GOOLSBY BROTHERS
and associates, inc.
575 Union Blvd, Suite 208
Lakewood, CO 80228
303-945-2860 Office
Geological Wellsite
Supervision
www.goolsbybrothers.com
PETCOM

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

Well Name:	**NRC 30C-32HZ**
Location:	**Section 8, T1N, R67W, Weld County, CO..**
License Number:	**API: 05-123-39188**
Spud Date:	**5 June 2014**
Surface Coordinates:	**667' FNL, 575' FWL; NWNW Sec 8 T1N R67W; Lat: 40°4'15.809" N; Long: -104°55'18.678" W**
Bottom Hole Coordinates:	**7' FSL, 99' FWL, NWNW Sec 32 T2N R67W; Lat: 40°6'7.787" N; Long: -104°55'24.935" W**
Ground Elevation (ft):	**5061'**
Logged Interval (ft):	**7050' To: 18805'**
Formation:	**Pierre Shales/Sands, Niobrara, Ft Hays, Codell**
Type of Drilling Fluid:	**Water & Poly to 8217', Oil base mud 8217' - 18805'**

Region: **Wattenberg**
Drilling Completed: **20 July 2014**

K.B. Elevation (ft): **5077'**
Total Depth (ft): **18805'**

OPERATOR

Company: **Kerr-McGee Oil & Gas Onshore LP**
Address: **Granite Tower - 1099 18th St, Ste 1800**
Denver, CO 80202
CO Geologist, Tom Birmingham

GEOLOGIST

Name: **Jack Rogers & John Adams**
Company: **Goolsby Brothers & Assoc. (GBA), Inc. (www.goolsbybrothers.com)**
Address: **575 Union Blvd.**
Suite 208,
Lakewood CO. 80228

E-logs

MWD GR 7050' - 18805'

Casing

9 5/8" Surface Casing set @ 1,254' MD
7" Intermediate Casing set @ 8207' MD
4 1/2" Production liner hung @ 17890'

Comments

1) Drilling Contractor: Xtreme Drilling, Rig #22
Toolpusher: Torri Romero/Jake King
2) Company Man: Scott Hancock/Butch Beddingfield
Luke Raines/Merl Lehmkuhl
3) Mud Company : AES Engineer: Julianna Aycock
Samuel Pedersen
4) Directional Drilling: Sperry/Halliburton
Drillers: Jacob Suitter & Bogdan Cristian
MWD: Clay Wass & Robert Kerrigan
Caleb Jones/Ryan Skaarvold
5) Gas Equipment: Pason
6) Wellsite Geology: Goolsby Brothers & Associates
Geologists: Jack Rogers & John Adams

ROCK TYPES


Anhy
Bent
Brec


Cht
Clyst
Coal


Oil sat.
Congl
Dol


Gyp
Lmst
Mrlst


Salt
Shale
Shcol


Shgy
Ss
Sltst


Ss
Chalk
Carb sh


Slty sh
Arg ss

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

TEXTURE
- Boundst
- Chalky
- CryxIn
- Earthy
- FinexIn
- Grainst
- Lithogr
- MicroxIn
- Mudst
- Packst
- Wackest

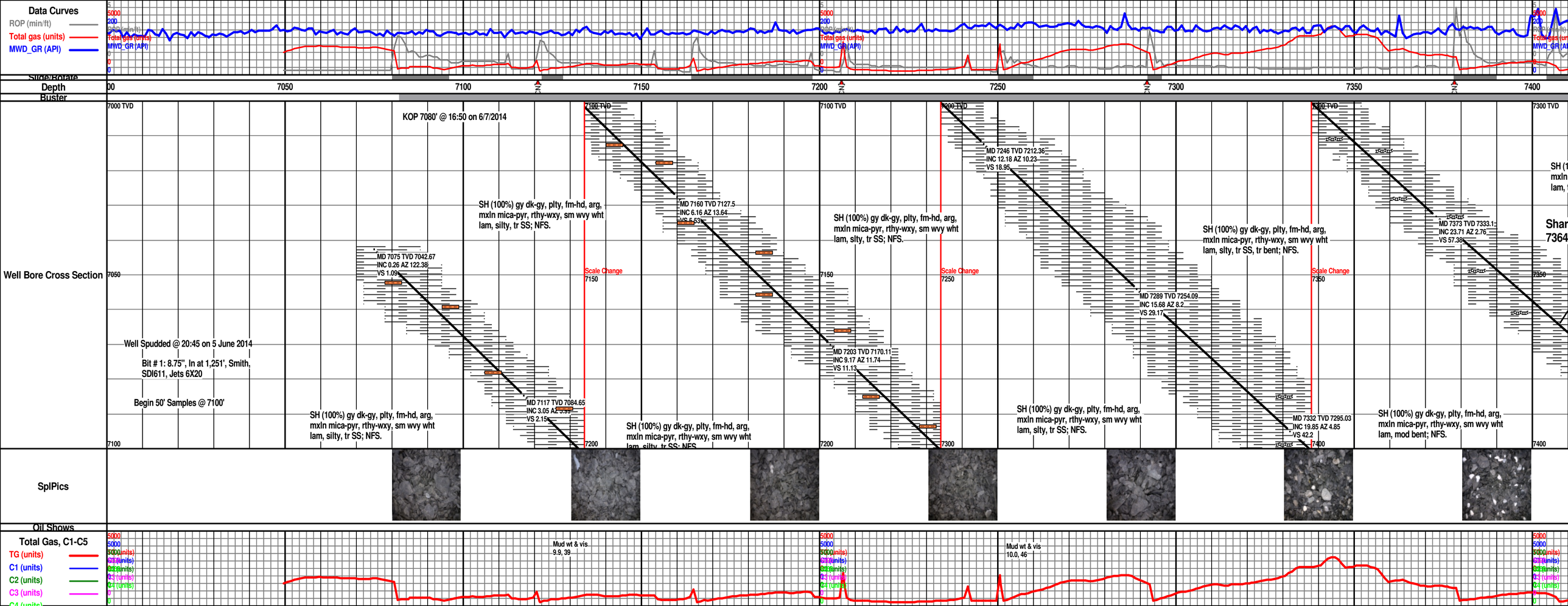
OTHER SYMBOLS

OIL SHOWS
- Even
- Spotted
- Ques
- Dead
- Vspotty
- near even

POROSITY TYPE
- Earthy
- Fenest
- Fracture
- Inter
- Moldic
- Organic
- Pinpoint
- Vuggy

ROUNDING
- Rounded
- Subrnd
- Subang
- Angular

SORTING
- Well
- Moderate
- Poor


Data Curves
ROP (min/ft)
Total gas (units)
MWD_GR (API)
Slide/Rotate
Depth
Buster
7050
7100
7150
7200
7250
7300
7350
7400
Well Bore Cross Section
7000 TVD
KOP 7080' @ 16:50 on 6/7/2014
7100 TVD
7200 TVD
7300 TVD
MD 7075 TVD 7042.67
INC 0.26 AZ 122.38
VS 1.09
SH (100%) gy dk-gy, plty, fm-hd, arg, mxln mica-pyr, rthy-wxy, sm wvy wht lam, silty, tr SS; NFS.
MD 7160 TVD 7127.5
INC 6.16 AZ 13.64
VS 6.59
Scale Change
7150
Well Spudded @ 20:45 on 5 June 2014
Bit # 1: 8.75", In at 1,251', Smith, SDI611, Jets 6X20
Begin 50' Samples @ 7100'
MD 7117 TVD 7084.65
INC 3.05 AZ 0.99
VS 2.15
SH (100%) gy dk-gy, plty, fm-hd, arg, mxln mica-pyr, rthy-wxy, sm wvy wht lam, silty, tr SS; NFS.
MD 7203 TVD 7170.11
INC 9.17 AZ 11.74
VS 11.13
MD 7246 TVD 7212.36
INC 12.18 AZ 10.23
VS 18.95
Scale Change
7250
MD 7289 TVD 7254.09
INC 15.68 AZ 8.2
VS 29.17
MD 7332 TVD 7295.03
INC 19.85 AZ 4.85
VS 42.2
Scale Change
7350
MD 7373 TVD 7333.1
INC 23.71 AZ 2.76
VS 57.38
SplPics
Oil Shows
Total Gas, C1-C5
TG (units)
C1 (units)
C2 (units)
C3 (units)
Mud wt & vis
9.9, 39
Mud wt & vis
10.0, 46

7450 7500 7550 7600 7650 7700 7750 7800

ROP (min/ft)
Total Gas (units)
MWD_GR (API)

00%) gy dk-gy, plty, fm-hd, arg, mica-pyr, rthy-wxy, sm wvy wht tr bent; NFS.

on Springs at 7407' MD, ' TVD, -2287' SS

MD 7416 TVD 7371.94
INC 27.08 AZ 2.3
VS 75.8

Scale Change
7450

7400 TVD

MD 7458 TVD 7408.71
INC 30.7 AZ 1.19
VS 96.08

Niobrara A at 7464' MD, 7414' TVD, -2337' SS

SH: (60%) v dk gy-blk, frm, plty, fiss, sb wxy-wxy, n slty, carb, v calc. MRLST: (40%) m gy brn, m sft, blky, flky, rthy, m hi arg cont / shly, ip chlky, sl mttld.

7500

SH: (50%) v dk gy-blk, frm, plty, fiss, sb wxy-wxy, n slty, carb, v calc. MRLST: (50%) m gy brn, m sft, blky, flky, rthy, m hi arg cont / shly, ip chlky, sl mttld.

MD 7501 TVD 7444.88
INC 34.72 AZ 0.18
VS 119.31

MD 7544 TVD 7479.2
INC 39.34 AZ 359.75
VS 145.2

CHLK: (60%) blk-dk brnsh gy, sl mot-mot, sb plty-sb blky, v carb, v calc, v arg, MRLST (40%) m gy brn, m sft, blky, flky, rthy, m hi arg, chlky, sl mttld, v calc, spty fr cut flor, wk slw mlky cut flor& fnt yl resd rng flor.

7500 TVD

Scale Change
7550

7600

MD 7587 TVD 7511.61
INC 42.81 AZ 358.84
VS 173.44

7500 TVD

Gas flare 3'

Niobrara B at 7581' MD, 7507' TVD, -2430' SS

7550

MD 7629 TVD 7541.56
INC 46.19 AZ 358.86
VS 202.87

MRLST (60%) m gy brn, m sft, blky, flky, rthy, m hi arg, chlky, sl mttld, v calc,CHLK: (40%) blk-dk brnsh gy, sl mot-mot, sb plty-sb blky, v carb, v calc, v arg, , v spty fr cut flor, wk slw mlky cut flor& fnt yl resd rng flor.

7600

SH (50%) v dk gy-blk, frm, plty, fiss, sb wxy-wxy, n slty, carb, v calc, MRLST (40%) m gy brn, m sft, blky, flky, rthy, m hi arg, chlky, sl mttld, CHLK: (10%) blk-dk brnsh gy, sl mot-mot, sb plty-sb blky, v carb, v calc, v arg.

MD 7672 TVD 7570.37
INC 49.67 AZ 358.63
VS 234.78

MD 7715 TVD 7597.06
INC 53.59 AZ 358.73
VS 268.47

7700

MRLST (60%) m gy brn, m sft, blky, flky, rthy, m hi arg, chlky, sl mttld, v calc,CHLK: (40%) blk-dk brnsh gy, sl mot-mot, sb plty-sb blky, v carb, v calc, v arg, , v spty fr cut flor, wk slw mlky cut flor& fnt yl resd rng flor.

7600 TVD

Scale Change
7650

Niobrara C at 7697' MD, 7586' TVD, -2509' SS

MD 7758 TVD 7621.45
INC 57.27 AZ 358.91
VS 303.87

MRLST (60%) m gy brn, m sft, blky, flky, rthy, m hi arg, chlky, sl mttld, SH (40%) v dk gy-blk, frm, plty, fiss, sb wxy-wxy, n slty, carb, v calc, tr bent

7600 TVD

MD 7801 TVD 7643.89
INC 59.83 AZ 359.07
VS 340.54

MD 784
INC 62.
VS 378

MRLST (60%) m gy brn, m sft, blky, flky, rthy, m hi arg, chlky, sl mttld, SH (40%) v dk gy-blk, frm, plty, fiss, sb wxy-wxy, n slty, carb, v calc, tr bent

7700







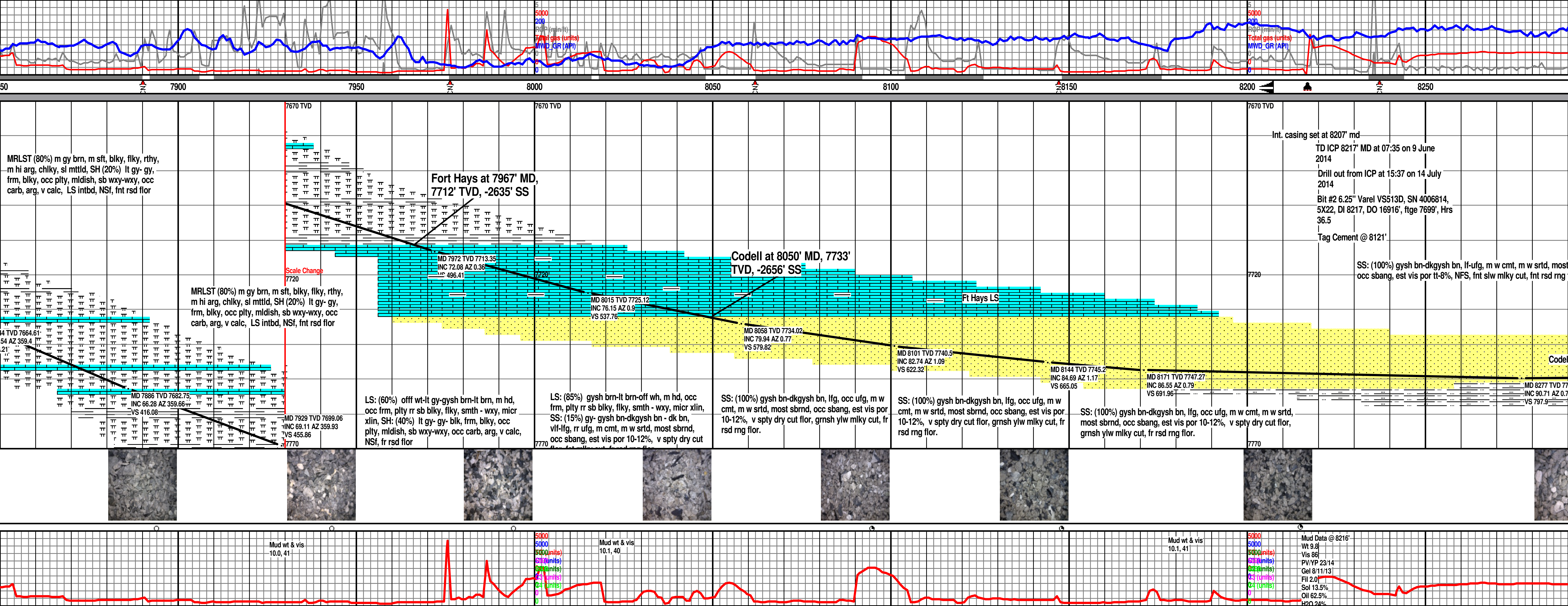


Mud wt & vis
10.0, 42

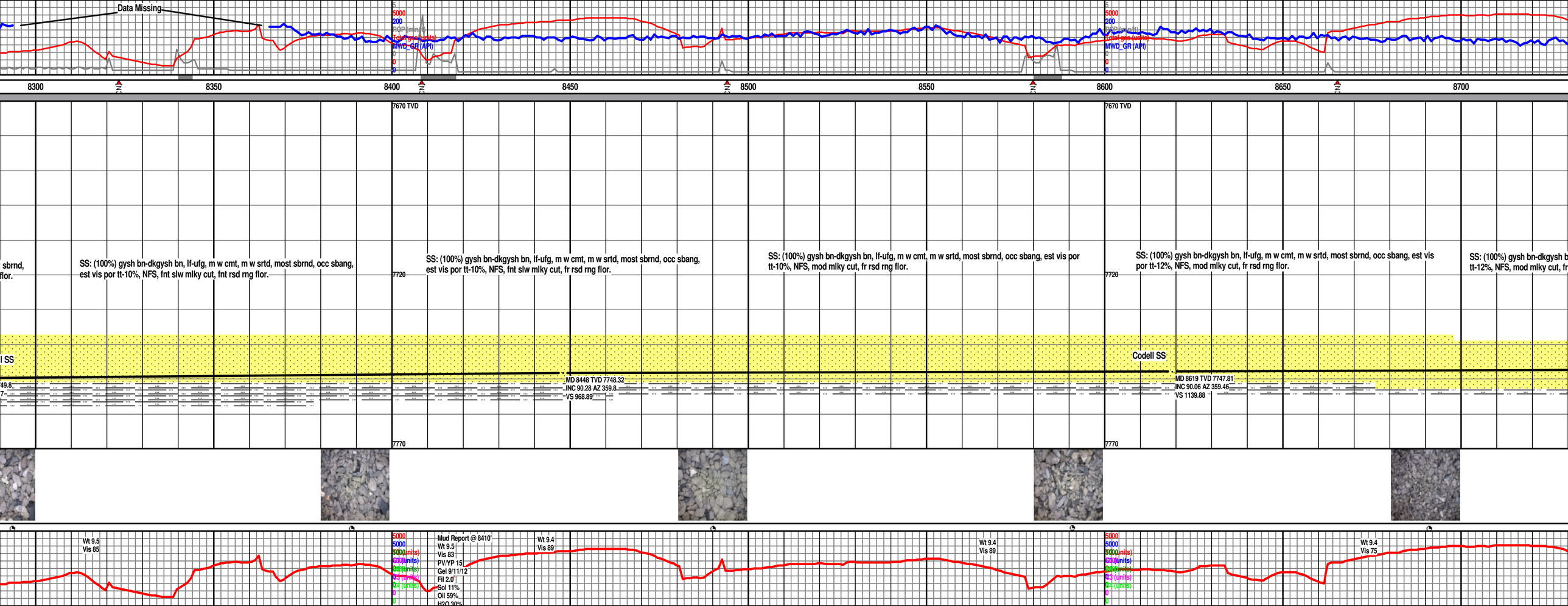
Mud wt & vis
10.0, 37

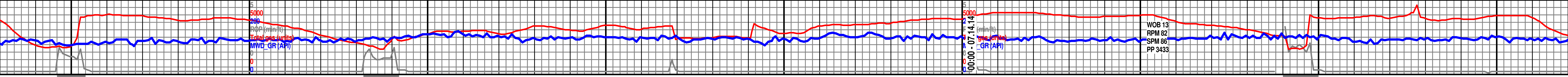
Mud wt & vis
10.0, 40

Mud wt & vis
9.9, 40



5000
200
ROP (min/ft)
Total gas (units)
MWD_GR (API)
50
7900
7950
8000
8050
8100
8150
8200
8250
7670 TVD
7720
7770
Scale Change
MRLST (80%) m gy brn, m sft, blky, flky, rthy, m hi arg, chlky, sl mttld, SH (20%) It gy- gy, frm, blky, occ plty, mldish, sb wxy-wxy, occ carb, arg, v calc, LS intbd, NSf, fnt rsd flor
MRLST (80%) m gy brn, m sft, blky, flky, rthy, m hi arg, chlky, sl mttld, SH (20%) It gy- gy, frm, blky, occ plty, mldish, sb wxy-wxy, occ carb, arg, v calc, LS intbd, NSf, fnt rsd flor
Fort Hays at 7967' MD, 7712' TVD, -2635' SS
Codell at 8050' MD, 7733' TVD, -2656' SS
Ft Hays LS
Codel
MD 7886 TVD 7682.75 INC 66.28 AZ 359.66 VS 416.08
MD 7929 TVD 7699.06 INC 69.11 AZ 359.93 VS 455.86
MD 7972 TVD 7713.35 INC 72.08 AZ 0.36 VS 496.41
MD 8015 TVD 7725.12 INC 76.15 AZ 0.9 VS 537.76
MD 8058 TVD 7734.02 INC 79.94 AZ 0.77 VS 579.82
MD 8101 TVD 7740.5 INC 82.74 AZ 1.09 VS 622.32
MD 8144 TVD 7745.2 INC 84.69 AZ 1.17 VS 665.05
MD 8171 TVD 7747.27 INC 86.55 AZ 0.79 VS 691.96
MD 8277 TVD 77 INC 90.71 AZ 0.7 VS 797.9
LS: (60%) offf wt-lt gy-gysh brn-lt brn, m hd, occ frm, plty rr sb blky, flky, smth - wxy, micr xlin, SH: (40%) It gy- gy- blk, frm, blky, occ plty, mldish, sb wxy-wxy, occ carb, arg, v calc, NSf, fr rsd flor
LS: (85%) gysh brn-lt brn-off wh, m hd, occ frm, plty rr sb blky, flky, smth - wxy, micr xlin, SS: (15%) gy- gysh bn-dkgysh bn - dk bn, vlf-lfg, rr ufg, m cmt, m w srtd, most sbrnd, occ sbang, est vis por 10-12%, v spty dry cut
SS: (100%) gysh bn-dkgysh bn, lfg, occ ufg, m w cmt, m w srtd, most sbrnd, occ sbang, est vis por 10-12%, v spty dry cut flor, grnsh ylw mlky cut, fr rsd rng flor.
SS: (100%) gysh bn-dkgysh bn, lfg, occ ufg, m w cmt, m w srtd, most sbrnd, occ sbang, est vis por 10-12%, v spty dry cut flor, grnsh ylw mlky cut, fr rsd rng flor.
SS: (100%) gysh bn-dkgysh bn, lfg, occ ufg, m w cmt, m w srtd, most sbrnd, occ sbang, est vis por 10-12%, v spty dry cut flor, grnsh ylw mlky cut, fr rsd rng flor.
Int. casing set at 8207' md
TD ICP 8217' MD at 07:35 on 9 June 2014
Drill out from ICP at 15:37 on 14 July 2014
Bit #2 6.25" Varel VS513D, SN 4006814, 5X22, DI 8217, DO 16916', ftge 7699', Hrs 36.5
Tag Cement @ 8121'
SS: (100%) gysh bn-dkgysh bn, lf-ufg, m w cmt, m w srtd, most occ sbang, est vis por tt-8%, NFS, fnt slw mlky cut, fnt rsd rng
Mud wt & vis 10.0, 41
Mud wt & vis 10.1, 40
Mud wt & vis 10.1, 41
Mud Data @ 8216'
Wt 9.8
Vis 86
PV/YP 23/14
Gel 8/11/13
Fil 2.0
Sol 13.5%
Oil 62.5%
H2O 24%


Data Missing
5
5000
200
ROP (min/ft)
Total gas (units)
MWD_GR (API)
8300
8350
8400
8450
8500
8550
8600
8650
8700
7670 TVD
7720
7770
sbrnd,
flor.
SS: (100%) gysh bn-dkgysh bn, lf-ufg, m w cmt, m w srtd, most sbrnd, occ sbang, est vis por tt-10%, NFS, fnt slw mlky cut, fnt rsd rng flor.
SS: (100%) gysh bn-dkgysh bn, lf-ufg, m w cmt, m w srtd, most sbrnd, occ sbang, est vis por tt-10%, NFS, fnt slw mlky cut, fr rsd rng flor.
SS: (100%) gysh bn-dkgysh bn, lf-ufg, m w cmt, m w srtd, most sbrnd, occ sbang, est vis por tt-10%, NFS, mod mlky cut, fr rsd rng flor.
SS: (100%) gysh bn-dkgysh bn, lf-ufg, m w cmt, m w srtd, most sbrnd, occ sbang, est vis por tt-12%, NFS, mod mlky cut, fr rsd rng flor.
SS: (100%) gysh bn-dkgysh b
tt-12%, NFS, mod mlky cut, fr
l SS
49.8
7
Codell SS
MD 8448 TVD 7748.32
INC 90.28 AZ 359.8
VS 968.89
MD 8619 TVD 7747.81
INC 90.06 AZ 359.46
VS 1139.88
Wt 9.5
Vis 85
Mud Report @ 8410'
Wt 9.5
Vis 83
PV/YP 15
Gel 9/11/12
Fil 2.0
Sol 11%
Oil 59%
H2O 30%
Wt 9.4
Vis 89
Wt 9.4
Vis 89
Wt 9.4
Vis 75



8750 | 8800 | 8850 | 8900 | 8950 | 9000 | 9050 | 9100 | 9150

7670 TVD

n, lf-ufg, m w cmt, m w srtd, most sbrnd, occ sbang, est vis por
rsd rng flor.

SS: (100%) gysh bn-dkgysh bn, lf-ufg, m w cmt, m w srtd, most sbrnd, occ sbang, est vis por 10-12%, NFS, mod mlky cut, fr rsd rng flor.

SS: (100%) dk gy- blk, clr-smky qtz aren, vf-f gr, slty, mod srt, rd-sb rd, v arg, calc, cons, tt, frm, est vis por 15%, NSF fst difse lt cldy wi mlky strmrs cut, spty lt yel res rng, OBM contam

SS: (100%) dk gy- blk, clr-smky qtz aren, vf-f gr, slty, mod srt, rd-sb rd, v arg, calc, cons, tt, frm, est vis por 15%, NSF fst difse lt cldy wi mlky strmrs cut, spty lt yel res rng, OBM contam

SS: no vis chng (10
aren, vf-f gr, slty, m
cons, tt, frm, est vis
wi mlky strmrs cut,
contam

7720

Codell SS

MD 8790 TVD 7747.26
INC 90.31 AZ 359.7
VS 1310.88

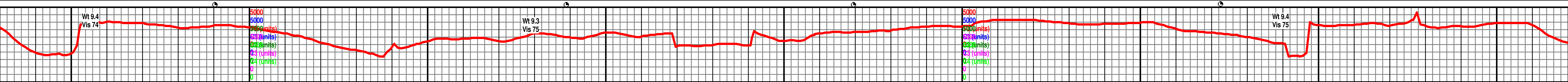
MD 8961 TVD 7746.76
INC 90.03 AZ 0.26
VS 1481.88

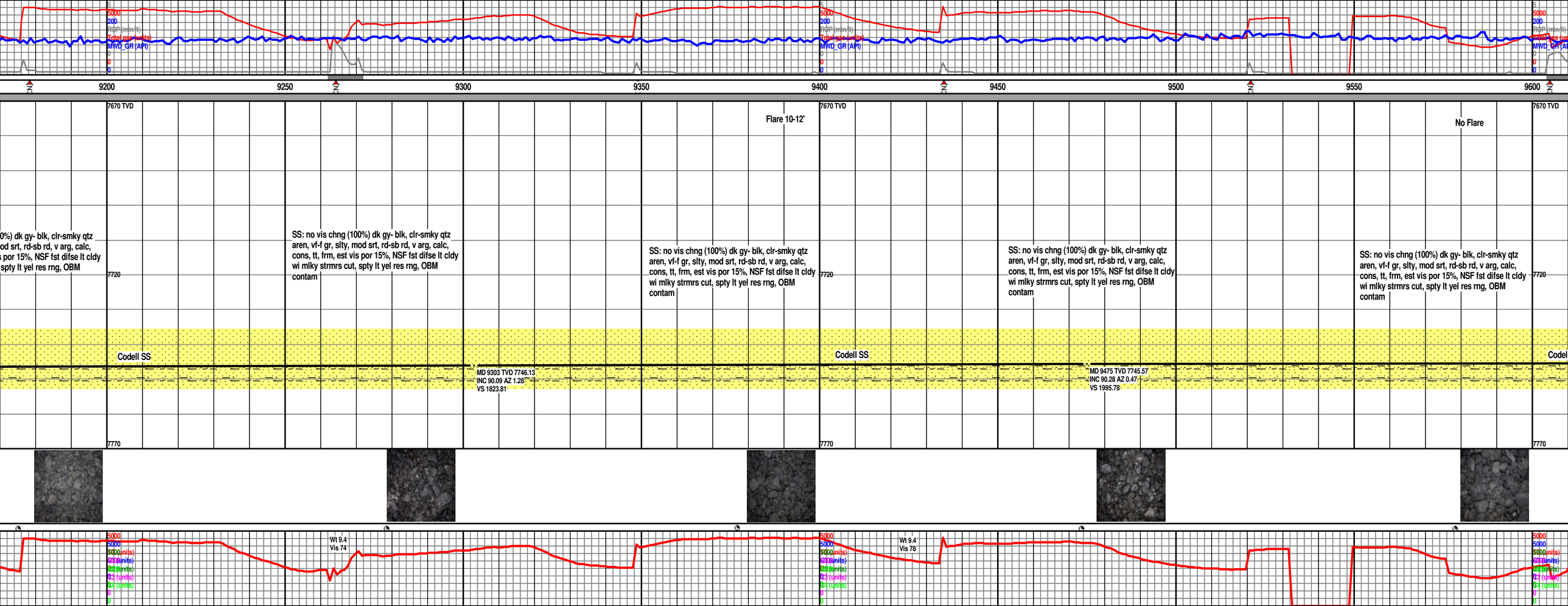
Codell SS

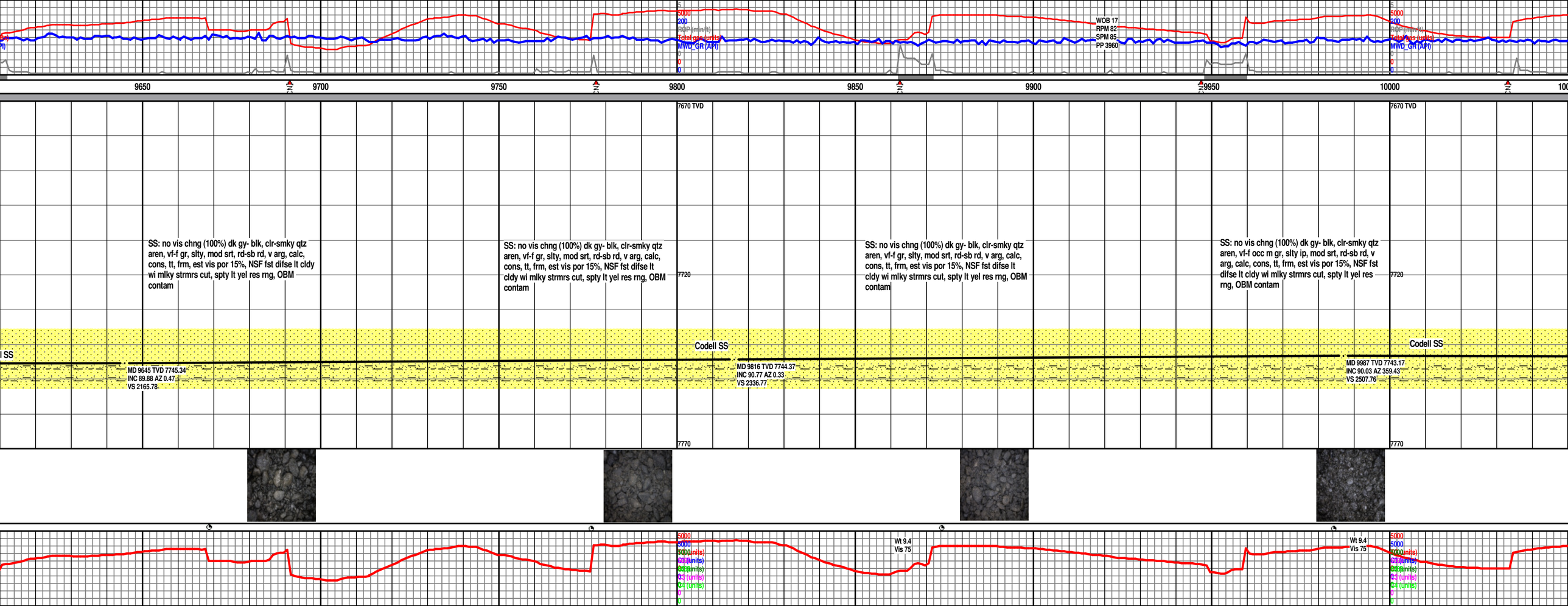
MD 9132 TVD 7746.49
INC 90.15 AZ 1.43
VS 1652.86

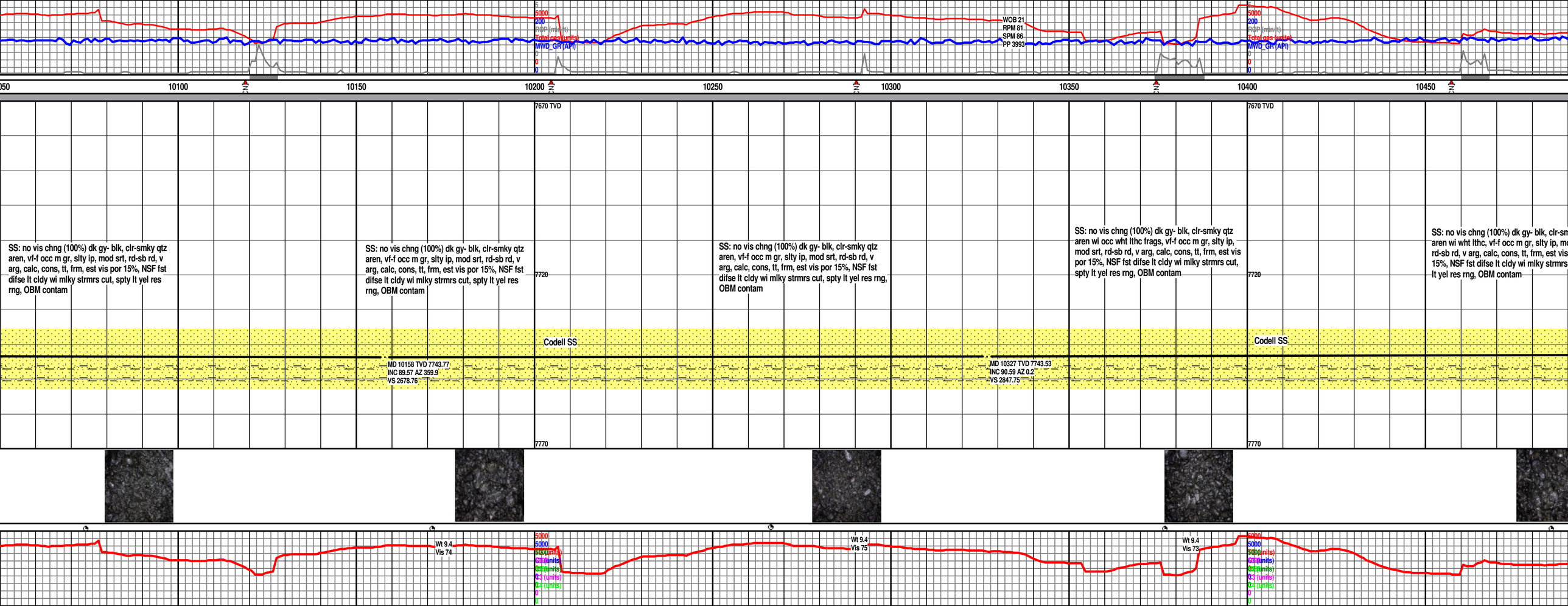
7770

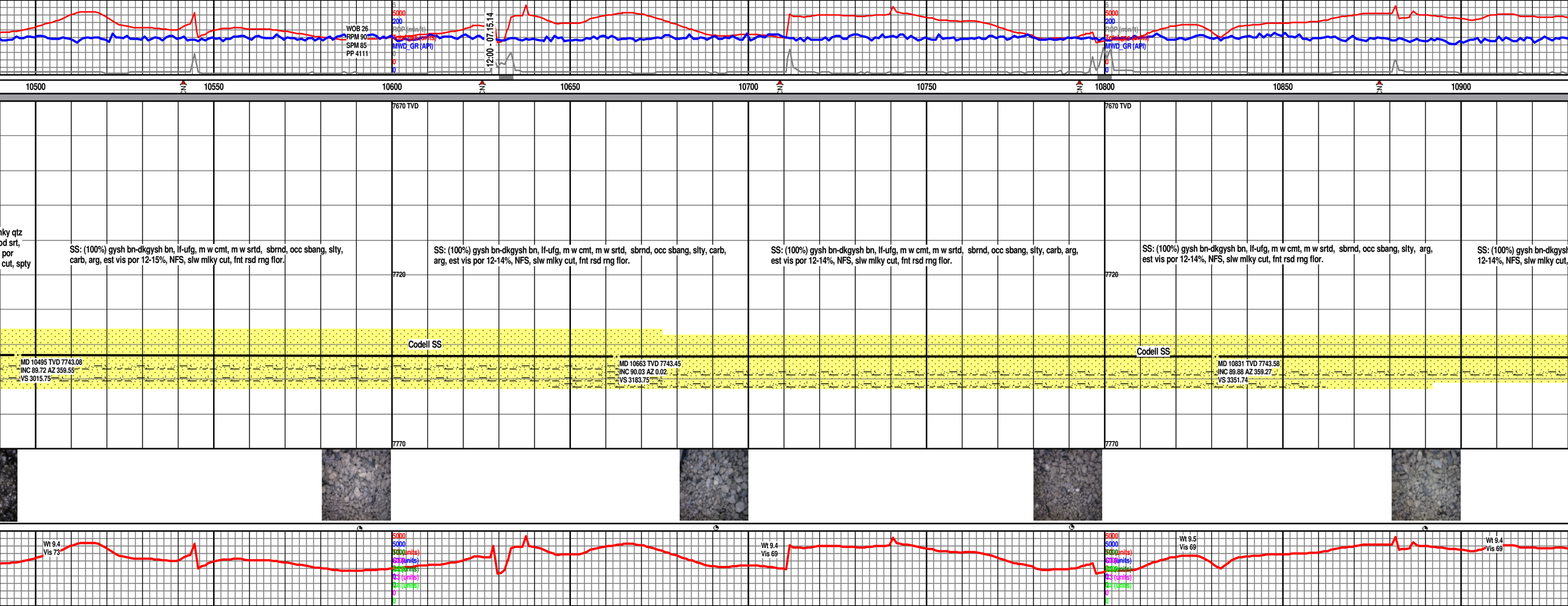


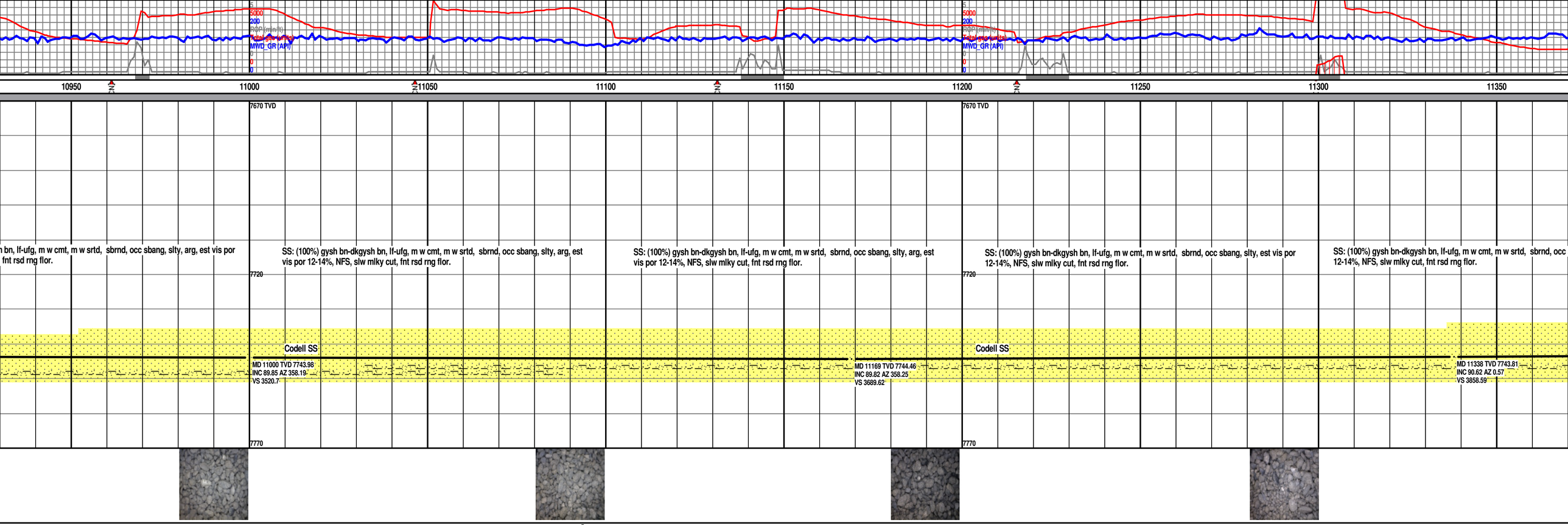



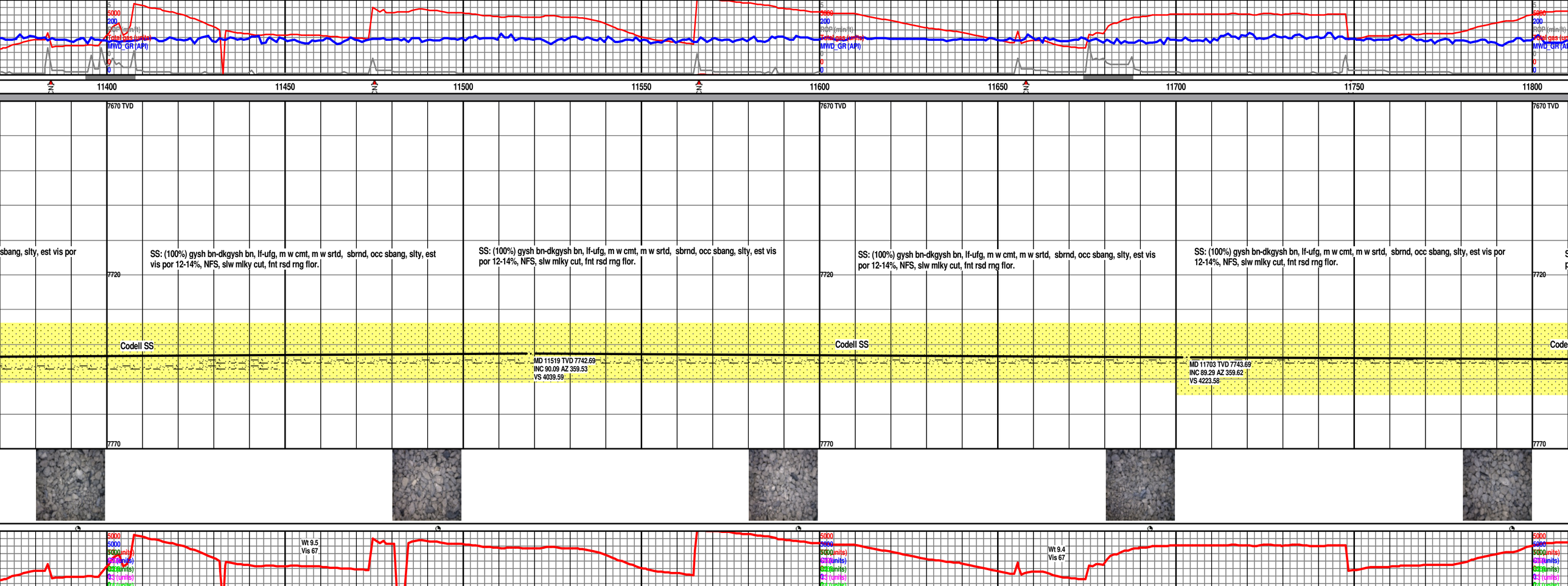

ROP (min/ft)
Total gas (units)
MWD_GR (API)
9200
9250
9300
9350
9400
9450
9500
9550
9600
7670 TVD
7720
7770
Flare 10-12'
No Flare
0%) dk gy- blk, clr-smky qtz
od srt, rd-sb rd, v arg, calc,
s por 15%, NSF fst difse lt cldy
spty lt yel res rng, OBM
SS: no vis chng (100%) dk gy- blk, clr-smky qtz aren, vf-f gr, slty, mod srt, rd-sb rd, v arg, calc, cons, tt, frm, est vis por 15%, NSF fst difse lt cldy wi mlky strmrs cut, spty lt yel res rng, OBM contam
Codell SS
MD 9303 TVD 7746.13
INC 90.09 AZ 1.28
VS 1823.81
MD 9475 TVD 7745.57
INC 90.28 AZ 0.47
VS 1995.78
Wt 9.4
Vis 74
Wt 9.4
Vis 78

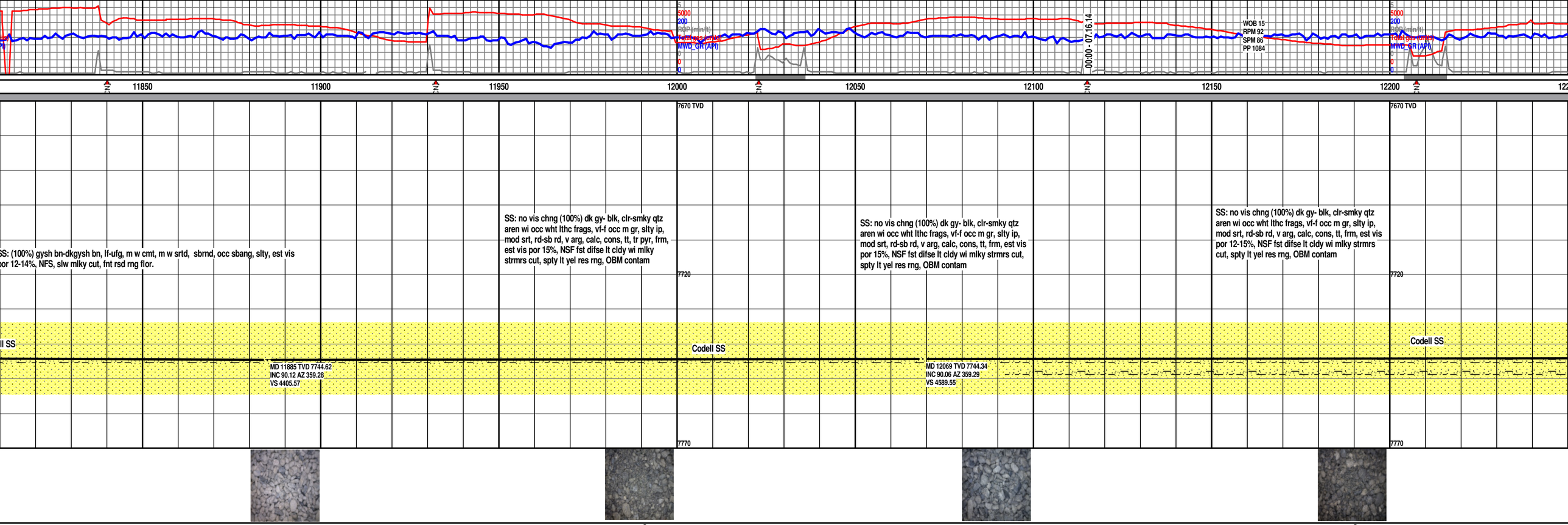

WOB 17
RPM 82
SPM 85
PP 3960
ROP (min/ft)
Total gas (units)
MWD_GR (API)
9650
9700
9750
9800
9850
9900
9950
10000
7670 TVD
7720
7770
SS: no vis chng (100%) dk gy- blk, clr-smky qtz aren, vf-f gr, slty, mod srt, rd-sb rd, v arg, calc, cons, tt, frm, est vis por 15%, NSF fst difse lt cldy wi mlky strmrs cut, spty lt yel res rng, OBM contam
Codell SS
MD 9645 TVD 7745.34
INC 89.88 AZ 0.47
VS 2165.78
MD 9816 TVD 7744.37
INC 90.77 AZ 0.33
VS 2336.77
MD 9987 TVD 7743.17
INC 90.03 AZ 359.43
VS 2507.76
Wt 9.4
Vis 75

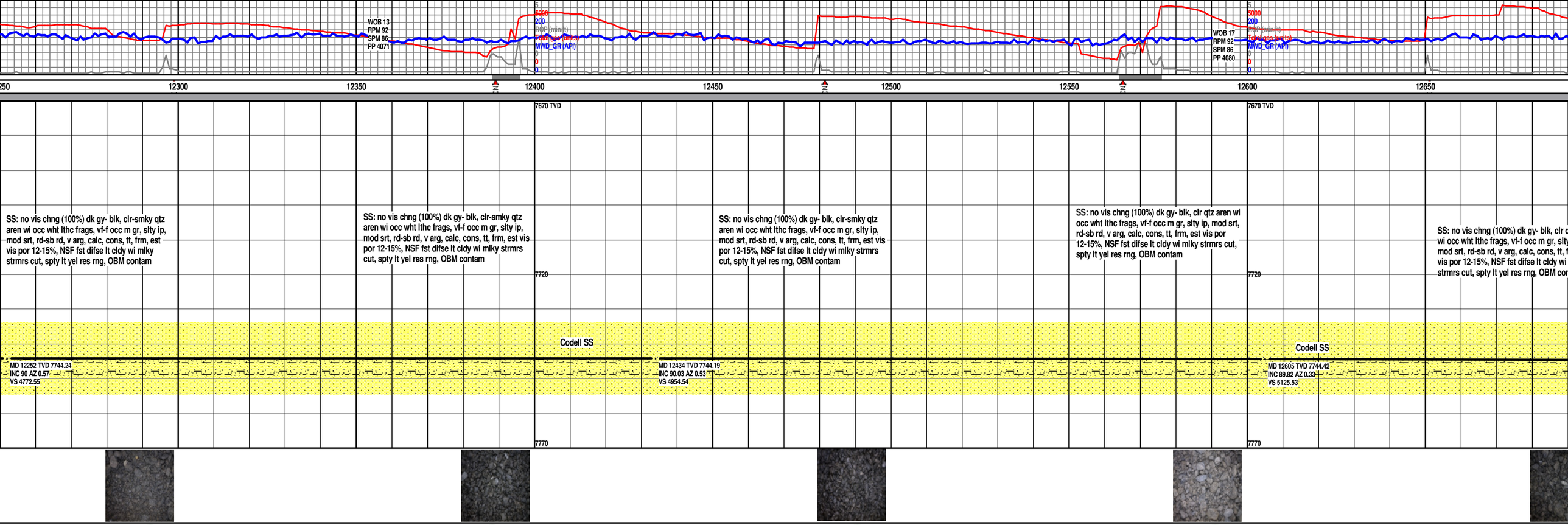

5000
200
ROP (min/ft)
Total gas (units)
MWD_GR (API)
WOB 21
RPM 81
SPM 86
PP 3993
10050
10100
10150
10200
10250
10300
10350
10400
10450
7670 TVD
7720
7770
Codell SS
SS: no vis chng (100%) dk gy- blk, clr-smky qtz aren, vf-f occ m gr, slty ip, mod srt, rd-sb rd, v arg, calc, cons, tt, frm, est vis por 15%, NSF fst difse lt cldy wi mlky strmrs cut, spty lt yel res rng, OBM contam
MD 10158 TVD 7743.77
INC 89.57 AZ 359.9
VS 2678.76
MD 10327 TVD 7743.53
INC 90.59 AZ 0.2
VS 2847.75
Wt 9.4
Vis 74
Wt 9.4
Vis 75
Wt 9.4
Vis 73

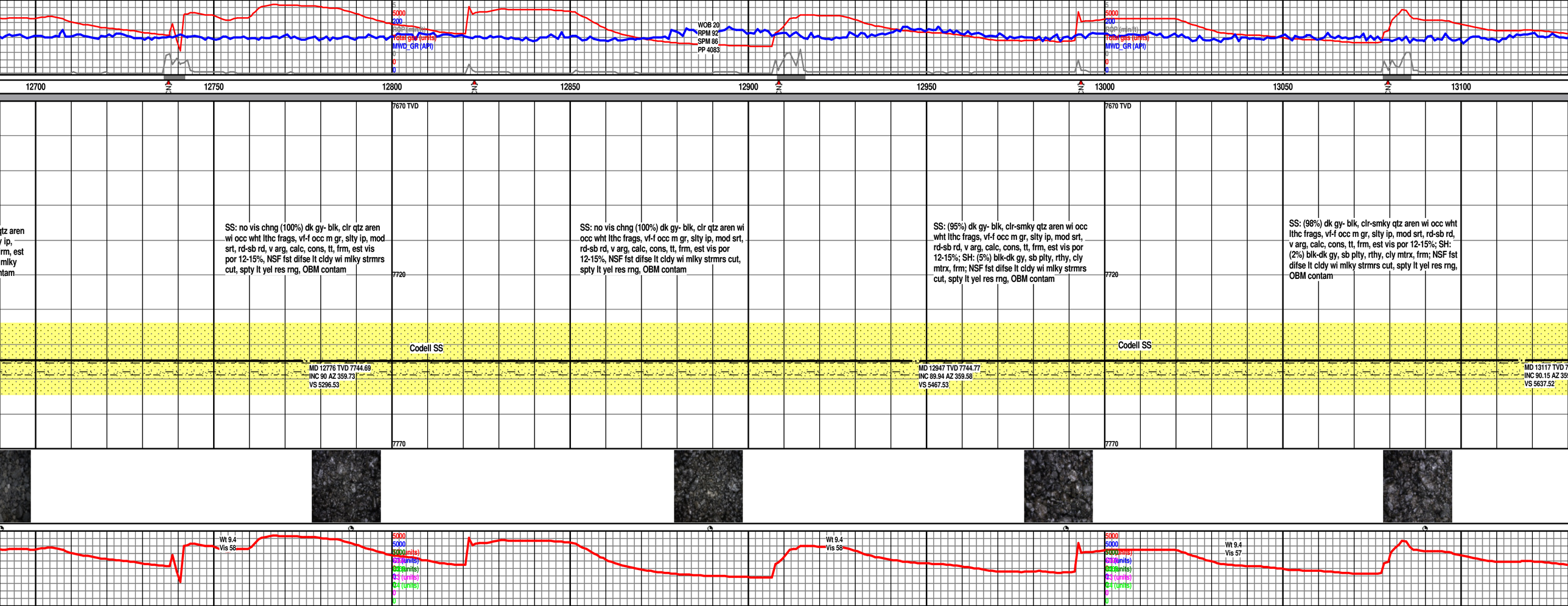

WOB 26
RPM 90
SPM 85
PP 4111
ROP (min/ft)
Gas units (units)
MWD_GR (API)
12:00 - 07.15.14
10500
10550
10600
10650
10700
10750
10800
10850
10900
7670 TVD
7720
7770
nky qtz
od srt,
por
cut, spty
SS: (100%) gysh bn-dkgysh bn, lf-ufg, m w cmt, m w srtd, sbrnd, occ sbang, slty, carb, arg, est vis por 12-15%, NFS, slw mlky cut, fnt rsd rng flor.
SS: (100%) gysh bn-dkgysh bn, lf-ufg, m w cmt, m w srtd, sbrnd, occ sbang, slty, carb, arg, est vis por 12-14%, NFS, slw mlky cut, fnt rsd rng flor.
SS: (100%) gysh bn-dkgysh bn, lf-ufg, m w cmt, m w srtd, sbrnd, occ sbang, slty, carb, arg, est vis por 12-14%, NFS, slw mlky cut, fnt rsd rng flor.
SS: (100%) gysh bn-dkgysh bn, lf-ufg, m w cmt, m w srtd, sbrnd, occ sbang, slty, arg, est vis por 12-14%, NFS, slw mlky cut, fnt rsd rng flor.
SS: (100%) gysh bn-dkgysh
12-14%, NFS, slw mlky cut,
Codell SS
Codell SS
MD 10495 TVD 7743.08
INC 89.72 AZ 359.55
VS 3015.75
MD 10663 TVD 7743.45
INC 90.03 AZ 0.02
VS 3183.75
MD 10831 TVD 7743.58
INC 89.88 AZ 359.27
VS 3351.74
Wt 9.4
Vis 73
Wt 9.4
Vis 69
Wt 9.5
Vis 69
Wt 9.4
Vis 69

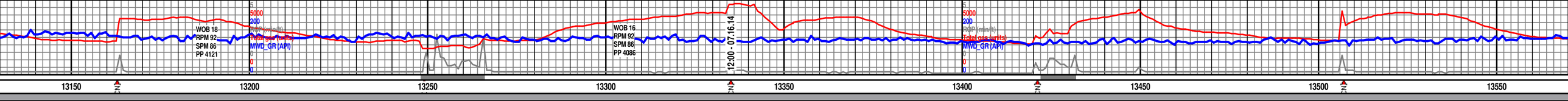

5
5000
200
ROP (min/ft)
Total gas (units)
MWD_GR (API)
0
0
0
10950
11000
11050
11100
11150
11200
11250
11300
11350
7670 TVD
7720
7770
Codell SS
MD 11000 TVD 7743.98
INC 89.85 AZ 358.19
VS 3520.7
MD 11169 TVD 7744.46
INC 89.82 AZ 358.25
VS 3689.62
MD 11338 TVD 7743.81
INC 90.62 AZ 0.57
VS 3858.59
SS: (100%) gysh bn-dkgysh bn, lf-ufg, m w cmt, m w srtd, sbrnd, occ sbang, slty, arg, est vis por 12-14%, NFS, slw mlky cut, fnt rsd rng flor.
Wt 9.4
Vis 69


ROP (min/ft)
Total Gas (units)
MWD_GR (API)
11400
11450
11500
11550
11600
11650
11700
11750
11800
7670 TVD
7720
7770
sbang, slty, est vis por
SS: (100%) gysh bn-dkgysh bn, lf-ufg, m w cmt, m w srtd, sbrnd, occ sbang, slty, est vis por 12-14%, NFS, slw mlky cut, fnt rsd rng flor.
Codell SS
MD 11519 TVD 7742.69
INC 90.09 AZ 359.53
VS 4039.59
MD 11703 TVD 7743.69
INC 89.29 AZ 359.62
VS 4223.58
Wt 9.5
Vis 67
Wt 9.4
Vis 67


11850
11900
11950
12000
12050
12100
12150
12200
00:00 - 07.16.14
WOB 15
RPM 92
SPM 86
PP 1084
MWD_GR (API)
7670 TVD
7720
7770
SS: (100%) gysh bn-dkgysh bn, lf-ufg, m w cmt, m w srtd, sbrnd, occ sbang, slty, est vis por 12-14%, NFS, slw mlky cut, fnt rsd rng flor.
SS: no vis chng (100%) dk gy- blk, clr-smky qtz aren wi occ wht lthc frags, vf-f occ m gr, slty ip, mod srt, rd-sb rd, v arg, calc, cons, tt, tr pyr, frm, est vis por 15%, NSF fst difse lt cldy wi mlky strmrs cut, spty lt yel res rng, OBM contam
SS: no vis chng (100%) dk gy- blk, clr-smky qtz aren wi occ wht lthc frags, vf-f occ m gr, slty ip, mod srt, rd-sb rd, v arg, calc, cons, tt, frm, est vis por 15%, NSF fst difse lt cldy wi mlky strmrs cut, spty lt yel res rng, OBM contam
SS: no vis chng (100%) dk gy- blk, clr-smky qtz aren wi occ wht lthc frags, vf-f occ m gr, slty ip, mod srt, rd-sb rd, v arg, calc, cons, tt, frm, est vis por 12-15%, NSF fst difse lt cldy wi mlky strmrs cut, spty lt yel res rng, OBM contam
ll SS
Codell SS
Codell SS
MD 11885 TVD 7744.62
INC 90.12 AZ 359.28
VS 4405.57
MD 12069 TVD 7744.34
INC 90.06 AZ 359.29
VS 4589.55
Wt 9.5
Vis 70


WOB 13
RPM 92
SPM 86
PP 4071
WOB 17
RPM 92
SPM 86
PP 4080
5000
200
ROP (min/ft)
Total gas (units)
MWD_GR (API)
12250
12300
12350
12400
12450
12500
12550
12600
12650
7670 TVD
7720
7770
SS: no vis chng (100%) dk gy- blk, clr-smky qtz aren wi occ wht lthc frags, vf-f occ m gr, slty ip, mod srt, rd-sb rd, v arg, calc, cons, tt, frm, est vis por 12-15%, NSF fst difse lt cldy wi mlky strmrs cut, spty lt yel res rng, OBM contam
Codell SS
MD 12252 TVD 7744.24
INC 90 AZ 0.57
VS 4772.55
MD 12434 TVD 7744.19
INC 90.03 AZ 0.53
VS 4954.54
MD 12605 TVD 7744.42
INC 89.82 AZ 0.33
VS 5125.53
Wt 9.4
Vis 64
Wt 9.4
Vis 66
Mud Data @ 12575'
Wt 9.5
Vis 66
PV/YP 20/13
Gel 8/9/11
Fil 2.0
Sol 12%
Oil 60%
H2O 28%
Wt 9.4
Vis 59


5000
200
ROP (min/ft)
Total gas (units)
MWD_GR (API)
WOB 20
RPM 92
SPM 86
PP 4083
12700
12750
12800
12850
12900
12950
13000
13050
13100
7670 TVD
7720
7770
SS: no vis chng (100%) dk gy- blk, clr qtz aren wi occ wht lthc frags, vf-f occ m gr, slty ip, mod srt, rd-sb rd, v arg, calc, cons, tt, frm, est vis por 12-15%, NSF fst difse lt cldy wi mlky strmrs cut, spty lt yel res rng, OBM contam
SS: no vis chng (100%) dk gy- blk, clr qtz aren wi occ wht lthc frags, vf-f occ m gr, slty ip, mod srt, rd-sb rd, v arg, calc, cons, tt, frm, est vis por 12-15%, NSF fst difse lt cldy wi mlky strmrs cut, spty lt yel res rng, OBM contam
SS: (95%) dk gy- blk, clr-smky qtz aren wi occ wht lthc frags, vf-f occ m gr, slty ip, mod srt, rd-sb rd, v arg, calc, cons, tt, frm, est vis por 12-15%; SH: (5%) blk-dk gy, sb plty, rthy, cly mtrx, frm; NSF fst difse lt cldy wi mlky strmrs cut, spty lt yel res rng, OBM contam
SS: (98%) dk gy- blk, clr-smky qtz aren wi occ wht lthc frags, vf-f occ m gr, slty ip, mod srt, rd-sb rd, v arg, calc, cons, tt, frm, est vis por 12-15%; SH: (2%) blk-dk gy, sb plty, rthy, cly mtrx, frm; NSF fst difse lt cldy wi mlky strmrs cut, spty lt yel res rng, OBM contam
Codell SS
MD 12776 TVD 7744.69
INC 90 AZ 359.73
VS 5296.53
MD 12947 TVD 7744.77
INC 89.94 AZ 359.58
VS 5467.53
MD 13117 TVD 7
INC 90.15 AZ 35
VS 5637.52
Wt 9.4
Vis 58
Wt 9.4
Vis 58
Wt 9.4
Vis 57



7670 TVD

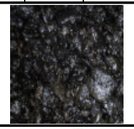
SS: (100%) dk gy- blk, clr-smky qtz aren wi occ wht lthc frags, vf-f occ m gr, slty ip, mod srt, rd-sb rd, v arg, calc, cons, tt, frm, est vis por 12-15%; NSF fst difse lt cldy wi mlky strmrs cut, spty lt yel res rng, OBM contam

7720

Codell SS

7744.64
9.18

7770



SS: (100%) clr qtz-gysh bn-dkgysh bn-blk, lf-ufg, m w cmt, m w srtd, sbrnd, occ sbang, slty, est vis por 12-15%, NFS, fst mlky cut, fr rsd rng flor.

MD 13289 TVD 7744.24
INC 90.12 AZ 359.61
VS 5809.51

SS: (100%) clr qtz-gysh bn-dkgysh bn-blk, lf-ufg, m w cmt, m w srtd, sbrnd, occ sbang, slty, est vis por 12-15%, NFS, fst mlky cut, fr rsd rng flor.

7670 TVD

SS: (100%) clr qtz-gysh bn-dkgysh bn-blk, lf-ufg, m w cmt, m w srtd, sbrnd, occ sbang, slty, est vis por 12-15%, NFS, fst mlky cut, fr rsd rng flor.

7720

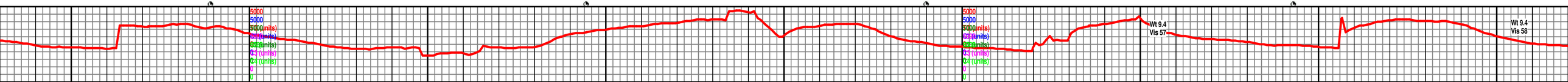
Codell SS

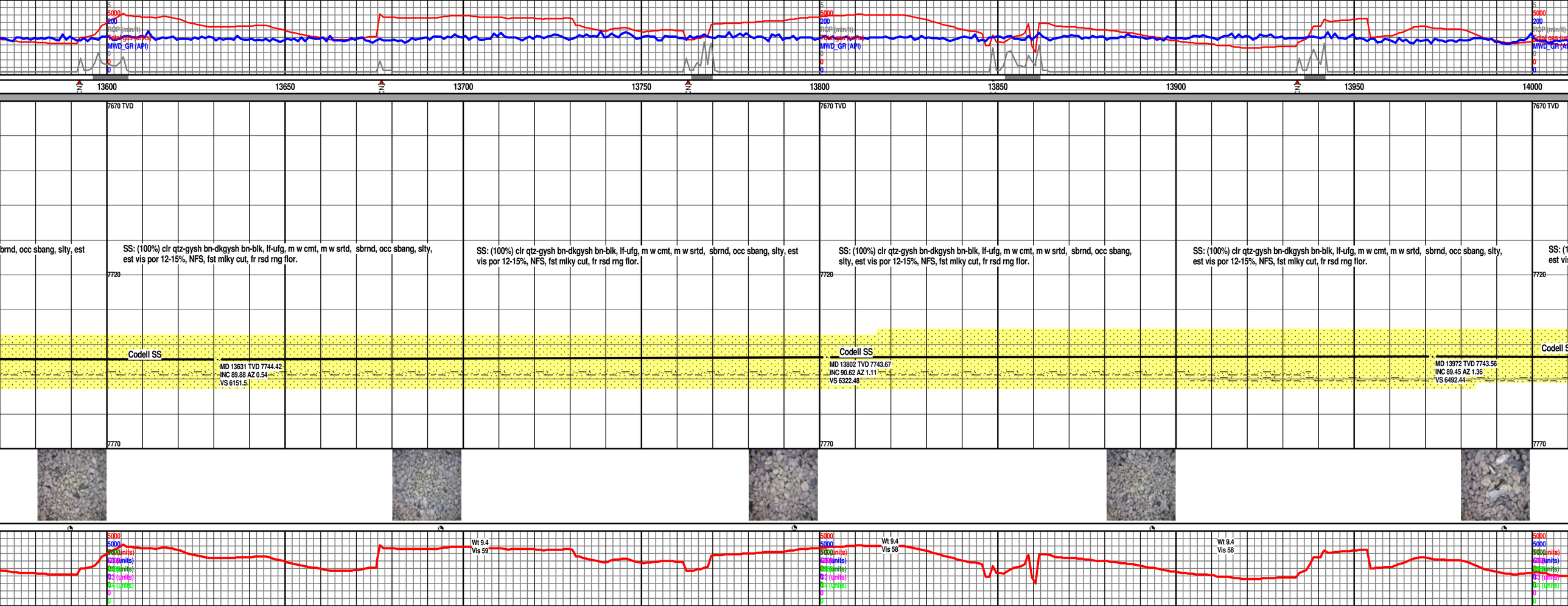
MD 13460 TVD 7744.15
INC 89.94 AZ 0.37
VS 5980.51

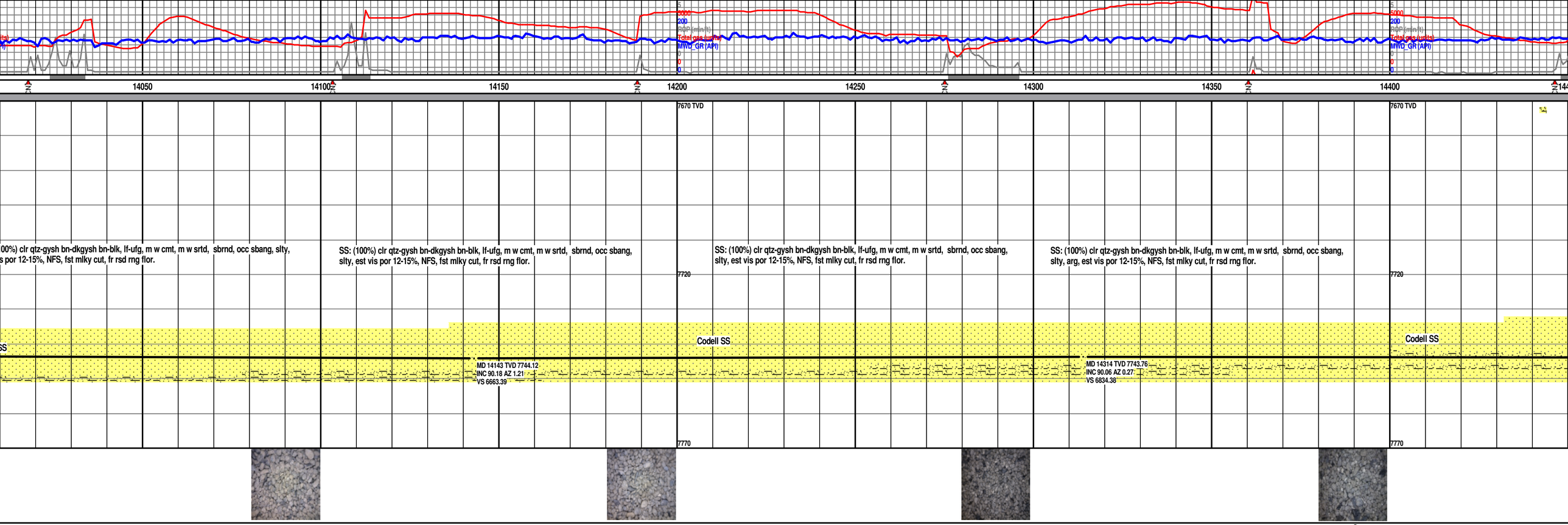
7770

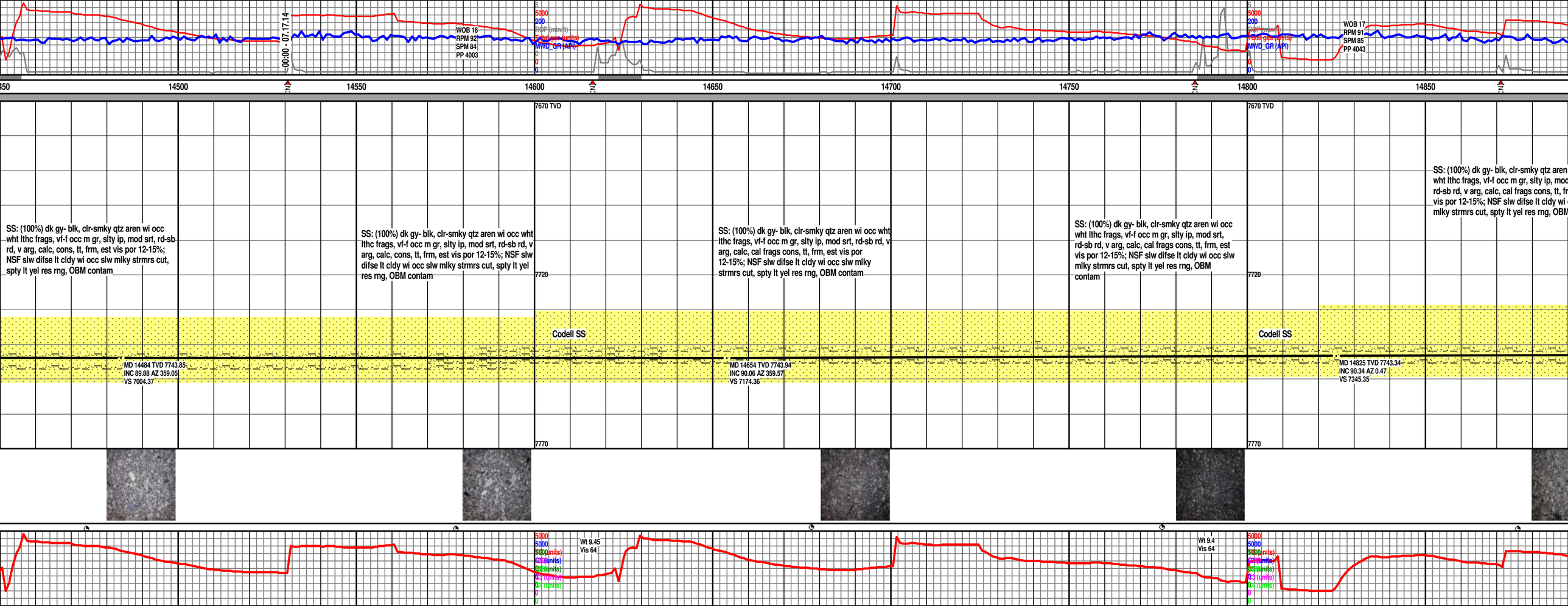
Flare: 1'

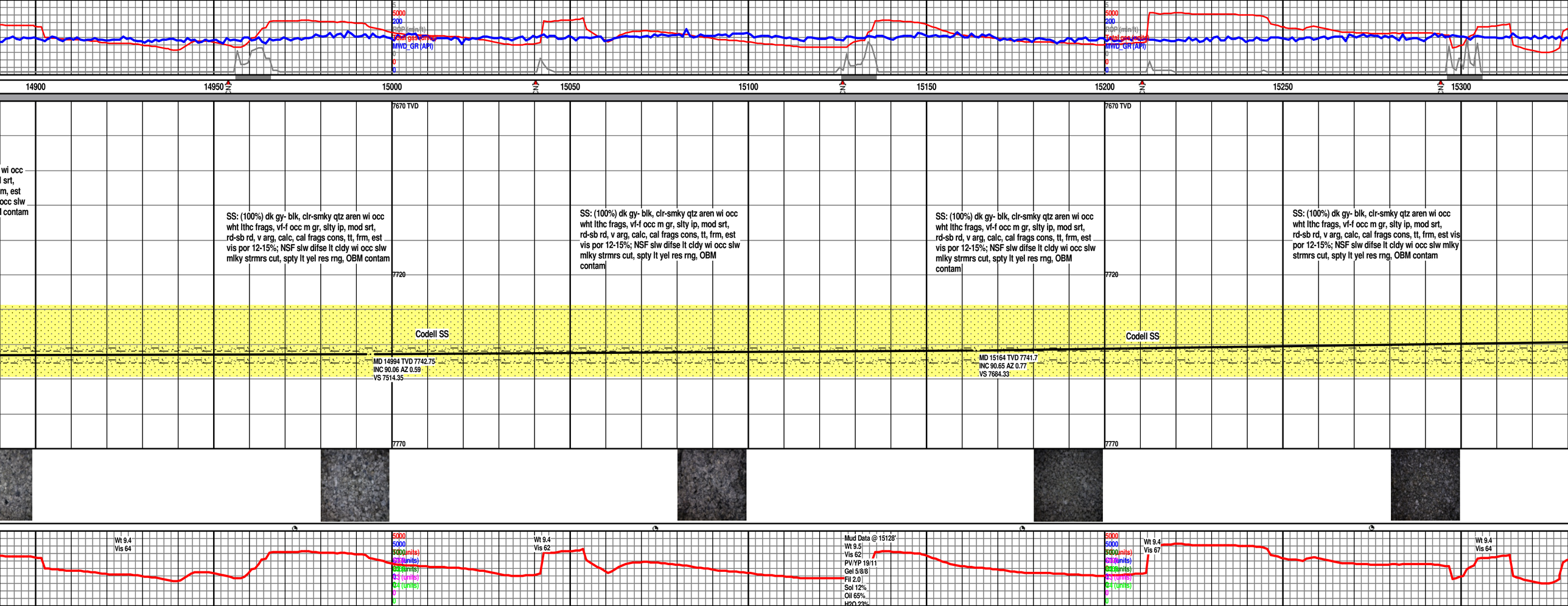
SS: (100%) clr qtz-gysh bn-dkgysh bn-blk, lf-ufg, m w cmt, m w srtd, s vis por 12-15%, NFS, fst mlky cut, fr rsd rng flor.

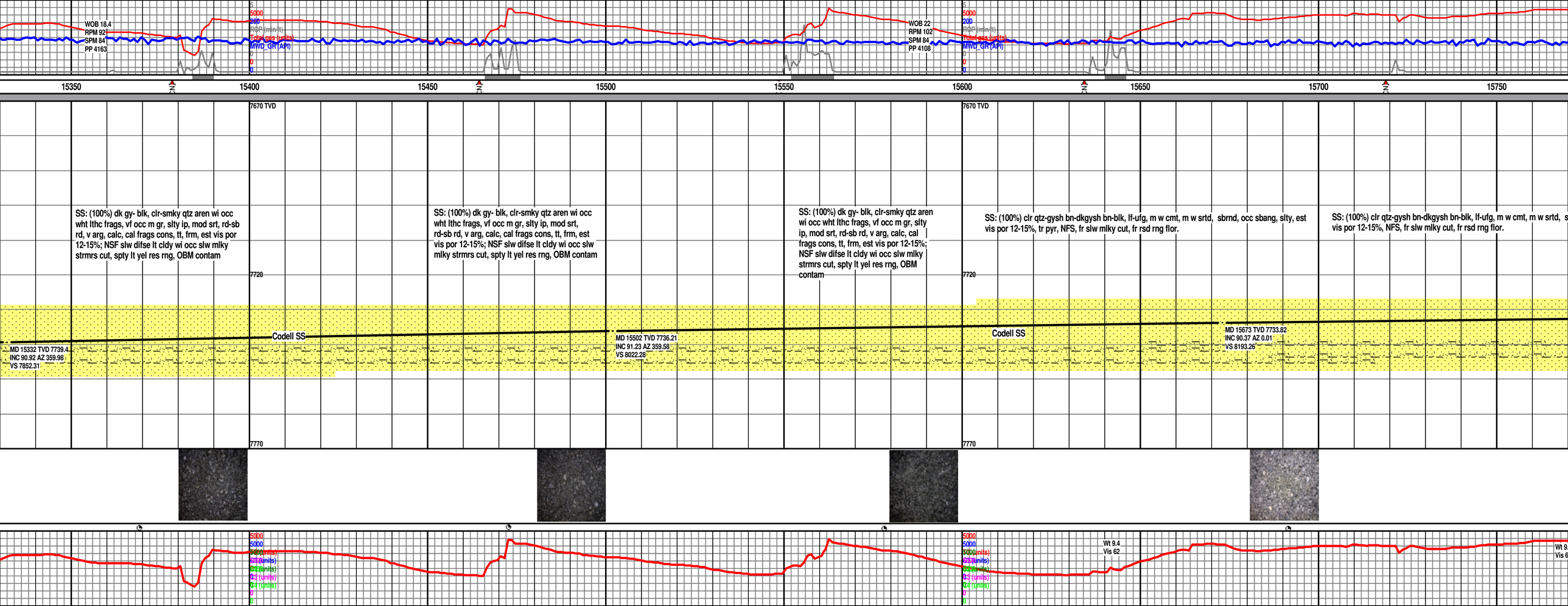


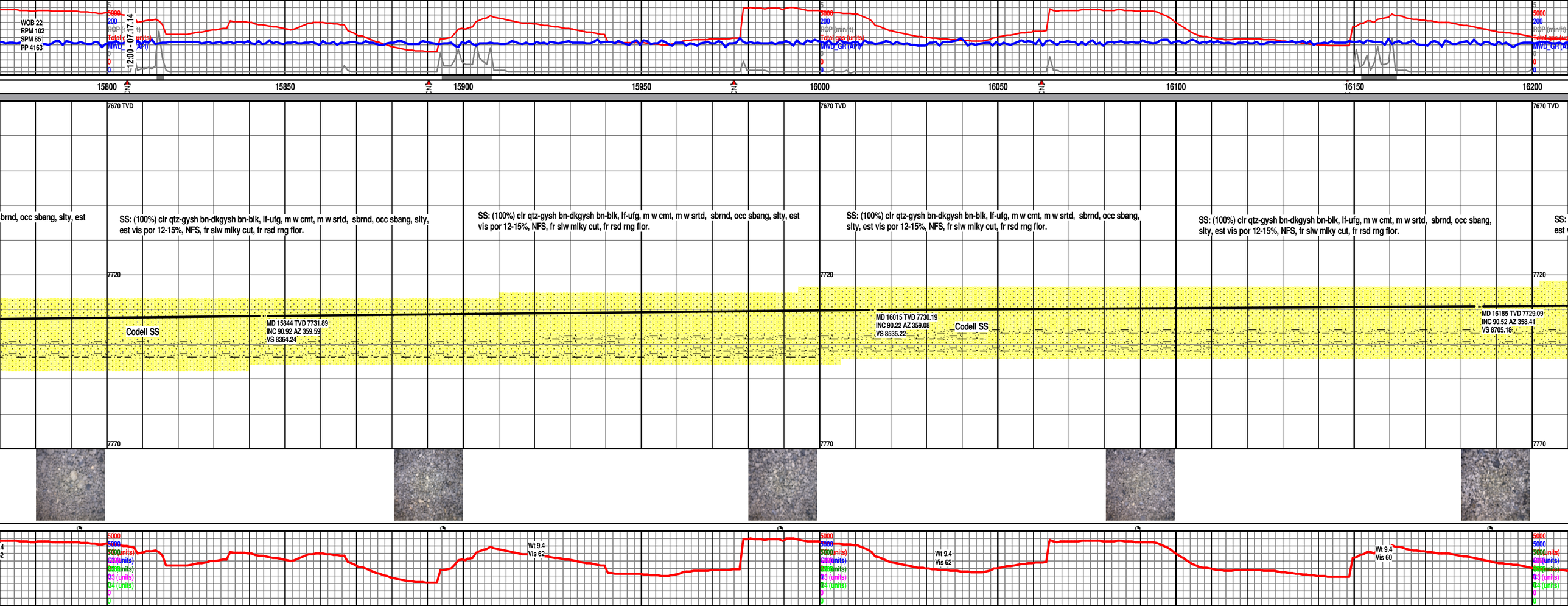

ROP (min/ft)
Total gas (units)
MWD_GR (API)
13600
13650
13700
13750
13800
13850
13900
13950
14000
7670 TVD
7720
7770
SS: (100%) clr qtz-gysh bn-dkgysh bn-blk, lf-ufg, m w cmt, m w srtd, sbrnd, occ sbang, slty, est vis por 12-15%, NFS, fst mlky cut, fr rsd rng flor.
Codell SS
MD 13631 TVD 7744.42
INC 89.88 AZ 0.54
VS 6151.5
MD 13802 TVD 7743.67
INC 90.62 AZ 1.11
VS 6322.48
MD 13972 TVD 7743.56
INC 89.45 AZ 1.36
VS 6492.44
Wt 9.4
Vis 59
Wt 9.4
Vis 58
Wt 9.4
Vis 58

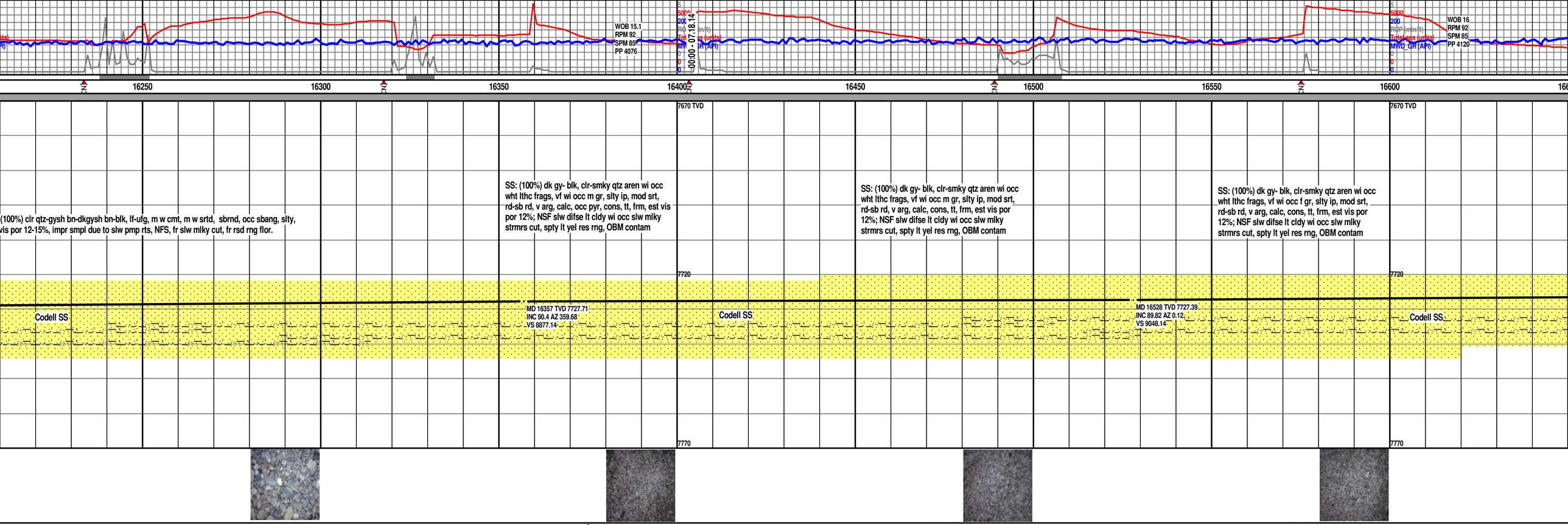

14050
14100
14150
14200
14250
14300
14350
14400
ROP (min/ft)
Total gas (units)
MWD_GR (API)
7670 TVD
7720
7770
Codell SS
MD 14143 TVD 7744.12
INC 90.18 AZ 1.21
VS 6663.39
MD 14314 TVD 7743.76
INC 90.06 AZ 0.27
VS 6834.38
SS: (100%) clr qtz-gysh bn-dkgysh bn-blk, lf-ufg, m w cmt, m w srtd, sbrnd, occ sbang, slty, est vis por 12-15%, NFS, fst mlky cut, fr rsd rng flor.
SS: (100%) clr qtz-gysh bn-dkgysh bn-blk, lf-ufg, m w cmt, m w srtd, sbrnd, occ sbang, slty, arg, est vis por 12-15%, NFS, fst mlky cut, fr rsd rng flor.
Wt 9.5
Vis 64
Mud Data @ 14104'
Wt 9.5
Vis 58
PV/YP 20/10
Gel 5/8/9
Fil 2.0
Sol 12%
Oil 62%
H2O 26%
Power outage: rig and camp

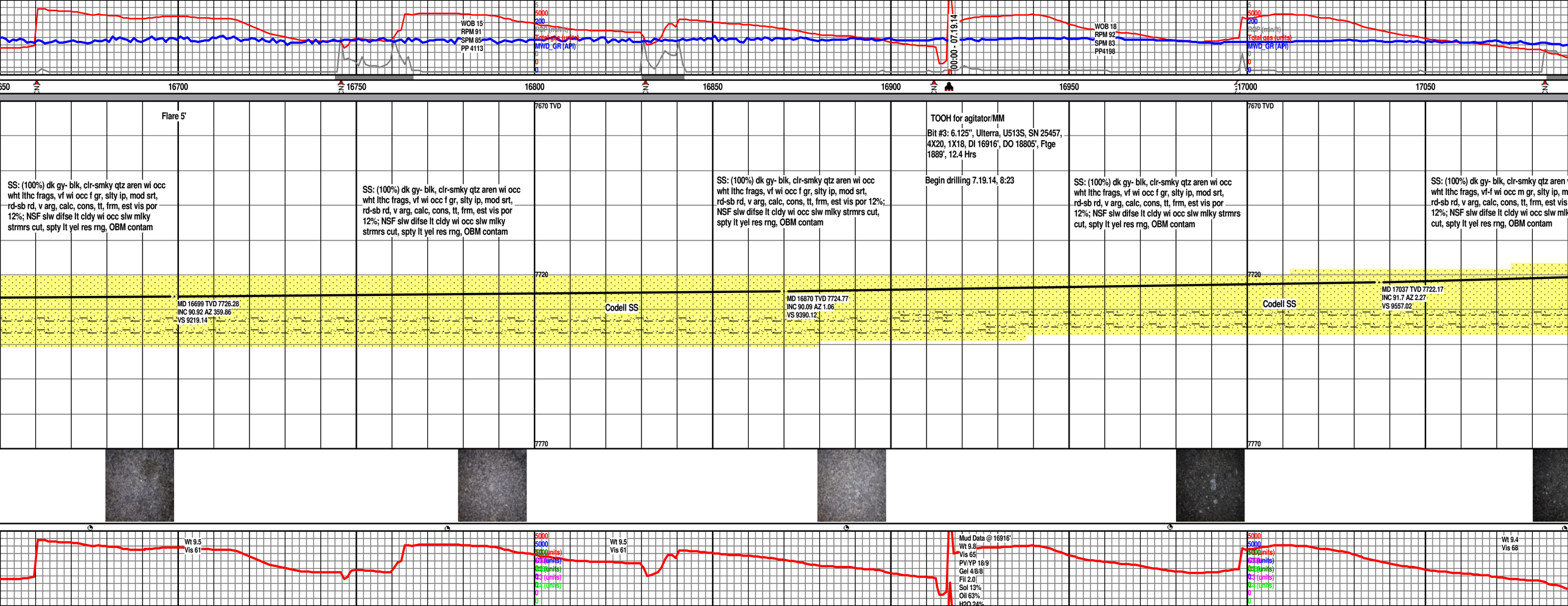

00:00 - 07.17.14
WOB 16
RPM 92
SPM 84
PP 4003
WOB 17
RPM 91
SPM 85
PP 4043
ROP (min/ft)
Total gas (units)
MWD_GR (API)
14500
14550
14600
14650
14700
14750
14800
14850
7670 TVD
7720
7770
Codell SS
SS: (100%) dk gy- blk, clr-smky qtz aren wi occ wht lthc frags, vf-f occ m gr, slty ip, mod srt, rd-sb rd, v arg, calc, cons, tt, frm, est vis por 12-15%; NSF slw difse lt cldy wi occ slw mlky strmrs cut, spty lt yel res rng, OBM contam
MD 14484 TVD 7743.85
INC 89.88 AZ 359.05
VS 7004.37
MD 14654 TVD 7743.94
INC 90.06 AZ 359.57
VS 7174.36
MD 14825 TVD 7743.34
INC 90.34 AZ 0.47
VS 7345.35
Wt 9.45
Vis 64
Wt 9.4
Vis 64

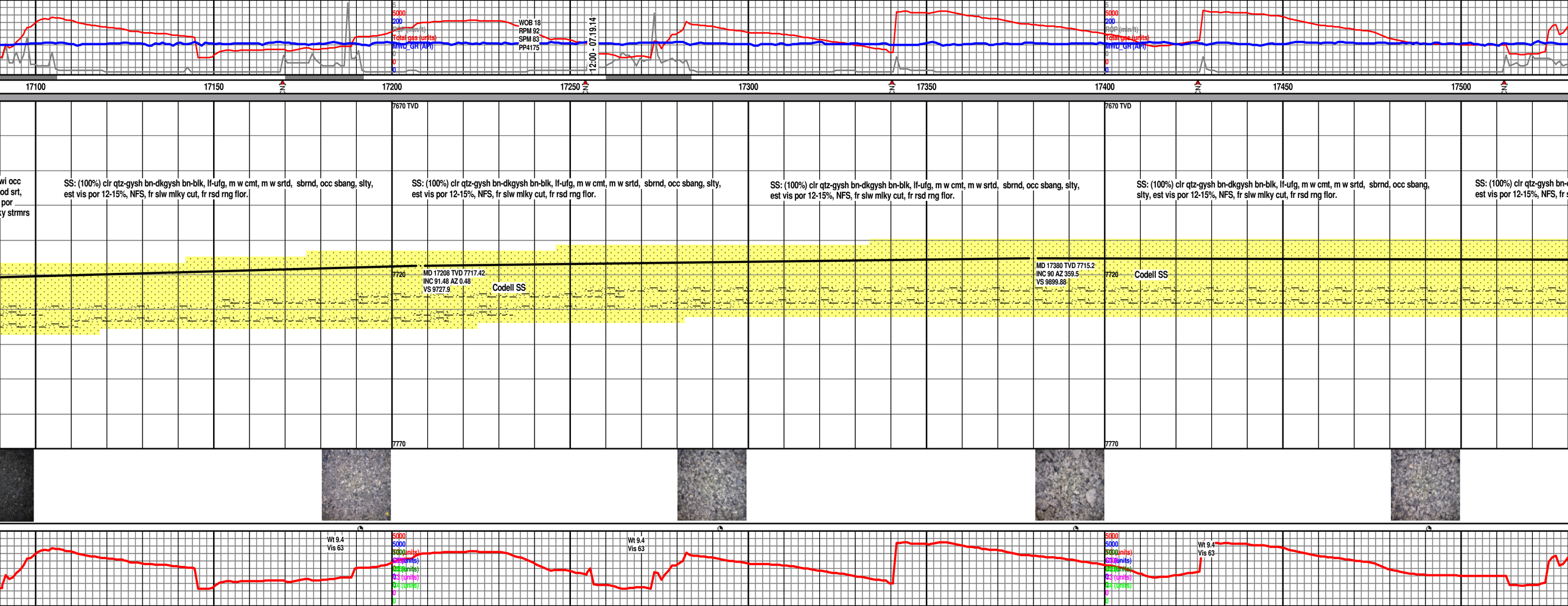

14900
14950
15000
15050
15100
15150
15200
15250
15300
7670 TVD
7720
7770
Codell SS
MD 14994 TVD 7742.75
INC 90.06 AZ 0.59
VS 7514.35
MD 15164 TVD 7741.7
INC 90.65 AZ 0.77
VS 7684.33
SS: (100%) dk gy- blk, clr-smky qtz aren wi occ wht lthc frags, vf-f occ m gr, slty ip, mod srt, rd-sb rd, v arg, calc, cal frags cons, tt, frm, est vis por 12-15%; NSF slw difse lt cldy wi occ slw mlky strmrs cut, spty lt yel res rng, OBM contam
Wt 9.4
Vis 64
Wt 9.4
Vis 62
Mud Data @ 15128'
Wt 9.5
Vis 62
PV/YP 19/11
Gel 5/8/8
Fil 2.0
Sol 12%
Oil 65%
Wt 9.4
Vis 67
Wt 9.4
Vis 64

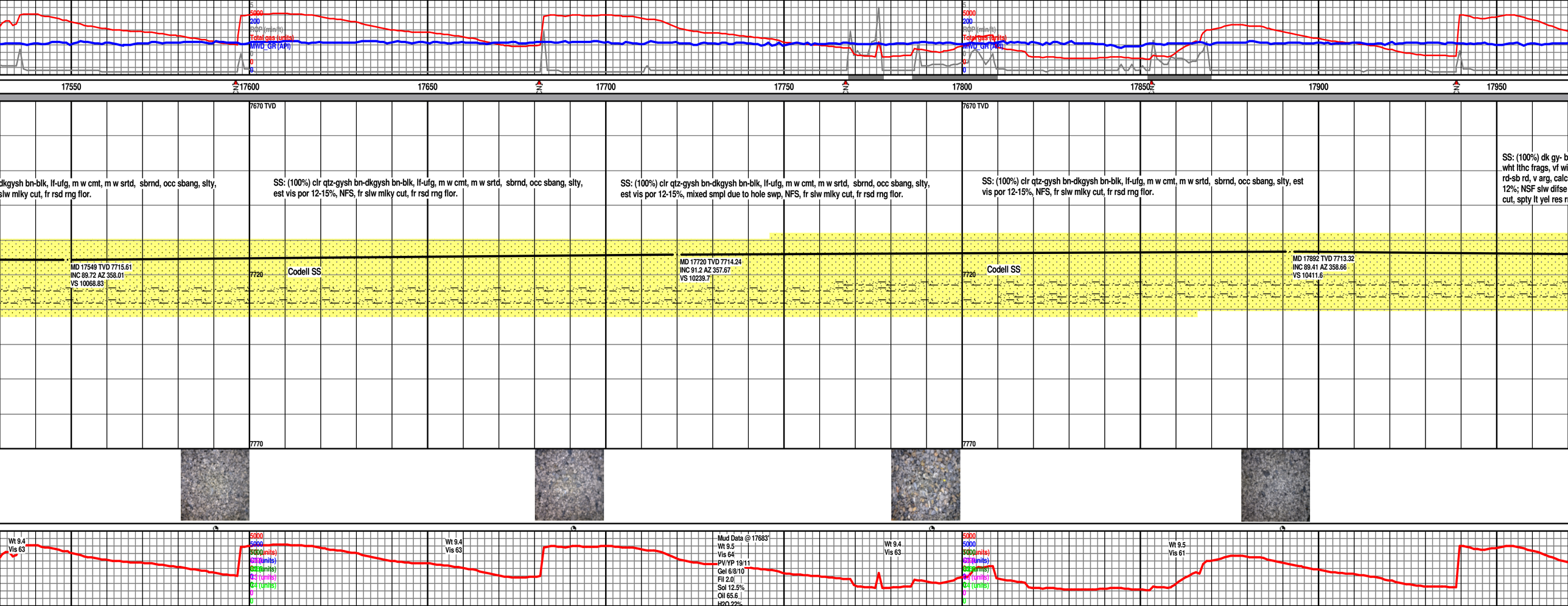

WOB 18.4
RPM 92
SPM 84
PP 4163
5
5000
200
ROP (min/ft)
Total gas (units)
MWD_GR (API)
0
0
WOB 22
RPM 102
SPM 84
PP 4108
15350
15400
15450
15500
15550
15600
15650
15700
15750
7670 TVD
7720
7770
SS: (100%) dk gy- blk, clr-smky qtz aren wi occ wht lthc frags, vf occ m gr, slty ip, mod srt, rd-sb rd, v arg, calc, cal frags cons, tt, frm, est vis por 12-15%; NSF slw difse lt cldy wi occ slw mlky strmrs cut, spty lt yel res rng, OBM contam
Codell SS
MD 15332 TVD 7739.4
INC 90.92 AZ 359.98
VS 7852.31
SS: (100%) dk gy- blk, clr-smky qtz aren wi occ wht lthc frags, vf occ m gr, slty ip, mod srt, rd-sb rd, v arg, calc, cal frags cons, tt, frm, est vis por 12-15%; NSF slw difse lt cldy wi occ slw mlky strmrs cut, spty lt yel res rng, OBM contam
MD 15502 TVD 7736.21
INC 91.23 AZ 359.58
VS 8022.28
SS: (100%) dk gy- blk, clr-smky qtz aren wi occ wht lthc frags, vf occ m gr, slty ip, mod srt, rd-sb rd, v arg, calc, cal frags cons, tt, frm, est vis por 12-15%; NSF slw difse lt cldy wi occ slw mlky strmrs cut, spty lt yel res rng, OBM contam
SS: (100%) clr qtz-gysh bn-dkgysh bn-blk, lf-ufg, m w cmt, m w srtd, sbrnd, occ sbang, slty, est vis por 12-15%, tr pyr, NFS, fr slw mlky cut, fr rsd rng flor.
Codell SS
MD 15673 TVD 7733.82
INC 90.37 AZ 0.01
VS 8193.26
SS: (100%) clr qtz-gysh bn-dkgysh bn-blk, lf-ufg, m w cmt, m w srtd, s
vis por 12-15%, NFS, fr slw mlky cut, fr rsd rng flor.
5000
5000
5000 (units)
C3 (units)
C2 (units)
C1 (units)
C4 (units)
0
0
Wt 9.4
Vis 62
Wt 9.
Vis 6

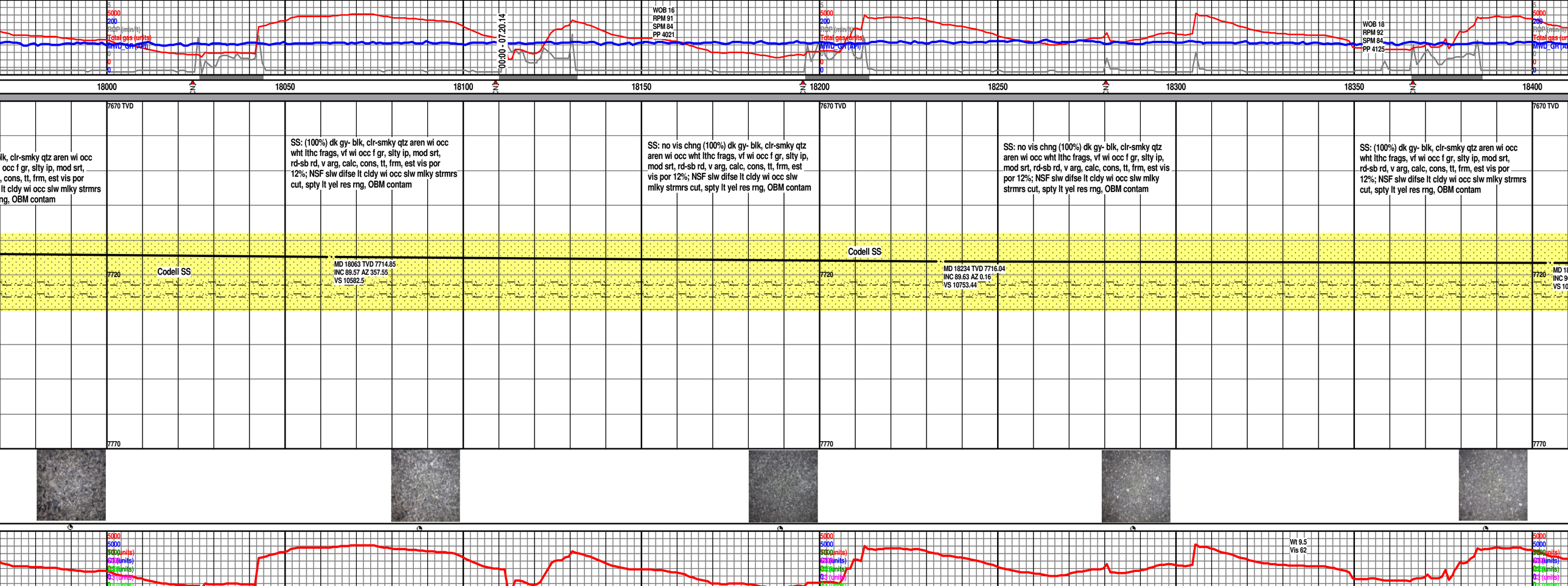

WOB 22
RPM 102
SPM 85
PP 4163
12:00 - 07:17.14
15800
15850
15900
15950
16000
16050
16100
16150
16200
7670 TVD
7720
7770
sbrnd, occ sbang, slty, est
SS: (100%) clr qtz-gysh bn-dkgysh bn-blk, lf-ufg, m w cmt, m w srtd, sbrnd, occ sbang, slty, est vis por 12-15%, NFS, fr slw mlky cut, fr rsd rng flor.
Codell SS
MD 15844 TVD 7731.89
INC 90.92 AZ 359.59
VS 8364.24
MD 16015 TVD 7730.19
INC 90.22 AZ 359.08
VS 8535.22
MD 16185 TVD 7729.09
INC 90.52 AZ 358.41
VS 8705.18
Wt 9.4
Vis 62
Wt 9.4
Vis 60

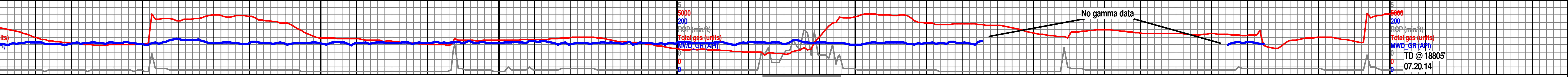

WOB 15.1
RPM 92
SPM 85
PP 4076
00:00 - 07:16.14
WOB 16
RPM 92
SPM 85
PP 4120
16250
16300
16350
16400
16450
16500
16550
16600
7670 TVD
7720
7770
(100%) clr qtz-gysh bn-dkgysh bn-blk, lf-ufg, m w cmt, m w srtd, sbrnd, occ sbang, slty, vis por 12-15%, impr smpl due to slw pmp rts, NFS, fr slw mlky cut, fr rsd rng flor.
Codell SS
SS: (100%) dk gy- blk, clr-smky qtz aren wi occ wht lthc frags, vf wi occ m gr, slty ip, mod srt, rd-sb rd, v arg, calc, occ pyr, cons, tt, frm, est vis por 12%; NSF slw difse lt cldy wi occ slw mlky strmrs cut, spty lt yel res rng, OBM contam
MD 16357 TVD 7727.71
INC 90.4 AZ 359.68
VS 8877.14
Codell SS
SS: (100%) dk gy- blk, clr-smky qtz aren wi occ wht lthc frags, vf wi occ m gr, slty ip, mod srt, rd-sb rd, v arg, calc, cons, tt, frm, est vis por 12%; NSF slw difse lt cldy wi occ slw mlky strmrs cut, spty lt yel res rng, OBM contam
MD 16528 TVD 7727.39
INC 89.82 AZ 0.12
VS 9048.14
SS: (100%) dk gy- blk, clr-smky qtz aren wi occ wht lthc frags, vf wi occ f gr, slty ip, mod srt, rd-sb rd, v arg, calc, cons, tt, frm, est vis por 12%; NSF slw difse lt cldy wi occ slw mlky strmrs cut, spty lt yel res rng, OBM contam
Codell SS
Wt 9.4
Vis 60
Mud Data @ 16359'
Wt 9.5
Vis 58
PV/YP 16/10
Gel 5/8/8
Fil 2.0
Sol 12%
Oil 65%
H2O 23%


WOB 15
RPM 91
SPM 85
PP 4113
5000
200
ROP (min/ft)
Total gas (units)
MWD_GR (API)
0
0
0
00:00 - 07.19.14
WOB 18
RPM 92
SPM 83
PP4198
16700
16750
16800
16850
16900
16950
17000
17050
Flare 5'
SS: (100%) dk gy- blk, clr-smky qtz aren wi occ wht lthc frags, vf wi occ f gr, slty ip, mod srt, rd-sb rd, v arg, calc, cons, tt, frm, est vis por 12%; NSF slw difse lt cldy wi occ slw mlky strmrs cut, spty lt yel res rng, OBM contam
MD 16699 TVD 7726.28
INC 90.92 AZ 359.86
VS 9219.14
7670 TVD
7720
7770
Codell SS
MD 16870 TVD 7724.77
INC 90.09 AZ 1.06
VS 9390.12
TOOH for agitator/MM
Bit #3: 6.125", Ulterra, U513S, SN 25457, 4X20, 1X18, DI 16916', DO 18805', Ftge 1889', 12.4 Hrs
Begin drilling 7.19.14, 8:23
MD 17037 TVD 7722.17
INC 91.7 AZ 2.27
VS 9557.02
Wt 9.5
Vis 61
Mud Data @ 16916'
Wt 9.8
Vis 65
PV/YP 18/9
Gel 4/8/6
Fil 2.0
Sol 13%
Oil 63%
H2O 24%
Wt 9.4
Vis 68


5000
200
ROP (min/ft)
Total gas (units)
MWD_GR (API)
WOB 18
RPM 92
SPM 83
PP4175
12:00 - 07.19.14
17100
17150
17200
17250
17300
17350
17400
17450
17500
7670 TVD
7720
7770
SS: (100%) clr qtz-gysh bn-dkgysh bn-blk, lf-ufg, m w cmt, m w srtd, sbrnd, occ sbang, slty, est vis por 12-15%, NFS, fr slw mlky cut, fr rsd rng flor.
MD 17208 TVD 7717.42
INC 91.48 AZ 0.48
VS 9727.9
Codell SS
MD 17380 TVD 7715.2
INC 90 AZ 359.5
VS 9899.88
Wt 9.4
Vis 63
5000 (units)
Q1 (units)
Q2 (units)
Q3 (units)
Q4 (units)


5
5000
200
ROP (min/ft)
Total gas (units)
MWD_GR (API)
0
0
0
17550
17600
17650
17700
17750
17800
17850
17900
17950
7670 TVD
dkgysh bn-blk, lf-ufg, m w cmt, m w srtd, sbrnd, occ sbang, slty, slw mlky cut, fr rsd rng flor.
SS: (100%) clr qtz-gysh bn-dkgysh bn-blk, lf-ufg, m w cmt, m w srtd, sbrnd, occ sbang, slty, est vis por 12-15%, NFS, fr slw mlky cut, fr rsd rng flor.
SS: (100%) clr qtz-gysh bn-dkgysh bn-blk, lf-ufg, m w cmt, m w srtd, sbrnd, occ sbang, slty, est vis por 12-15%, mixed smpl due to hole swp, NFS, fr slw mlky cut, fr rsd rng flor.
SS: (100%) clr qtz-gysh bn-dkgysh bn-blk, lf-ufg, m w cmt, m w srtd, sbrnd, occ sbang, slty, est vis por 12-15%, NFS, fr slw mlky cut, fr rsd rng flor.
SS: (100%) dk gy- b
wht lthc frags, vf wi
rd-sb rd, v arg, calc
12%; NSF slw difse
cut, spty lt yel res n
MD 17549 TVD 7715.61
INC 89.72 AZ 358.01
VS 10068.83
MD 17720 TVD 7714.24
INC 91.2 AZ 357.67
VS 10239.7
MD 17892 TVD 7713.32
INC 89.41 AZ 358.66
VS 10411.6
7720
Codell SS
7770
Wt 9.4
Vis 63
Mud Data @ 17683'
Wt 9.5
Vis 64
PV/YP 19/11
Gel 6/8/10
Fil 2.0
Sol 12.5%
Oil 65.6
Wt 9.5
Vis 61


ROP (min/ft)
Total gas (units)
MWD_GR (API)
WOB 16
RPM 91
SPM 84
PP 4021
00:00 - 07.20.14
WOB 18
RPM 92
SPM 84
PP 4125
18000
18050
18100
18150
18200
18250
18300
18350
18400
7670 TVD
7720
7770
Codell SS
SS: (100%) dk gy- blk, clr-smky qtz aren wi occ wht lthc frags, vf wi occ f gr, slty ip, mod srt, rd-sb rd, v arg, calc, cons, tt, frm, est vis por 12%; NSF slw difse lt cldy wi occ slw mlky strmrs cut, spty lt yel res rng, OBM contam
MD 18063 TVD 7714.85
INC 89.57 AZ 357.55
VS 10582.5
SS: no vis chng (100%) dk gy- blk, clr-smky qtz aren wi occ wht lthc frags, vf wi occ f gr, slty ip, mod srt, rd-sb rd, v arg, calc, cons, tt, frm, est vis por 12%; NSF slw difse lt cldy wi occ slw mlky strmrs cut, spty lt yel res rng, OBM contam
MD 18234 TVD 7716.04
INC 89.63 AZ 0.16
VS 10753.44
Wt 9.5
Vis 62



18450 | 18500 | 18550 | 18600 | 18650 | 18700 | 18750 | 18800

7670 TVD

SS: (100%) dk gy- blk, clr-smky qtz aren wi occ wht lthc frags, vf wi occ f gr, slty ip, mod srt, rd-sb rd, v arg, calc, cons, tt, frm, est vis por 12%; NSF slw difse lt cldy wi occ slw mlky strmrs cut, spty lt yel res rng, OBM contam

SS: no vis chng (100%) dk gy- blk, clr-smky qtz aren wi occ wht lthc frags, vf wi occ f gr, slty ip, mod srt, rd-sb rd, v arg, calc, cons, tt, frm, est vis por 12%; NSF slw difse lt cldy wi occ slw mlky strmrs cut, spty lt yel res rng, OBM contam

SS: no vis chng (100%) dk gy- blk, clr-smky qtz aren wi occ wht lthc frags, vf wi occ f gr, slty ip, mod srt, rd-sb rd, v arg, calc, cons, tt, frm, est vis por 12%; NSF slw difse lt cldy wi occ slw mlky strmrs cut, spty lt yel res rng, OBM contam

SS: no vis chng (100%) dk gy- blk, clr-smky qtz aren wi occ wht lthc frags, vf wi occ f gr, slty ip, mod srt, rd-sb rd, v arg, calc, cons, tt, frm, est vis por 12%; NSF slw difse lt cldy wi occ slw mlky strmrs cut, spty lt yel res rng, OBM contam

Wiper Trip 8 Stands Circ & Condition Hole, TOOH to shoe,

Liner set @ 18790'

TD 18805' MD @ Sunday 10:30 - 07.20.14

Codell SS

405 TVD 7716.59
0 AZ 0.82
924.43

MD 18576 TVD 7717.01
INC 89.72 AZ 359.1
VS 11095.43

Codell SS

7720

MD 18759 TVD 7716.82
INC 90.4 AZ 357.03
VS 11278.31

Codell SS

Bit Projection

MD 18805 TVD 7716.5
INC 90.4 AZ 357.03
VS 11324.25

BOTTOM HOLE LOCATION
7' FSL X 99' FWL
NW NW Sec 32, T2N R67W

THANK YOU FOR USING
GOOLSBY BROTHERS
& ASSOCIATES

Jack R. Rogers
John Adams

7770