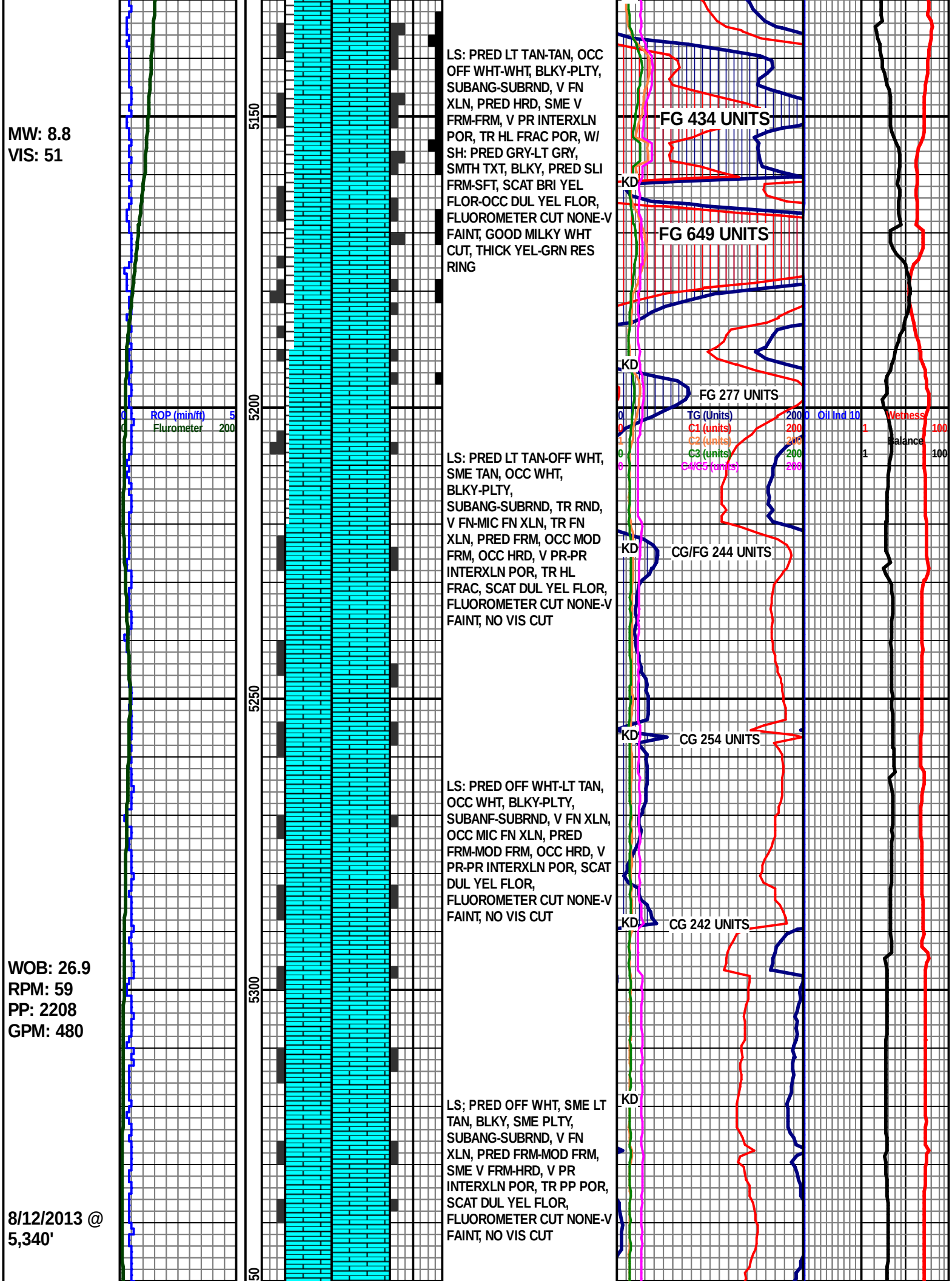
LS: PRED LT TAN TO TAN, OCC OFF WHT TO WHT, BLKY, SUBANG TO SUBRND, MICRO FN XLN, MOD HRD TO HRD, SME V FRM TO FRM, NO VIS POR, SCAT DRK GRY TO GRY SH THRU OUT, FLUOROMETER CUT FAIR, NO VIS CUT

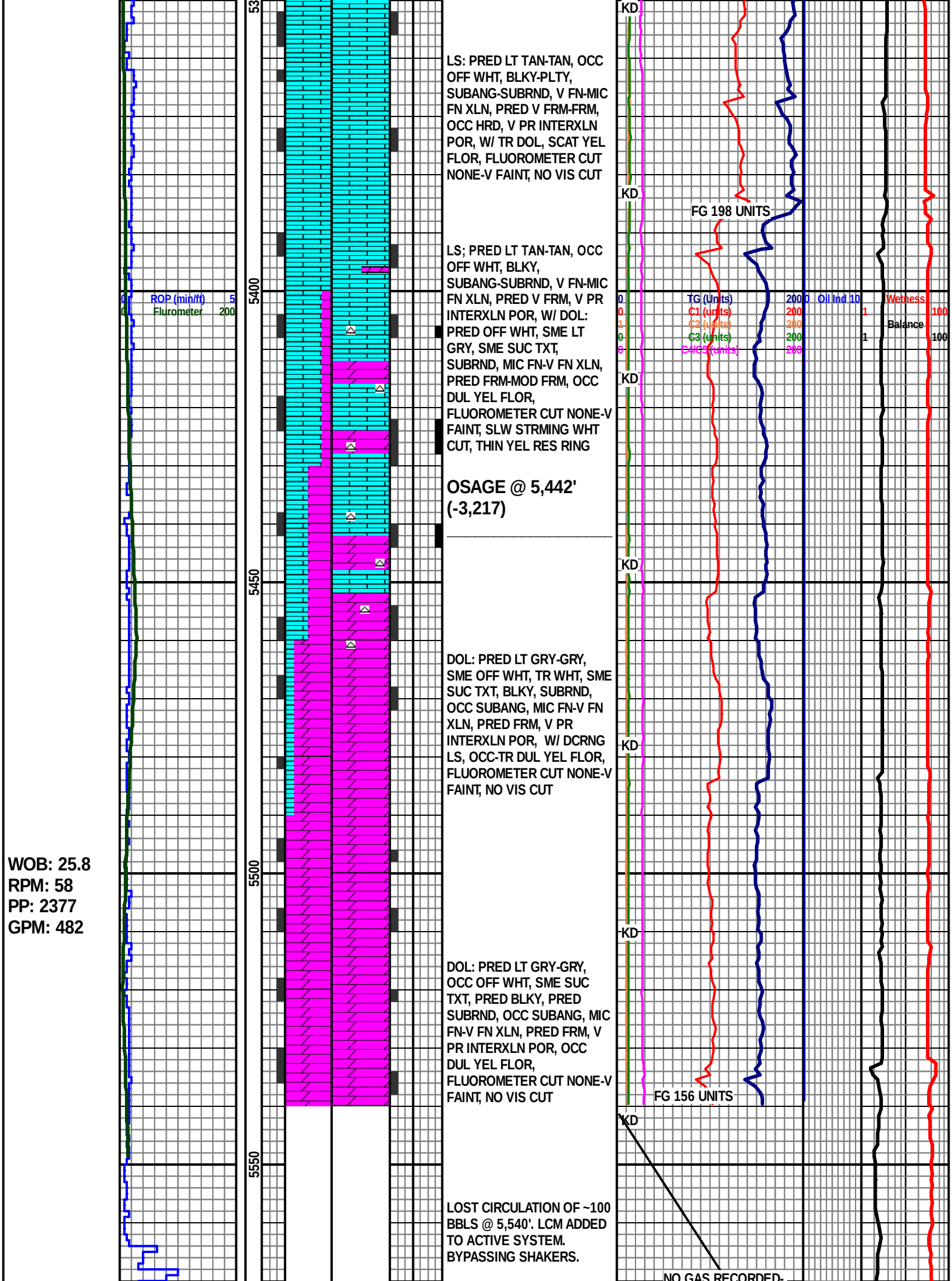
LS: PRED LT TAN-TAN, OCC OFF WHT, BLKY, SUBANG-SUBRND, MIC FN XLN, PRED HRD, V PR INTERXLN POR, W/ SCAT DRK GRY-GRY SH, NO FLOR, FLUOROMETER CUT FAINT, NO VIS CUT

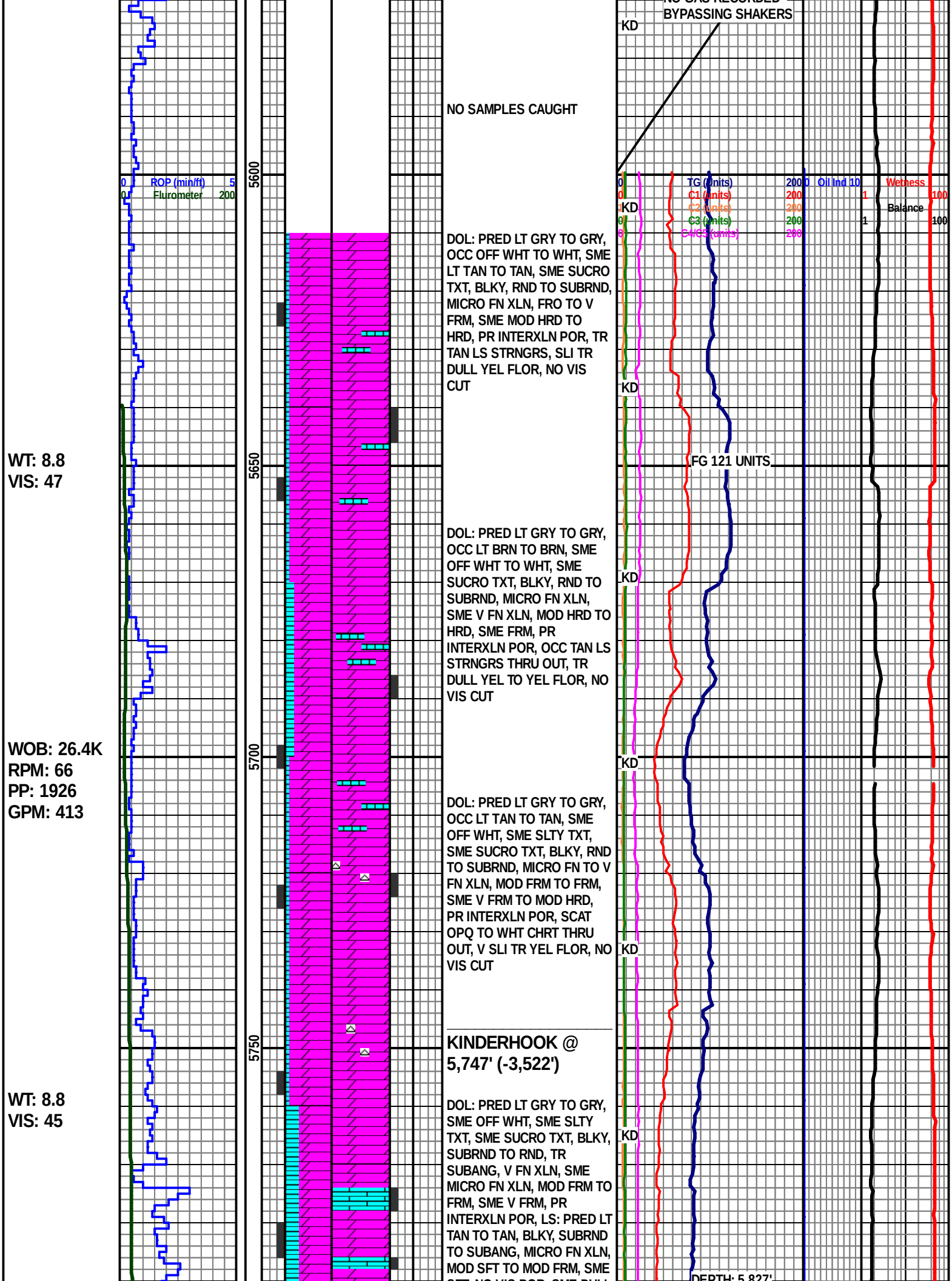
LS: PRED LT TAN-TAN, SME OFF WHT, TR SNDY, OCC BLKY, SUBANG-SUBRND, V FN XLN, PRED HRD-V FRM, V PR INTERXLN POR, W/ SCAT DRK GRY-GRY SH, SCAT YEL FLOR, FLUOROMETER CUT V FAINT, NO VIS CUT

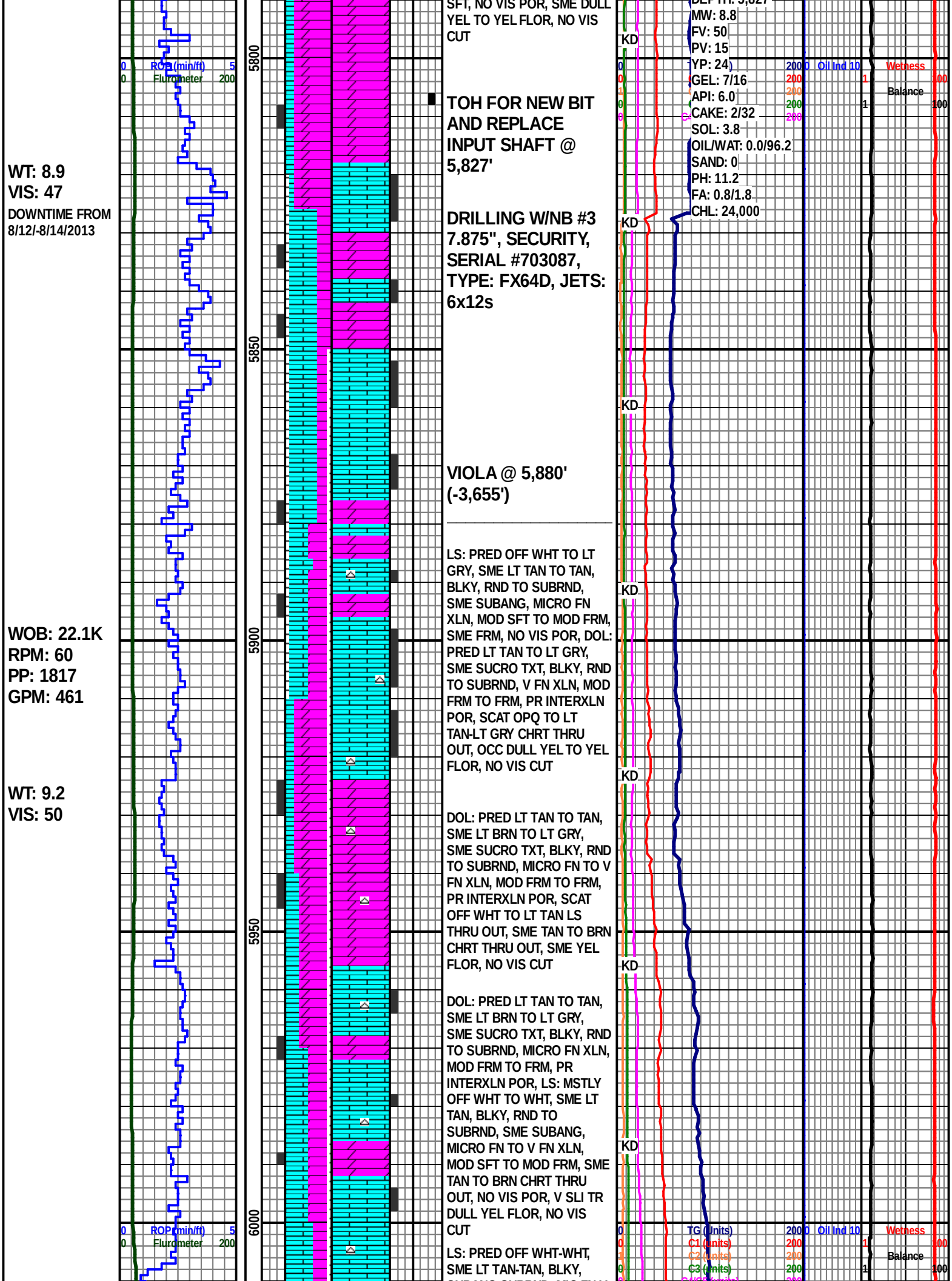

WOB: 22.9
RPM: 62
PP: 2154
GPM: 475
4700
4750
4800
4850
4900
LS: PRED LT TAN-TAN, SME OFF WHT, OCC SNDY, BLKY, SUBANG-SUBRND, V FN XLN, PRED HRD, OCC V FRM-FRM, V PR INTERXLN POR, W/ OCC DRK GRY-GRY SH, TR YEL FLOR, FLUOROMETER CUT V FAINT-FAINT, NO VIS CUT
KD
KD
LS: PRED OFF WHT-WHT, OCC LT TAN-TAN, BLKY-PLTY, SUBANG-SUBRND, OCC RND, V FN XLN, PRED HRD-V FRM, V PR INTERXLN POR, W/ SCAT DRK GRY-BLK CARB SH, OCC DUL YEL FLOR, FLUOROMETER CUT V FAINT-FAINT, NO VIS CUT
KD
SH GAS 261 UNITS
0 ROP (min/ft) 5
0 Flurometer 200
0 TG (Units) 200
0 C1 (units) 200
1 C2 (units) 200
0 C3 (units) 200
C4/C5 (units) 200
0 Oil Ind 10
1 Wetness 100
Balance
1 100
KD
LS: PRED OFF WHT-WHT, OCC LT TAN, BLKY, SUBANG-SUBRND, V FN XLN, PRED HRD, V PR INTERXLN POR, W/ SCAT BLK CARB SH, TR DUL YEL FLOR, FLUOROMETER CUT V FAINT-FAINT, NO VIS CUT
SH GAS 311 UNITS
KD
LS: PRED OFF WHT-WHT, OCC LT TAN, BLKY-PLTY, SUBANG-SUBRND, V FN XLN, PRED HRD-V FRM, V PR INTERXLN POR, W/ SCAT BLK CARB SH, OCC DUL YEL FLOR, FLUOROMETER CUT V FAINT, NO VIS CUT
KD
KD
WOB: 26.4
RPM: 60
PP: 2243
GPM: 480


MARMATON @ 4,926' (-2,701')
LS: PRED OFF WHT-WHT, OCC LT TAN-TAN, TR SNDY, BLKY, SUBANG-SUBRND, V FN XLN, PRED HRD, OCC FRM-MOD FRM, NO VIS POR, W/ OCC DUL YEL FLOR, FLUOROMETER CUT NONE-V FAINT, NO VIS CUT
OSWEGO @ 4,960' (-2,735')
LS: PRED LT TAN-TAN, OCC OFF WHT, BLKY-PLTY, SUBANG-SUBRND, V FN XLN, PRED HRD-V FRM, OCC MOD FRM, V PR INTERXLN POR, W/ SCAT GRY SH, OCC CHRT, OCC DUL YEL FLOR, FLUOROMETER CUT NONE-V FAINT, NO VIS CUT
PAWNEE @ 4,993' (-2,768')
CHEROKEE @ 5,019' (-2,794')
LS: PRED LT TAN-TAN, OCC OFF WHT, BLKY, SME PLTY, SUBANG-SUBRND, V FN XLN, PRED HRD, SME V FRM-FRM, V PR INTERXLN POR, TR PP POR, W/ SH: PRED DRK GRY-GRY, OCC BLK CARB, SMTH TXT, BLKY, PRED SLI FRM-SFT, W/ TR-OCC CHRT, SCAT DUL YEL-BRI YEL FLOR, FLUOROMETER CUT V FAINT-FAINT, SLW PR WHT CUT, NO RES RING
MISSISSIPPI UNCONFORMITY @ 5,118' (-2,893')
MISSISSIPPI @ 5,127' (-2,902')
4950
5000
5050
5100
ROP (min/ft)
Flurometer
TG (Units)
C1 (units)
C2 (units)
C3 (units)
C4/C5 (units)
Oil Ind
Wetness
Balance
KD
SH GAS 345 UNITS
SH GAS 322 UNITS
SH GAS 240 UNITS
MW: 8.8
VIS: 50
WOB: 25.3
RPM: 60
PP: 2181
GPM: 490


MW: 8.8
VIS: 51
WOB: 26.9
RPM: 59
PP: 2208
GPM: 480
8/12/2013 @ 5,340'
5150
5200
5250
5300
ROP (min/ft)
Flurometer
LS: PRED LT TAN-TAN, OCC OFF WHT-WHT, BLKY-PLTY, SUBANG-SUBRND, V FN XLN, PRED HRD, SME V FRM-FRM, V PR INTERXLN POR, TR HL FRAC POR, W/ SH: PRED GRY-LT GRY, SMTH TXT, BLKY, PRED SLI FRM-SFT, SCAT BRI YEL FLOR-OCC DUL YEL FLOR, FLUOROMETER CUT NONE-V FAINT, GOOD MILKY WHT CUT, THICK YEL-GRN RES RING
FG 434 UNITS
KD
FG 649 UNITS
KD
FG 277 UNITS
TG (Units)
C1 (units)
C2 (units)
C3 (units)
C4/C5 (units)
Oil Ind 10
Wetness
Balance
LS: PRED LT TAN-OFF WHT, SME TAN, OCC WHT, BLKY-PLTY, SUBANG-SUBRND, TR RND, V FN-MIC FN XLN, TR FN XLN, PRED FRM, OCC MOD FRM, OCC HRD, V PR-PR INTERXLN POR, TR HL FRAC, SCAT DUL YEL FLOR, FLUOROMETER CUT NONE-V FAINT, NO VIS CUT
KD
CG/FG 244 UNITS
KD
CG 254 UNITS
LS: PRED OFF WHT-LT TAN, OCC WHT, BLKY-PLTY, SUBANF-SUBRND, V FN XLN, OCC MIC FN XLN, PRED FRM-MOD FRM, OCC HRD, V PR-PR INTERXLN POR, SCAT DUL YEL FLOR, FLUOROMETER CUT NONE-V FAINT, NO VIS CUT
KD
CG 242 UNITS
KD
LS; PRED OFF WHT, SME LT TAN, BLKY, SME PLTY, SUBANG-SUBRND, V FN XLN, PRED FRM-MOD FRM, SME V FRM-HRD, V PR INTERXLN POR, TR PP POR, SCAT DUL YEL FLOR, FLUOROMETER CUT NONE-V FAINT, NO VIS CUT


ROP (min/ft) 5
Flurometer 200
5400
5450
5500
5550
LS: PRED LT TAN-TAN, OCC OFF WHT, BLKY-PLTY, SUBANG-SUBRND, V FN-MIC FN XLN, PRED V FRM-FRM, OCC HRD, V PR INTERXLN POR, W/ TR DOL, SCAT YEL FLOR, FLUOROMETER CUT NONE-V FAINT, NO VIS CUT
LS; PRED LT TAN-TAN, OCC OFF WHT, BLKY, SUBANG-SUBRND, V FN-MIC FN XLN, PRED V FRM, V PR INTERXLN POR, W/ DOL: PRED OFF WHT, SME LT GRY, SME SUC TXT, SUBRND, MIC FN-V FN XLN, PRED FRM-MOD FRM, OCC DUL YEL FLOR, FLUOROMETER CUT NONE-V FAINT, SLW STRMING WHT CUT, THIN YEL RES RING
OSAGE @ 5,442'
(-3,217)
DOL: PRED LT GRY-GRY, SME OFF WHT, TR WHT, SME SUC TXT, BLKY, SUBRND, OCC SUBANG, MIC FN-V FN XLN, PRED FRM, V PR INTERXLN POR, W/ DCRNG LS, OCC-TR DUL YEL FLOR, FLUOROMETER CUT NONE-V FAINT, NO VIS CUT
DOL: PRED LT GRY-GRY, OCC OFF WHT, SME SUC TXT, PRED BLKY, PRED SUBRND, OCC SUBANG, MIC FN-V FN XLN, PRED FRM, V PR INTERXLN POR, OCC DUL YEL FLOR, FLUOROMETER CUT NONE-V FAINT, NO VIS CUT
LOST CIRCULATION OF ~100 BBLS @ 5,540'. LCM ADDED TO ACTIVE SYSTEM. BYPASSING SHAKERS.
KD
FG 198 UNITS
FG 156 UNITS
NO GAS RECORDED-
TG (Units) 2000
C1 (units) 200
C2 (units) 200
C3 (units) 200
C4/C5 (units) 200
Oil Ind 10
Wetness 100
Balance 100
WOB: 25.8
RPM: 58
PP: 2377
GPM: 482


NO GAS RECORDED
BYPASSING SHAKERS
KD
NO SAMPLES CAUGHT
0 ROP (min/ft) 5
0 Flurometer 200
5600
TG (Units)
C1 (units)
C2 (units)
C3 (units)
C4/C5 (units)
0
200
Oil Ind 10
Wetness
Balance
1
100
DOL: PRED LT GRY TO GRY, OCC OFF WHT TO WHT, SME LT TAN TO TAN, SME SUCRO TXT, BLKY, RND TO SUBRND, MICRO FN XLN, FRO TO V FRM, SME MOD HRD TO HRD, PR INTERXLN POR, TR TAN LS STRNGRS, SLI TR DULL YEL FLOR, NO VIS CUT
WT: 8.8
VIS: 47
5650
LFG 121 UNITS
DOL: PRED LT GRY TO GRY, OCC LT BRN TO BRN, SME OFF WHT TO WHT, SME SUCRO TXT, BLKY, RND TO SUBRND, MICRO FN XLN, SME V FN XLN, MOD HRD TO HRD, SME FRM, PR INTERXLN POR, OCC TAN LS STRNGRS THRU OUT, TR DULL YEL TO YEL FLOR, NO VIS CUT
WOB: 26.4K
RPM: 66
PP: 1926
GPM: 413
5700
DOL: PRED LT GRY TO GRY, OCC LT TAN TO TAN, SME OFF WHT, SME SLTY TXT, SME SUCRO TXT, BLKY, RND TO SUBRND, MICRO FN TO V FN XLN, MOD FRM TO FRM, SME V FRM TO MOD HRD, PR INTERXLN POR, SCAT OPQ TO WHT CHRT THRU OUT, V SLI TR YEL FLOR, NO VIS CUT
KINDERHOOK @ 5,747' (-3,522')
5750
WT: 8.8
VIS: 45
DOL: PRED LT GRY TO GRY, SME OFF WHT, SME SLTY TXT, SME SUCRO TXT, BLKY, SUBRND TO RND, TR SUBANG, V FN XLN, SME MICRO FN XLN, MOD FRM TO FRM, SME V FRM, PR INTERXLN POR, LS: PRED LT TAN TO TAN, BLKY, SUBRND TO SUBANG, MICRO FN XLN, MOD SFT TO MOD FRM, SME
DEPTH: 5,827'


SFT, NO VIS POR, SME DULL YEL TO YEL FLOR, NO VIS CUT
MW: 8.8
FV: 50
PV: 15
YP: 24
GEL: 7/16
API: 6.0
CAKE: 2/32
SOL: 3.8
OIL/WAT: 0.0/96.2
SAND: 0
PH: 11.2
FA: 0.8/1.8
CHL: 24,000
TOH FOR NEW BIT AND REPLACE INPUT SHAFT @ 5,827'
DRILLING W/NB #3 7.875", SECURITY, SERIAL #703087, TYPE: FX64D, JETS: 6x12s
VIOLA @ 5,880' (-3,655')
LS: PRED OFF WHT TO LT GRY, SME LT TAN TO TAN, BLKY, RND TO SUBRND, SME SUBANG, MICRO FN XLN, MOD SFT TO MOD FRM, SME FRM, NO VIS POR, DOL: PRED LT TAN TO LT GRY, SME SUCRO TXT, BLKY, RND TO SUBRND, V FN XLN, MOD FRM TO FRM, PR INTERXLN POR, SCAT OPQ TO LT TAN-LT GRY CHRT THRU OUT, OCC DULL YEL TO YEL FLOR, NO VIS CUT
DOL: PRED LT TAN TO TAN, SME LT BRN TO LT GRY, SME SUCRO TXT, BLKY, RND TO SUBRND, MICRO FN TO V FN XLN, MOD FRM TO FRM, PR INTERXLN POR, SCAT OFF WHT TO LT TAN LS THRU OUT, SME TAN TO BRN CHRT THRU OUT, SME YEL FLOR, NO VIS CUT
DOL: PRED LT TAN TO TAN, SME LT BRN TO LT GRY, SME SUCRO TXT, BLKY, RND TO SUBRND, MICRO FN XLN, MOD FRM TO FRM, PR INTERXLN POR, LS: MSTLY OFF WHT TO WHT, SME LT TAN, BLKY, RND TO SUBRND, SME SUBANG, MICRO FN TO V FN XLN, MOD SFT TO MOD FRM, SME TAN TO BRN CHRT THRU OUT, NO VIS POR, V SLI TR DULL YEL FLOR, NO VIS CUT
LS: PRED OFF WHT-WHT, SME LT TAN-TAN, BLKY,
WT: 8.9
VIS: 47
DOWNTIME FROM 8/12/-8/14/2013
WOB: 22.1K
RPM: 60
PP: 1817
GPM: 461
WT: 9.2
VIS: 50
KD
ROP (min/ft)
Flurometer
TG (Units)
C1 (Units)
C2 (Units)
C3 (Units)
Oil Ind
Wetness
Balance
5800
5850
5900
5950
6000

RIG SERVICE - DOWN TIME ~ 6 HRS

WT: 9.2
VIS: 49

WOB: 25.2
RPM: 64
PP: 1661
GPM: 469

8/15/2013 @ 6,217'

SUBANG-SUBRND, MIC FN-V FN XLN, PRED MOD FRM-FRM, OCC SLI HRD, NO VIS POR, W/ DOL: PRED LT GRY, OCC LT TAN, OCC SUC TXT, BLKY, RND-SUBRND, MIC FN XLN, PRED MOD FRM-FRM, W/ SCAT LT GRY-LT BLU SH, W/ SCAT OPQ-LT TAN CHRT, TR SS STRNGRS, TR PYR, TR DUL YEL FLOR, FLUOROMETER CUT V FAINT, NO VIS CUT

**SIMPSON @ 6,060' (-3,835')**

SH: PRED LT GRY, SME LT BLU-GRN, SMTH TXT, BLKY-PLTY, PRED SFT, MOD SFT, W/ SS: PRED LT GRY, SME OPQ-TRNSL, PRED CONSL, SME UNCONSL, CRSE TXT, PRED FRM, NO VIS POR, W/ SCAT LS AND DOL, W/ OCC CHRT, OCC PYR, TR DUL YEL FLOR, FLUOROMETER CUT V FAINT, NO VIS CUT

**OIL CREEK @ 6,128' (-3,903')**

SS: PRED LT GRY, SME OPQ-TRNSL, CRSE TXT, PRED UNCONSL, OCC CONSL, RND, FRLY WELL SORTED, NO VIS POR, SCAT PYR, TR WHT-DUL YEL FLOR, NO VIS CUT

**ARBUCKLE @ 6,156' (-3,931')**

DOL: PRED LT BRN-LT TAN, SME LT GRY, SUC TXT, BLKY, SUBRND-RND, MIC FN XLN, PRED FRM-MOD FRM, OCC V FRM, NO VIS POR, W/ LS: PRED LT TAN, OCC OFF WHT, BLKY, SUBANG, V FN-MIC FN XLN, PRED FRM-V FRM, W/ CHRT: PRED OFF WHT-WHT, OCC LT BRN, SILIF OOLS, PRED HRD-V HRD, W/ OCC SS STRNGRS, TR WHT-DUL YEL FLOR, FLUOROMETER CUT NONE-V FAINT, NO VIS CUT

DOL: PRED LT TAN-LT GRY, SME LT BRN, SUC TXT,

6050
6100
6150
6200

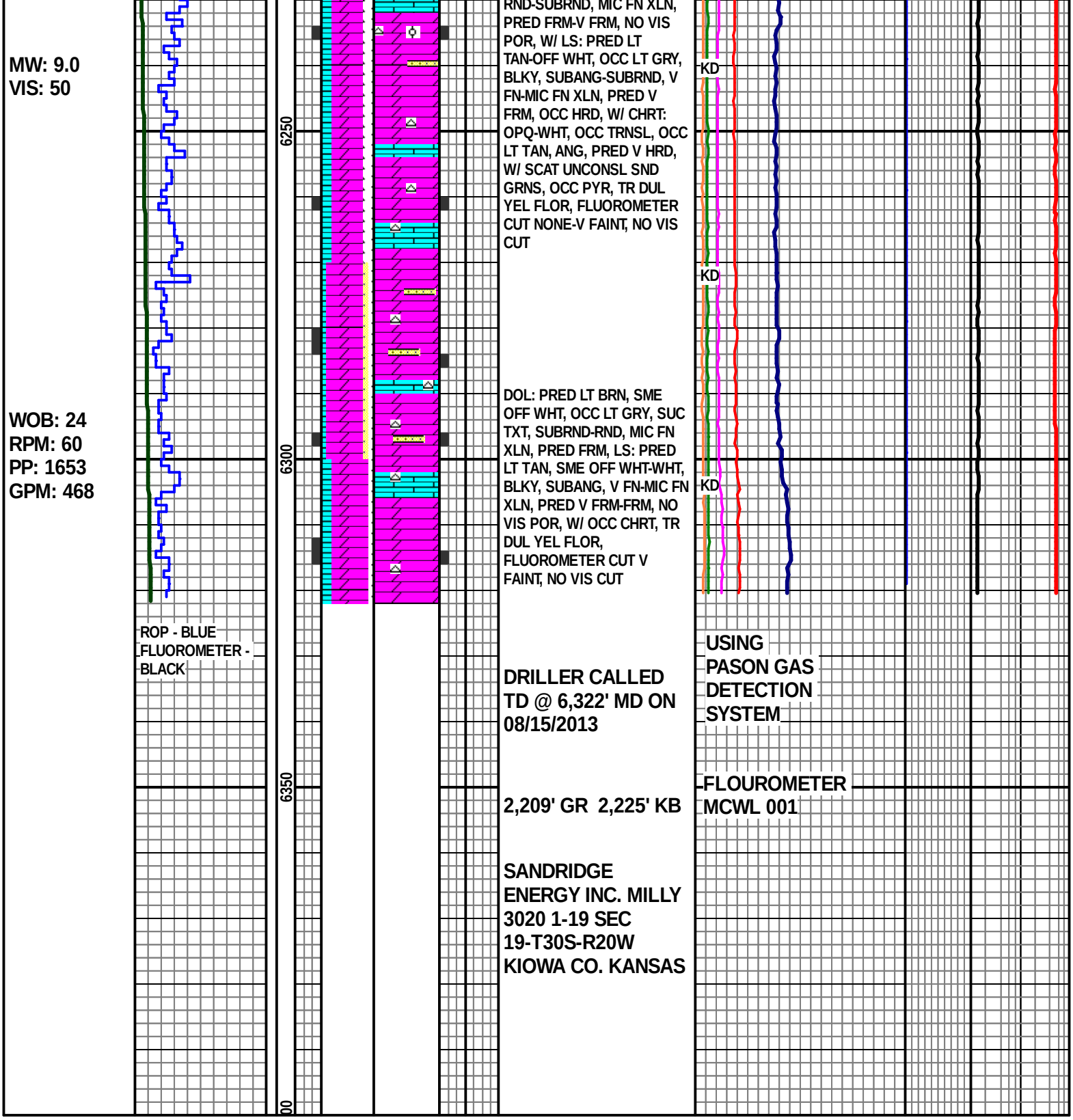
KD

CG 123 UNITS

ROP (min/ft) 0 5
Flurometer 0 200

TG (Units) 0 200
C1 (units) 0 200
C2 (units) 1 200
C3 (units) 0 200
C4/C5 (units) 0 200

Oil Ind 10 1 100
Wetness 1 100
Balance 1 100


MW: 9.0
VIS: 50
WOB: 24
RPM: 60
PP: 1653
GPM: 468
6250
6300
6350
RND-SUBRND, MIC FN XLN, PRED FRM-V FRM, NO VIS POR, W/ LS: PRED LT TAN-OFF WHT, OCC LT GRY, BLKY, SUBANG-SUBRND, V FN-MIC FN XLN, PRED V FRM, OCC HRD, W/ CHRT: OPQ-WHT, OCC TRNSL, OCC LT TAN, ANG, PRED V HRD, W/ SCAT UNCONSL SND GRNS, OCC PYR, TR DUL YEL FLOR, FLUOROMETER CUT NONE-V FAINT, NO VIS CUT
DOL: PRED LT BRN, SME OFF WHT, OCC LT GRY, SUC TXT, SUBRND-RND, MIC FN XLN, PRED FRM, LS: PRED LT TAN, SME OFF WHT-WHT, BLKY, SUBANG, V FN-MIC FN XLN, PRED V FRM-FRM, NO VIS POR, W/ OCC CHRT, TR DUL YEL FLOR, FLUOROMETER CUT V FAINT, NO VIS CUT
KD
KD
KD
ROP - BLUE
FLUOROMETER - BLACK
DRILLER CALLED TD @ 6,322' MD ON 08/15/2013
2,209' GR 2,225' KB
SANDRIDGE ENERGY INC. MILLY 3020 1-19 SEC 19-T30S-R20W KIOWA CO. KANSAS
USING PASON GAS DETECTION SYSTEM
FLOUROMETER MCWL 001