GOOLSBY BROTHERS
and associates, inc.

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

Geological Wellsite
Supervision

PETCOM

www.goolsbybrothers.com

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

Well Name:	GEE 2C-12HZ
API:	05123391710000
Location:	Section 24, T2N, R67W, Weld County, CO.
License Number:	0512339171 — Region: Wattenberg
Spud Date:	18 December, 2014 — Drilling Completed: 11 February, 2015
Surface Coordinates:	771' FNL 1533' FEL NWNE Sec 24 T2N R67W;
	Lat: 40° 07' 42.97" N LONG: -104° 50' 7.48"
Bottom Hole	558' FNL 1925' FEL NWNE Sec 12 T2N R67W;
Coordinates:	Lat: 40.1582936°N LONG: -104.8364124°
Ground Elevation (ft):	4859' — K.B. Elevation (ft): 4875'
Logged Interval (ft):	6850' To: 17,665' Total Depth (ft): 17,665'
Formation:	Pierre Shale, Sharon Springs, Niobrara, Ft Hays, Codell
Type of Drilling Fluid:	Water & Poly Gel, Synthetic Oil Based

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

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 & Alex Caruana
Company:	Goolsby Brothers & Assoc. (GBA), Inc. (www.goolsbybrothers.com)
Address:	575 Union Blvd.
	Suite 208,
	Lakewood CO. 80228

E-logs

MWD GR 1011' - 17,620'

Casing

9 5/8" Surface Casing set @ 1048' MD
7" Intermediate Casing set @ 7786' MD
4 1/2" Production Liner hung, landed @ 17,655'

Comments

1) Drilling Contractor: Xtreme Drilling, Rig #22
   Toolpusher: Cody Ruehlen/Jake King
2) Company Man: Sott Hancock/Dalton King, Merle Lehmkuhl/Russell Hodges
3) Mud Company : AES Engineer: Samuel Pedersen & Julianna Aycock
4) Directional Drilling: Sperry/Halliburton
   Drillers: Chris Hopwood, Roland Hall & Bryan Seghetti
   MWD: Clay Wass & Drew Macbeth
5) Gas Equipment: Pason
6) Goolsby Brothers and Associates
   Jack R. Rogers
   Alex Caruana

ROCK TYPES

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
- Cryxln
- Earthy
- Finexln
- Grainst
- Lithogr
- Microxln
- Mudst
- Packst
- Wackest

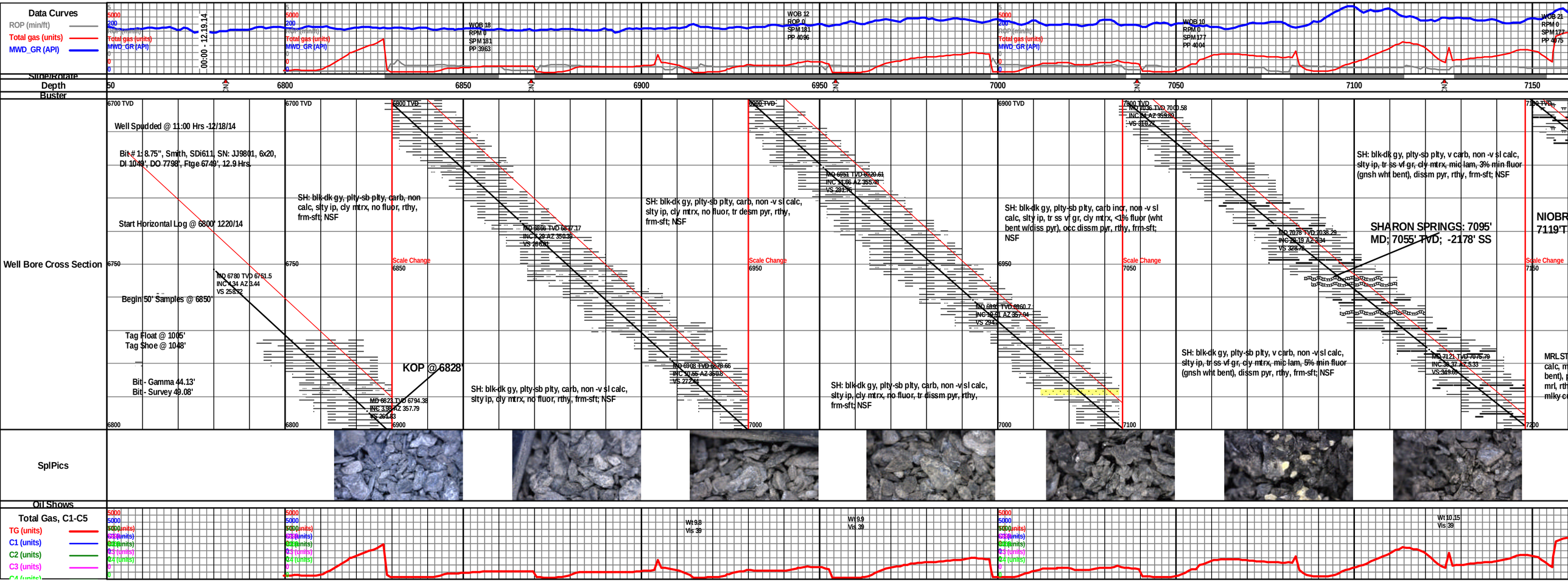
OTHER SYMBOLS

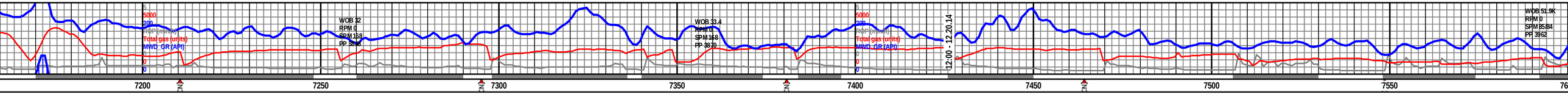
OIL SHOWS
- Even
- Spotted
- Ques
- Dead
- Vspotty
- near even

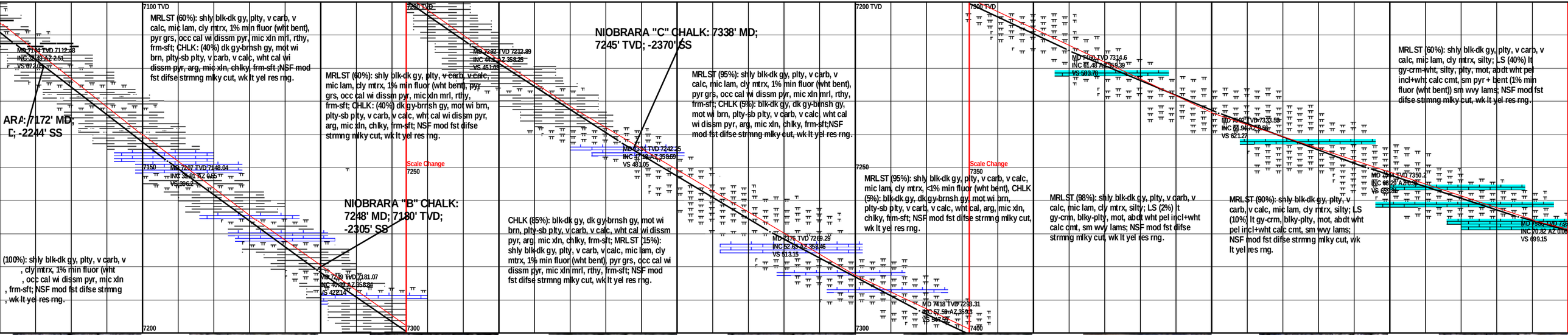
POROSITY TYPE
- Earthy
- Fenest
- Fracture
- Inter
- Moldic
- Organic
- Pinpoint
- Vuggy

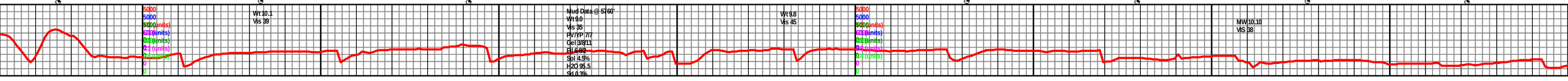
ROUNDING
- Rounded
- Subrnd
- Subang
- Angular

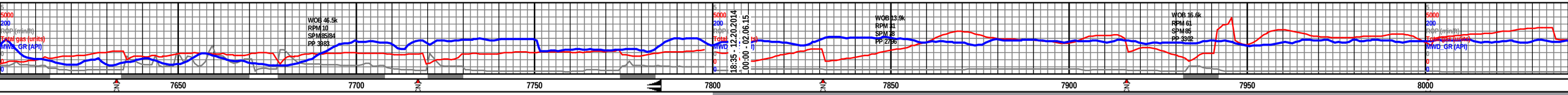
SORTING
- Well
- Moderate
- Poor

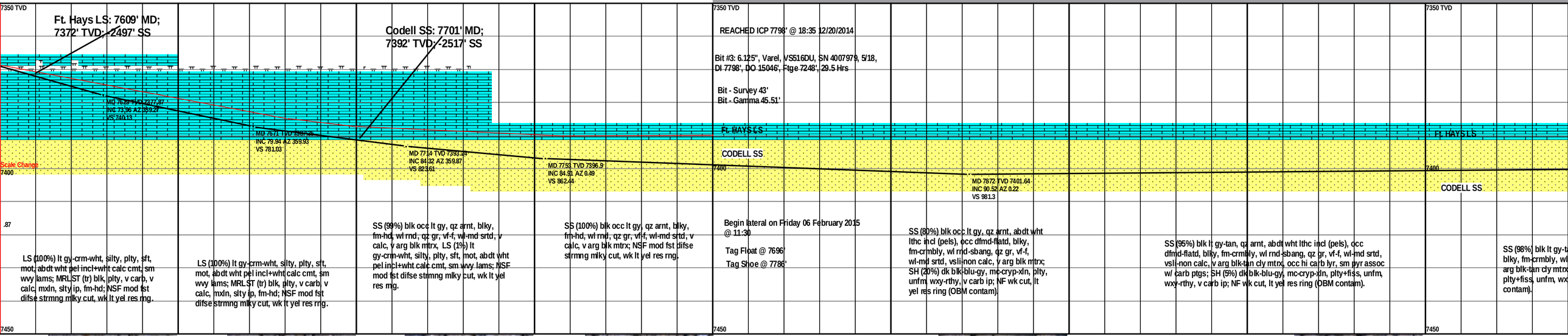

Data Curves
ROP (min/ft)
Total gas (units)
MWD_GR (API)
00:00 - 12.19.14
WOB 18
RPM 0
SPM 181
PP 3963
WOB 12
ROP 0
SPM 181
PP 4096
WOB 10
RPM 0
SPM 177
PP 4004
WOB 21
RPM 0
SPM 177
PP 4075
Slide/Rotate
Depth
50
6800
6850
6900
6950
7000
7050
7100
7150
Buster
Well Bore Cross Section
Well Spudded @ 11:00 Hrs -12/18/14
Bit # 1: 8.75", Smith, SDi611, SN: JJ9801, 6x20, DI 1049', DO 7798', Ftge 6749', 12.9 Hrs.
Start Horizontal Log @ 6800' 1220/14
Begin 50' Samples @ 6850'
Tag Float @ 1005'
Tag Shoe @ 1048'
Bit - Gamma 44.13'
Bit - Survey 49.08'
MD 6780 TVD 6751.5
INC 4.34 AZ 3.44
VS 258.72
KOP @ 6828'
MD 6823 TVD 6794.38
INC 3.38 AZ 357.79
VS 264.03
SH: blk-dk gy, plty-sb plty, carb, non calc, slty ip, cly mtrx, no fluor, rthy, frm-sft; NSF
MD 6866 TVD 6837.17
INC 4.29 AZ 350.39
VS 268.00
SH: blk-dk gy, plty-sb plty, carb, non -v sl calc, slty ip, cly mtrx, no fluor, rthy, frm-sft; NSF
MD 6908 TVD 6879.66
INC 10.55 AZ 350.8
VS 272.49
SH: blk-dk gy, plty-sb plty, carb, non -v sl calc, slty ip, cly mtrx, no fluor, tr desm pyr, rthy, frm-sft; NSF
MD 6951 TVD 6920.61
INC 17.66 AZ 355.48
VS 281.75
SH: blk-dk gy, plty-sb plty, carb, non -v sl calc, slty ip, cly mtrx, no fluor, tr dissm pyr, rthy, frm-sft; NSF
MD 6995 TVD 6960.7
INC 19.31 AZ 357.04
VS 294.
SH: blk-dk gy, plty-sb plty, carb incr, non -v sl calc, slty ip, tr ss vf gr, cly mtrx, <1% fluor (wht bent w/diss pyr), occ dissm pyr, rthy, frm-sft; NSF
MD 7036 TVD 7000.58
INC 24.42 AZ 359.89
VS 310.43
MD 7078 TVD 7038.29
INC 29.19 AZ 3.34
VS 328.78
SH: blk-dk gy, plty-sb plty, v carb, non -v sl calc, slty ip, tr ss vf gr, cly mtrx, mic lam, 3% min fluor (gnsh wht bent), dissm pyr, rthy, frm-sft; NSF
SHARON SPRINGS: 7095' MD; 7055' TVD; -2178' SS
NIOBR 7119'T
MD 7121 TVD 7076.79
INC 38.37 AZ 5.33
VS 349.05
SH: blk-dk gy, plty-sb plty, v carb, non -v sl calc, slty ip, tr ss vf gr, cly mtrx, mic lam, 5% min fluor (gnsh wht bent), dissm pyr, rthy, frm-sft; NSF
MRLST
calc, m
bent),
mrl, rth
mlky c
Scale Change
6700 TVD
6750
6800
6900
7000
7100
7200
SplPics
Oil Shows
Total Gas, C1-C5
TG (units)
C1 (units)
C2 (units)
C3 (units)
C4 (units)
5000
Wt 9.8
Vis 39
Wt 9.9
Vis 39
Wt 10.15
Vis 39

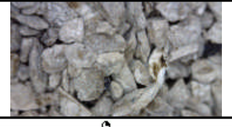

WOB 32
RPM 0
SPM 158
PP 3840
WOB 33.4
RPM 0
SPM 168
PP 3870
12:00 - 12.20.14
WOB 51.9K
RPM 0
SPM 85/84
PP 3962
Total gas (units)
MWD GR (API)
7200
7250
7300
7350
7400
7450
7500
7550

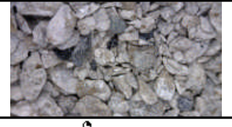

7100 TVD
MRLST (60%): shly blk-dk gy, plty, v carb, v calc, mic lam, cly mtrx, 1% min fluor (wht bent), pyr grs, occ cal wi dissm pyr, mic xln mrl, rthy, frm-sft; CHLK: (40%) dk gy-brnsh gy, mot wi brn, plty-sb plty, v carb, v calc, wht cal wi dissm pyr, arg, mic xln, chlky, frm-sft ;NSF mod fst difse strmng mlky cut, wk lt yel res rng.
MD 7184 TVD 7112.38
INC 38.49 AZ 2.51
VS 367.40
ARA: 7172' MD; 7150' TVD; -2244' SS
7150
MD 7207 TVD 7148.04
INC 39.91 AZ 0.55
VS 396.2
(100%): shly blk-dk gy, plty, v carb, v , cly mtrx, 1% min fluor (wht , occ cal wi dissm pyr, mic xln , frm-sft; NSF mod fst difse strmng , wk lt yel res rng.
7200
7280 TVD
MRLST (60%): shly blk-dk gy, plty, v carb, v calc, mic lam, cly mtrx, 1% min fluor (wht bent), pyr grs, occ cal wi dissm pyr, mic xln mrl, rthy, frm-sft; CHLK: (40%) dk gy-brnsh gy, mot wi brn, plty-sb plty, v carb, v calc, wht cal wi dissm pyr, arg, mic xln, chlky, frm-sft; NSF mod fst difse strmng mlky cut, wk lt yel res rng.
MD 7292 TVD 7212.89
INC 41.13 AZ 358.25
VS 451.03
NIOBRARA "B" CHALK: 7248' MD; 7180' TVD; -2305' SS
Scale Change
7250
MD 7249 TVD 7181.07
INC 40.33 AZ 358.24
VS 422.14
7300
NIOBRARA "C" CHALK: 7338' MD; 7245' TVD; -2370' SS
MRLST (95%): shly blk-dk gy, plty, v carb, v calc, mic lam, cly mtrx, 1% min fluor (wht bent), pyr grs, occ cal wi dissm pyr, mic xln mrl, rthy, frm-sft; CHLK (5%): blk-dk gy, dk gy-brnsh gy, mot wi brn, plty-sb plty, v carb, v calc, wht cal wi dissm pyr, arg, mic xln, chlky, frm-sft;NSF mod fst difse strmng mlky cut, wk lt yel res rng.
MD 7324 TVD 7242.25
INC 47.16 AZ 358.69
VS 481.05
CHLK (85%): blk-dk gy, dk gy-brnsh gy, mot wi brn, plty-sb plty, v carb, v calc, wht cal wi dissm pyr, arg, mic xln, chlky, frm-sft; MRLST (15%): shly blk-dk gy, plty, v carb, v calc, mic lam, cly mtrx, 1% min fluor (wht bent), pyr grs, occ cal wi dissm pyr, mic xln mrl, rthy, frm-sft; NSF mod fst difse strmng mlky cut, wk lt yel res rng.
MD 7376 TVD 7269.29
INC 52.83 AZ 358.46
VS 513.15
7200 TVD
7300 TVD
MRLST (95%): shly blk-dk gy, plty, v carb, v calc, mic lam, cly mtrx, <1% min fluor (wht bent), CHLK (5%): blk-dk gy, dk gy-brnsh gy, mot wi brn, plty-sb plty, v carb, v calc, wht cal, arg, mic xln, chlky, frm-sft; NSF mod fst difse strmng mlky cut, wk lt yel res rng.
Scale Change
7350
MD 7418 TVD 7283.31
INC 57.59 AZ 359.3
VS 547.56
7400
MD 7428 TVD 7314.6
INC 61.48 AZ 359.39
VS 583.78
MRLST (98%): shly blk-dk gy, plty, v carb, v calc, mic lam, cly mtrx, silty; LS (2%) lt gy-crm, blky-plty, mot, abdt wht pel incl+wht calc cmt, sm wvy lams; NSF mod fst difse strmng mlky cut, wk lt yel res rng.
MD 7502 TVD 7333.59
INC 64.94 AZ 0.56
VS 621.27
MD 7568 TVD 7350.2
INC 68.29 AZ 0.36
VS 659.86
MRLST (90%): shly blk-dk gy, plty, v carb, v calc, mic lam, cly mtrx, silty; LS (10%) lt gy-crm, blky-plty, mot, abdt wht pel incl+wht calc cmt, sm wvy lams; NSF mod fst difse strmng mlky cut, wk lt yel res rng.
MRLST (60%): shly blk-dk gy, plty, v carb, v calc, mic lam, cly mtrx, silty; LS (40%) lt gy-crm-wht, silty, plty, mot, abdt wht pel incl+wht calc cmt, sm pyr + bent (1% min fluor (wht bent)) sm wvy lams; NSF mod fst difse strmng mlky cut, wk lt yel res rng.
MD 7686 TVD 736
INC 70.62 AZ 0.06
VS 699.15

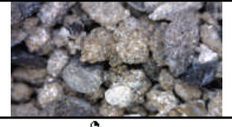

Total gas (units)
C1 (units)
C2 (units)
C3 (units)
C4 (units)
Wt 10.1
Vis 39
Mud Data @ 5760'
Wt 9.0
Vis 35
PV/YP 7/7
Gel 3/8/11
FL 6.8/2
Sol 4.5%
H2O 95.5
Sd 0.3%
Wt 9.8
Vis 45
MW 10.10
VIS 38

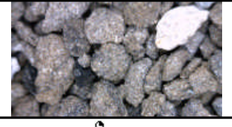

WOB 46.5k
RPM 10
SPM 85/84
PP 3983
18:35 - 12.20.2014
00:00 - 02.06.15
WOB 13.9k
RPM 41
SPM 78
PP 2796
WOB 16.6k
RPM 61
SPM 85
PP 3302
7650
7700
7750
7800
7850
7900
7950
8000

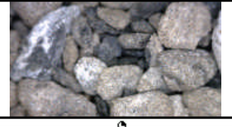

7350 TVD
Ft. Hays LS: 7609' MD; 7372' TVD; -2497' SS
Codell SS: 7701' MD; 7392' TVD; -2517' SS
MD 7629 TVD 7377.87
INC 73.96 AZ 359.27
VS 740.13
MD 7671 TVD 7387.26
INC 79.94 AZ 359.93
VS 781.03
MD 7714 TVD 7393.24
INC 84.32 AZ 359.87
VS 823.61
MD 7753 TVD 7396.9
INC 84.91 AZ 0.49
VS 862.44
REACHED ICP 7798' @ 18:35 12/20/2014
Bit #3: 6.125", Varel, VS516DU, SN 4007979, 5/18,
DI 7798', DO 15046', Ftge 7248', 29.5 Hrs
Bit - Survey 43'
Bit - Gamma 45.51'
Ft. HAYS LS
CODELL SS
MD 7872 TVD 7401.64
INC 90.52 AZ 0.22
VS 981.3
Scale Change
7400
7450
Begin lateral on Friday 06 February 2015
@ 11:30
Tag Float @ 7696'
Tag Shoe @ 7786'
LS (100%) lt gy-crm-wht, silty, plty, sft, mot, abdt wht pel incl+wht calc cmt, sm wvy lams; MRLST (tr) blk, plty, v carb, v calc, mxln, slty ip, fm-hd; NSF mod fst difse strmng mlky cut, wk lt yel res rng.
LS (100%) lt gy-crm-wht, silty, plty, sft, mot, abdt wht pel incl+wht calc cmt, sm wvy lams; MRLST (tr) blk, plty, v carb, v calc, mxln, slty ip, fm-hd; NSF mod fst difse strmng mlky cut, wk lt yel res rng.
SS (99%) blk occ lt gy, qz arnt, blky, fm-hd, wl rnd, qz gr, vf-f, wl-md srtd, v calc, v arg blk mtrx, LS (1%) lt gy-crm-wht, silty, plty, sft, mot, abdt wht pel incl+wht calc cmt, sm wvy lams; NSF mod fst difse strmng mlky cut, wk lt yel res rng.
SS (100%) blk occ lt gy, qz arnt, blky, fm-hd, wl rnd, qz gr, vf-f, wl-md srtd, v calc, v arg blk mtrx; NSF mod fst difse strmng mlky cut, wk lt yel res rng.
SS (80%) blk occ lt gy, qz arnt, abdt wht lthc incl (pels), occ dfmd-flatd, blky, fm-crmbly, wl rnd-sbang, qz gr, vf-f, wl-md srtd, vsli-non calc, v arg blk mtrx; SH (20%) dk blk-blu-gy, mc-cryp-xln, plty, unfm, wxy-rthy, v carb ip; NF wk cut, lt yel res ring (OBM contam).
SS (95%) blk lt gy-tan, qz arnt, abdt wht lthc incl (pels), occ dfmd-flatd, blky, fm-crmbly, wl rnd-sbang, qz gr, vf-f, wl-md srtd, vsli-non calc, v arg blk-tan cly mtrx, occ hi carb lyr, sm pyr assoc w/ carb ptgs; SH (5%) dk blk-blu-gy, mc-cryp-xln, plty+fiss, unfm, wxy-rthy, v carb ip; NF wk cut, lt yel res ring (OBM contam).
SS (98%) blk lt gy-ta blky, fm-crmbly, wl arg blk-tan cly mtrx plty+fiss, unfm, wx contam).
Ft. HAYS LS
CODELL SS

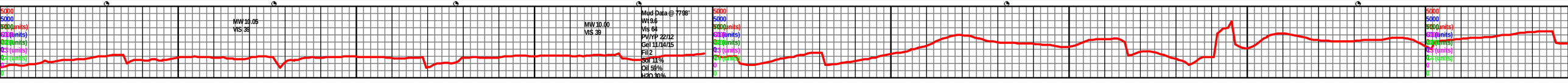


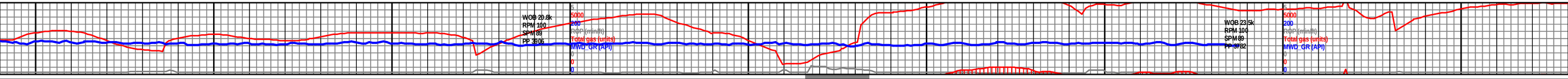









MW 10.05
VIS 39
MW 10.00
VIS 39
Mud Data @ 7798'
Wt 9.6
Vis 64
PV/YP 22/12
Gel 11/14/15
Fil 2
Sol 11%
Oil 59%
H2O 30%



8050 8100 8150 8200 8250 8300 8350 8400 8450

7350 TVD

FL HAYS LS

7400

MD 8044 TVD 7400.17
INC 90.46 AZ 359.98
VS 1153.29

MD 8215 TVD 7398.75
INC 90.49 AZ 358.79
VS 1324.27

CODELL SS

MD 8386 TVD 7395.78
INC 90.83 AZ 0.57
VS 1495.25

7450

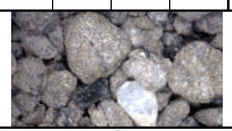
, qz arnt, abdt wht lthc incl (pels), occ dfmd-flatd, -sbang, qz gr, vf-f, wl-md srtd, vsli-non calc, v , occ hi carb lyr; SH (2%) dk blk-blu-gy, mc-cryp-xln, -rthy, v carb ip; NF wk cut, lt yel res ring (OBM

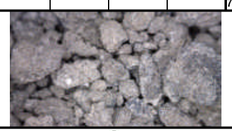
SS (100%) blk lt gy-tan, qz arnt, abdt wht lthc incl (pels), occ dfmd-flatd, blky, fm-crmbly, wl rnd-sbang, qz gr, vf-f, wl-md srtd, vsli-non calc, v arg blk-tan cly mtrx, occ hi carb lyr; SH (tr%) dk blk, mc-cryp-xln, plty+fiss, unfm, wxy-rthy, v carb ip; NF wk cut, lt yel res ring (OBM contam).

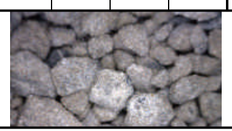
SS (100%) blk lt gy-tan, qz arnt, abdt wht lthc incl (pels), occ dfmd-flatd, blky, fm-crmbly, wl rnd-sbang, qz gr, vf-f, wl-md srtd, vsli-non calc, v arg blk-tan cly mtrx; NF wk cut, lt yel res ring (OBM contam).

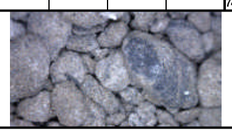
SS (100%) blk lt gy-tan-brn, qz arnt, abdt wht lthc incl (pels), occ dfmd-flatd, blky, fm-crmbly, wl rnd-sbang, qz gr, vf-f, wl-md srtd, vsli-non calc, v arg blk-tan cly mtrx, occ blkwvy sh m-lam, tr pyr; NF wk cut, lt yel res ring (OBM contam).

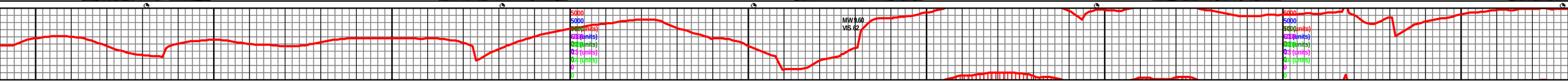
SS (100%) blk lt gy-tan-brn, qz arnt, abdt wht lthc incl (pels), occ dfmd-flatd, blky, fm-crmbly, wl rnd-sbang, qz gr, vf-f, wl-md srtd, vsli-non calc, v arg blk-tan cly mtrx, occ blkwvy sh m-lam; NF wk cut, lt yel res ring (OBM contam).

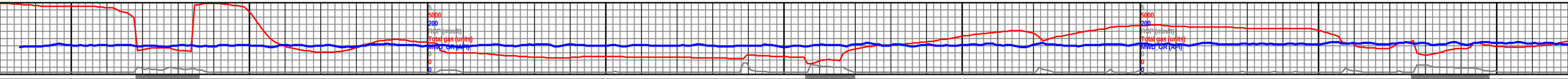












7350 TVD

1'-2' wavy flare

Ft. HAYS LS

MD 8557 TVD 7395.59
INC 89.97 AZ 0.32
VS 1666.24

7400

CODELL SS

MD 8728 TVD 7396.96
INC 89.11 AZ 359.43
VS 1837.23

MD 8899 TVD 7398.84
INC 89.63 AZ 0.2
VS 2008.22

SS (100%) blk lt gy-tan-brn, qz arnt, abdt wht lthc incl (pels), occ dfmd-flatd, blky, fm-crmbly, wl rnd-sbang, qz gr, vf-f, wl-md srtd, vsli-non calc, v arg blk-tan cly mtrx, occ blkwvy sh m-lam; SH (tr) dk blk, mc-cryp-xln, plty+fiss, unfm, wxy-rthy, v carb; NF wk cut, lt yel res ring (OBM contam).

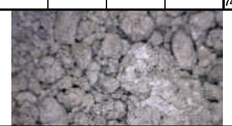
SS (100%) blk lt gy-tan-brn, qz arnt, abdt wht lthc incl (pels), occ dfmd-flatd, blky, fm-crmbly, wl rnd-sbang qz gr, vf-f, wl-md srtd, vsli-non calc; sm whtsh v calc frac-fill cmt, v arg blk-tan cly mtrx, occ blk wvy sh m-lam; SH (tr) dk blk, mc-cryp-xln, plty+fiss, unfm, wxy-rthy, v carb; NF wk cut, lt yel res ring (OBM contam).

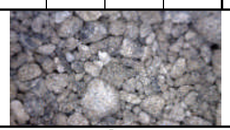
SS (100%) blk lt gy-tan-brn, qz arnt, abdt wht lthc incl (pels), occ dfmd-flatd, blky, fm-crmbly, wl rnd-sbang qz gr, vf-f, wl-md srtd, vsli-non calc; sm whtsh v calc frac-fill cmt, v arg blk-tan cly mtrx, occ blk wvy sh m-lam; SH (tr) dk blk, mc-cryp-xln, plty+fiss, unfm, wxy-rthy, v carb; NF wk cut, lt yel res ring (OBM contam).

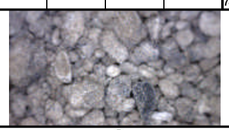
SS (99%) blk lt gy-tan-brn, qz arnt, abdt wht lthc incl (pels), occ dfmd-flatd, blky, fm-crmbly, wl rnd-sbang qz gr, vf-f, wl-md srtd, vsli-non calc; sm whtsh v calc frac-fill cmt, v arg blk-tan cly mtrx, occ blk wvy sh m-lam; SH (1%) dk blk, mc-cryp-xln, plty+fiss, unfm, wxy-rthy, v carb; NF wk cut, lt yel res ring (OBM contam).

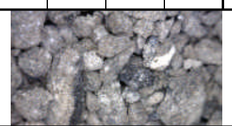
SS (99
blky, f
v calc
blk, m
(OBM c

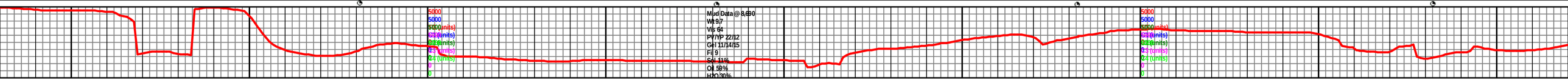
7450

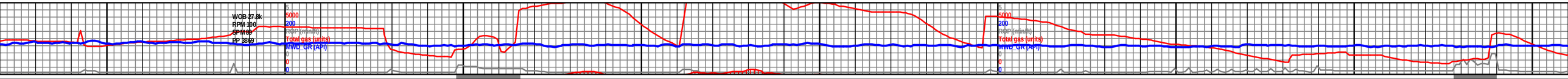


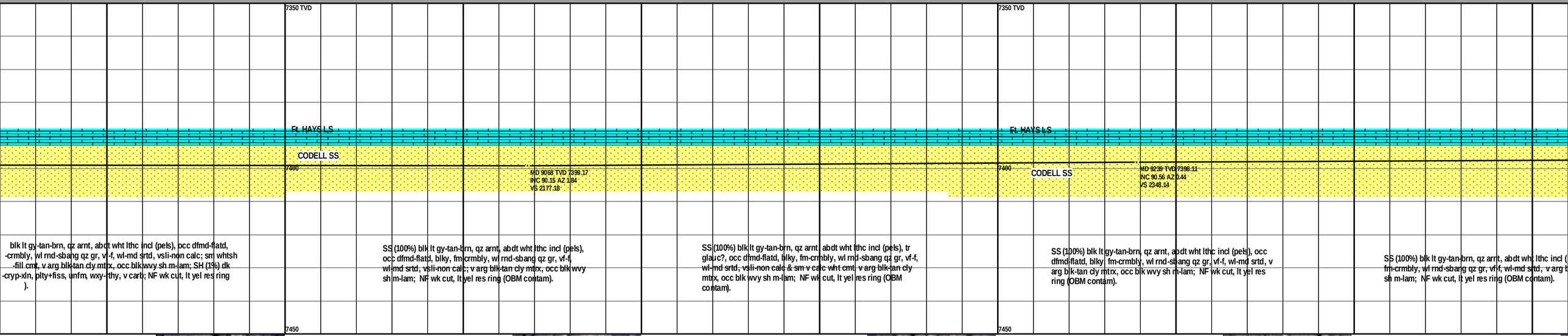












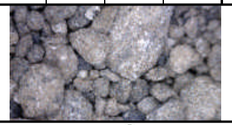
blk lt gy-tan-brn, qz arnt, abdt wht lthc incl (pels), occ dfmd-flatd, -crmbly, wl rnd-sbang qz gr, vf-f, wl-md srtd, vsli-non calc; sm whtsh -fill cmt, v arg blk-tan cly mtrx, occ blk wvy sh m-lam; SH (1%) dk -cryp-xln, plty+fiss, unfm, wxy-thy, v carb; NF wk cut, lt yel res ring).

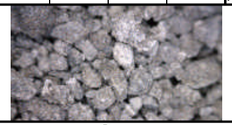
SS (100%) blk lt gy-tan-brn, qz arnt, abdt wht lthc incl (pels), occ dfmd-flatd, blky, fm-crmbly, wl rnd-sbang qz gr, vf-f, wl-md srtd, vsli-non calc; v arg blk-tan cly mtrx, occ blk wvy sh m-lam; NF wk cut, lt yel res ring (OBM contam).

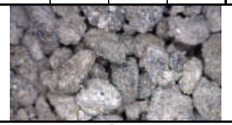
SS (100%) blk lt gy-tan-brn, qz arnt, abdt wht lthc incl (pels), tr glauc?, occ dfmd-flatd, blky, fm-crmbly, wl rnd-sbang qz gr, vf-f, wl-md srtd, vsli-non calc & sm v calc wht cmt, v arg blk-tan cly mtrx, occ blk wvy sh m-lam; NF wk cut, lt yel res ring (OBM contam).

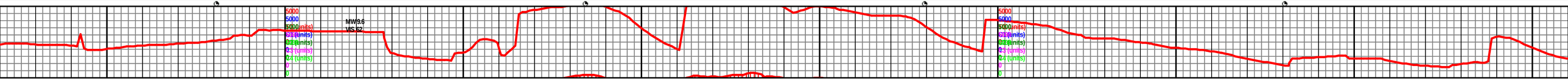
SS (100%) blk lt gy-tan-brn, qz arnt, abdt wht lthc incl (pels), occ dfmd-flatd, blky, fm-crmbly, wl rnd-sbang qz gr, vf-f, wl-md srtd, v arg blk-tan cly mtrx, occ blk wvy sh m-lam; NF wk cut, lt yel res ring (OBM contam).

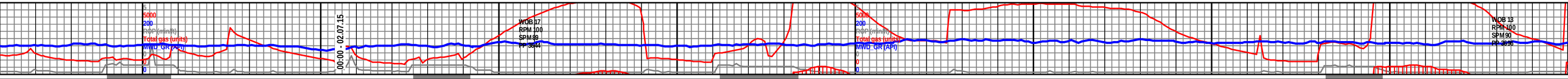
SS (100%) blk lt gy-tan-brn, qz arnt, abdt wht lthc incl (fm-crmbly, wl rnd-sbang qz gr, vf-f, wl-md srtd, v arg b sh m-lam; NF wk cut, lt yel res ring (OBM contam).

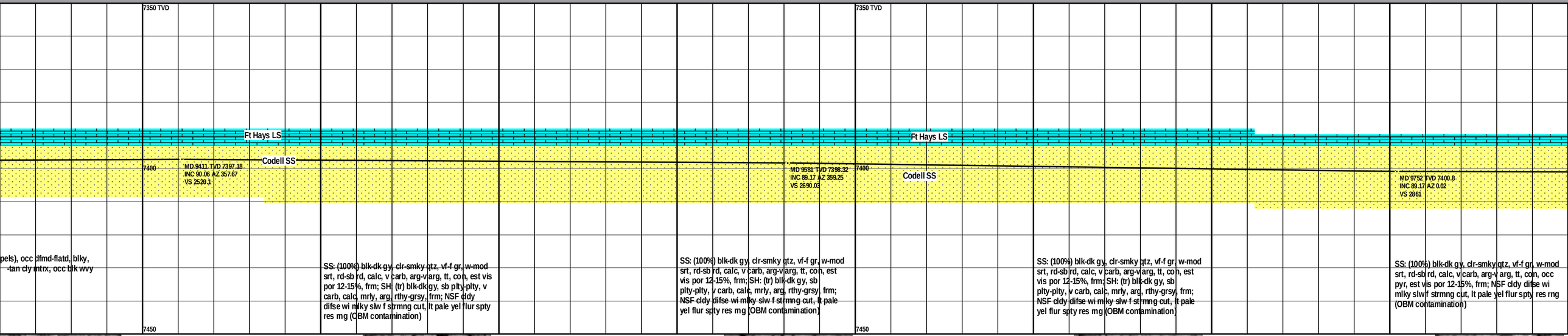


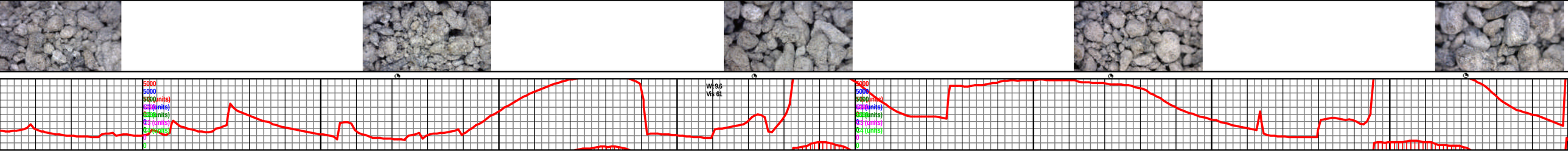


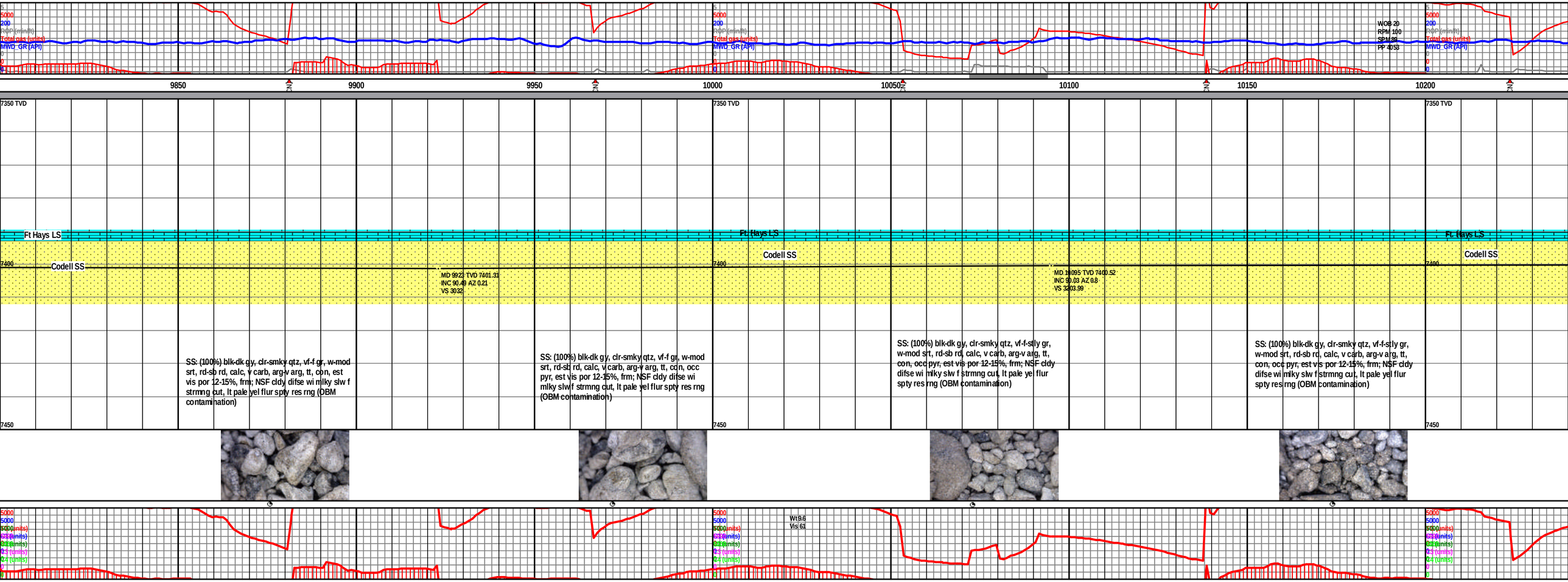


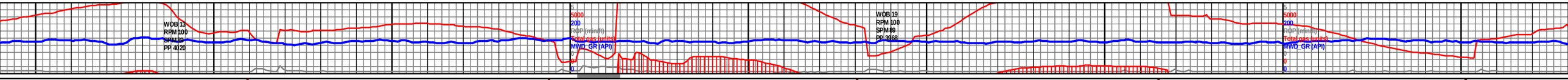


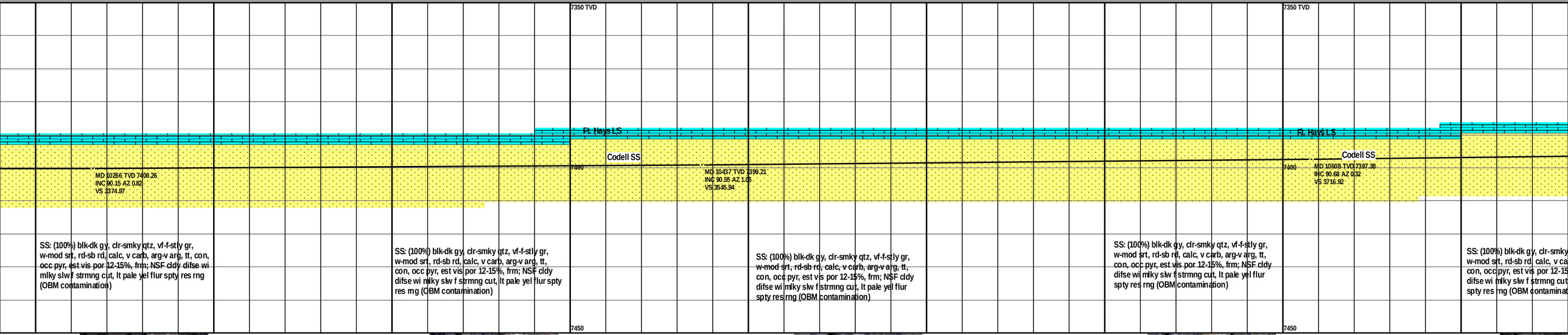

5000
200
ROP (min/ft)
Total gas (units)
MWD_GR (API)
0
00:00 - 02.07.15
WOB 17
RPM 100
SPM 89
PP 3844
WOB 13
RPM 100
SPM 90
PP 3836
9400
9450
9500
9550
9600
9650
9700
9750

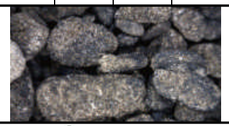

7350 TVD
Ft Hays LS
Codell SS
7400
MD 9411 TVD 7397.18
INC 90.06 AZ 357.67
VS 2520.1
MD 9581 TVD 7398.32
INC 89.17 AZ 359.25
VS 2690.03
MD 9752 TVD 7400.8
INC 89.17 AZ 0.02
VS 2861
7450
pels), occ dfmd-flatd, blky,
tan cly intrx, occ blk wvy
SS: (100%) blk-dk gy, clr-smky qtz, vf-f gr, w-mod srt, rd-sb rd, calc, v carb, arg-v arg, tt, con, est vis por 12-15%, frm; SH: (tr) blk-dk gy, sb plty-plty, v carb, calc, mrly, arg, rthy-grsy, frm; NSF cldy difse wi mlky slw f strmng cut, lt pale yel flur spty res mg (OBM contamination)
SS: (100%) blk-dk gy, clr-smky qtz, vf-f gr, w-mod srt, rd-sb rd, calc, v carb, arg-v arg, tt, con, est vis por 12-15%, frm; SH: (tr) blk-dk gy, sb plty-plty, v carb, calc, mrly, arg, rthy-grsy, frm; NSF cldy difse wi mlky slw f strmng cut, lt pale yel flur spty res mg (OBM contamination)
SS: (100%) blk-dk gy, clr-smky qtz, vf-f gr, w-mod srt, rd-sb rd, calc, v carb, arg-v arg, tt, con, est vis por 12-15%, frm; SH: (tr) blk-dk gy, sb plty-plty, v carb, calc, mrly, arg, rthy-grsy, frm; NSF cldy difse wi mlky slw f strmng cut, lt pale yel flur spty res mg (OBM contamination)
SS: (100%) blk-dk gy, clr-smky qtz, vf-f gr, w-mod srt, rd-sb rd, calc, v carb, arg-v arg, tt, con, occ pyr, est vis por 12-15%, frm; NSF cldy difse wi mlky slw f strmng cut, lt pale yel flur spty res rng (OBM contamination)

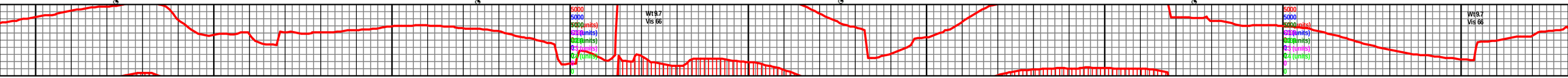

5000
C1 (units)
C2 (units)
C3 (units)
C4 (units)
0
Wt 9.6
Vis 61

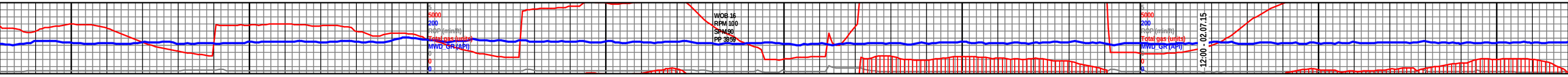

5000
200
ROP (min/ft)
Total gas (units)
MWD_GR (API)
WOB 20
RPM 100
SPM 80
PP 4053
9850
9900
9950
10000
10050
10100
10150
10200
7350 TVD
Ft Hays LS
Codell SS
7400
7450
MD 9923 TVD 7401.31
INC 90.49 AZ 0.21
VS 3032
MD 10095 TVD 7400.52
INC 90.03 AZ 0.8
VS 3203.99
SS: (100%) blk-dk gy, clr-smky qtz, vf-f gr, w-mod srt, rd-sb rd, calc, v carb, arg-v arg, tt, con, est vis por 12-15%, frm; NSF cldy difse wi mlky slw f strmng cut, lt pale yel flur spty res rng (OBM contamination)
Wt 9.6
Vis 61


WOB 13
RPM 100
SPM 89
PP 4020
WOB 19
RPM 100
SPM 89
PP 3968
5000
200
ROP (min/ft)
Total gas (units)
MWD_GR (API)
10250
10300
10350
10400
10450
10500
10550
10600
10650


7350 TVD
Ft. Hays LS
Codell SS
7400
7450
MD 10266 TVD 7400.26
INC 90.15 AZ 0.82
VS 3374.97
MD 10437 TVD 7399.21
INC 90.55 AZ 1.05
VS 3545.94
MD 10608 TVD 7397.38
INC 90.68 AZ 0.32
VS 3716.92
SS: (100%) blk-dk gy, clr-smky qtz, vf-f-stly gr, w-mod srt, rd-sb rd, calc, v carb, arg-v arg, tt, con, occ pyr, est vis por 12-15%, frm; NSF cldy difse wi mlky slw f strmng cut, lt pale yel flur spty res rng (OBM contamination)




5000
Wt 9.7
Vis 66



10700 10750 10800 10850 10900 10950 11000 11050 11100

7350 TVD

Ft Hays LS

MD 10779 TVD 7395.3
INC 90.71 AZ 359.82
VS 3887.9

7400 Codell SS

MD 10950 TVD 7394.15
INC 90.06 AZ 0.6
VS 4058.9

7450

, vf-f-stly gr,
, arg-v arg, tt,
%, frm; NSF cldy
, lt pale yel flur
)

SS: (100%) blk-dk gy, clr-smky qtz, vf-f-stly gr, w-mod srt, rd-sb rd calc, v carb, arg-v arg, tt, con, occ pyr, est vis por 12-15%, frm; NSF cldy difse wi mky slw f strmng cut, lt pale yel flur spty res ring (OBM contamination)

SS: (100%) blk-dk gy, clr-smky qtz, vf-f-stly gr, w-mod srt, rd-sb rd calc, v carb, arg-v arg, tt, con, occ pyr, est vis por 12-15%, frm; NSF cldy difse wi mky slw f strmng cut, lt pale yel flur spty res ring (OBM contamination)

SS (100%) blk lt gy-tan-brn, qz arnt, abdt wht lthc incl (pels), occ dfmd-flatd, blky, fm-crmbly, wl rnd-sbang qz gr, vf-f, wl-md srtd, v arg blk-tan cly mtrx, occ blk wvy sh m-lam, tr pyr & glauc; NF wk cut, lt yel res ring (OBM contam).

7350 TVD

Ft Hays LS

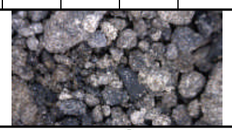
Codell SS

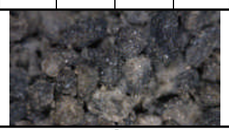
7400

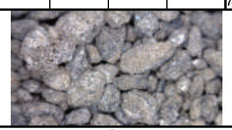
7450

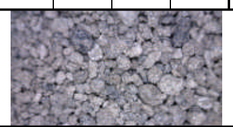
SS (100%) blk lt gy-tan-brn, qz arnt, abdt wht lthc incl (pels), occ dfmd-flatd, blky, fm-crmbly, wl rnd-sbang qz gr, vf-f, wl-md srtd, v arg blk-tan cly mtrx, occ blk wvy sh m-lam, tr blk carb sh; NF wk cut, lt yel res ring (OBM contam).

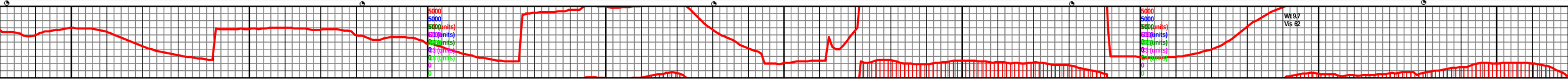
SS (
(pels
blky,
arg l
NF

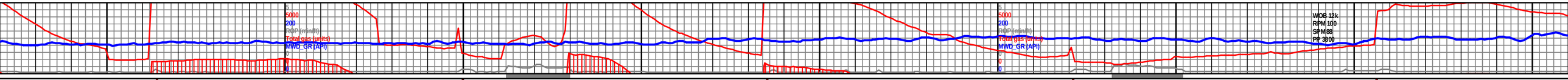












11150 11200 11250 11300 11350 11400 11450 11500 11550

7350 TVD

Ft. Hays LS

Codell SS

MD 11120 TVD 7393.29
INC 90.52 AZ 0.02
VS 4228.89

7400

%) blk lt gy-tan-brn, qz arnt, abdt wht lthc incl
), tr blu glauc, occ pyr, sm mica, occ dfmd-flatd,
fm-crmbly, wl rnd-sbang qz gr, vf-f, wl-md srtd, v
-tan cly mtrx, occ blk wvy sh m-lam, tr blk carb sh;
, lt yel res ring (OBM contam).

7450

SS (100%) blk lt gy-tan-brn, qz arnt, abdt wht lthc incl (pels),
tr blu glauc, occ pyr, sm mica, occ dfmd-flatd, blky,
fm-crmbly, wl rnd-sbang qz gr, vf-f, wl-md srtd, v arg blk-tan
cly mtrx, occ blk wvy sh m-lam, tr blk carb sh; NF wk cut, lt
yel res ring (OBM contam).

MD 11292 TVD 7392.74
INC 89.85 AZ 0.46
VS 4400.38

SS (99%) blk lt gy-tan-brn, qz arnt, abdt wht lthc incl (pels), tr blu
glauc, occ pyr, sm mica, occ dfmd-flatd, blky, fm-crmbly, wl
rnd-sbang qz gr, vf-f, wl-md srtd, v arg blk-tan cly mtrx, occ blk
wvy sh m-lam; SH (1%) dk blk, mc-cryp-xln, plty+fiss, unfm,
wxy-rthy, v carb; NF wk cut, lt yel res ring (OBM contam).

7350 TVD

Ft Hays LS

Codell SS

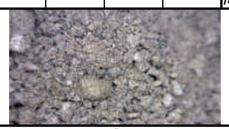
7400

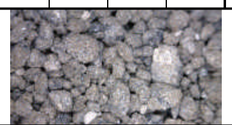
MD 11463 TVD 7393.98
INC 89.32 AZ 1.79
VS 4571.84

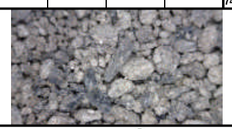
7450

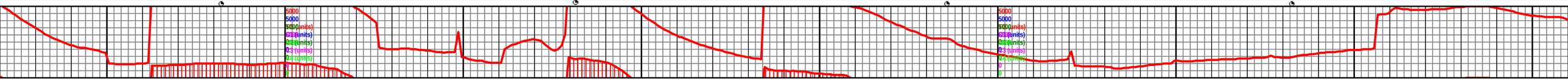
SS (90%) blk lt gy-tan-brn, qz arnt, abdt wht lthc incl (pels), tr blu
glauc, occ pyr, sm mica, occ dfmd-flatd, blky, fm-crmbly, wl rnd-sbang
qz gr, vf-f, wl-md srtd, v arg blk-tan cly mtrx, occ blk wvy sh m-lam; SH
(10%) dk blk, mc-cryp-xln, plty+fiss, unfm, wxy-rthy, v carb; NF wk cut,
lt yel res ring (OBM contam).

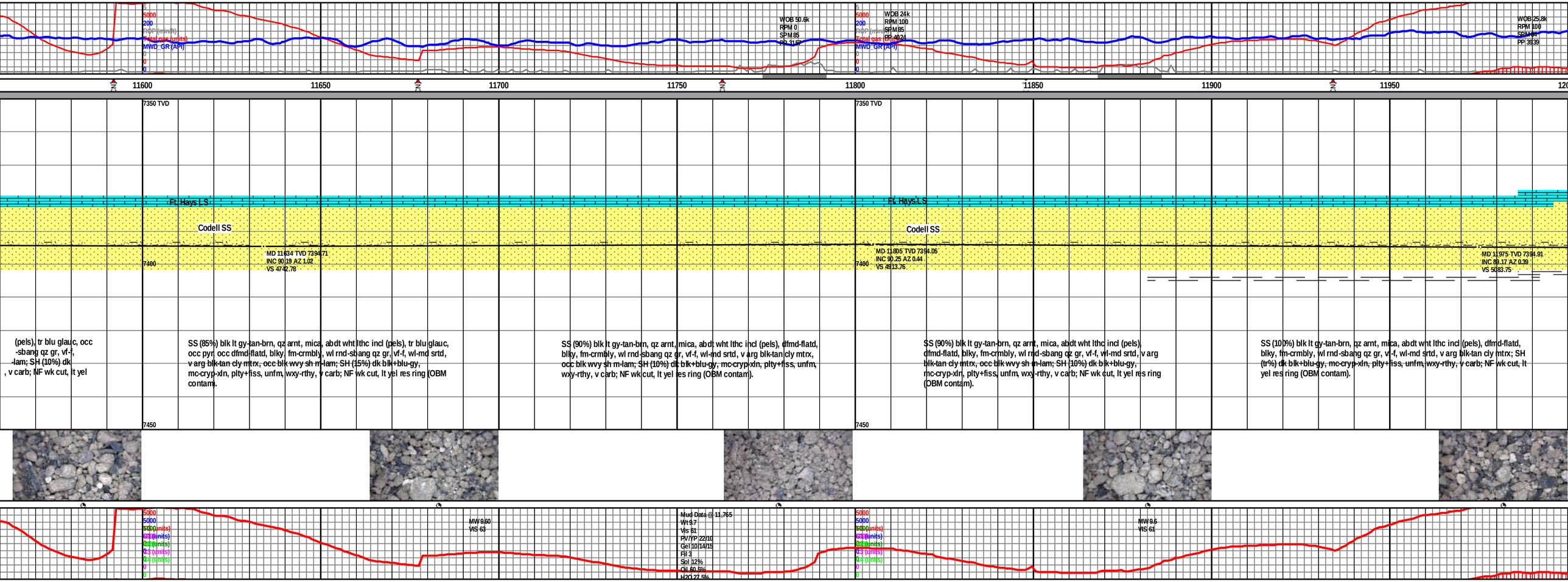
SS (90%) blk lt gy-tan-brn, qz arnt, abdt wht lthc
pyr, sm mica, occ dfmd-flatd, blky, fm-crmbly, w
wl-md srtd, v arg blk-tan cly mtrx, occ blk wvy sh
blk+blu-gy, mc-cryp-xln, plty+fiss, unfm, wxy-rth
res ring (OBM contam).

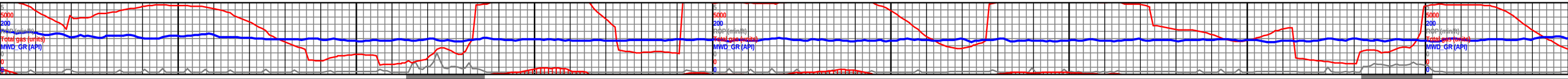


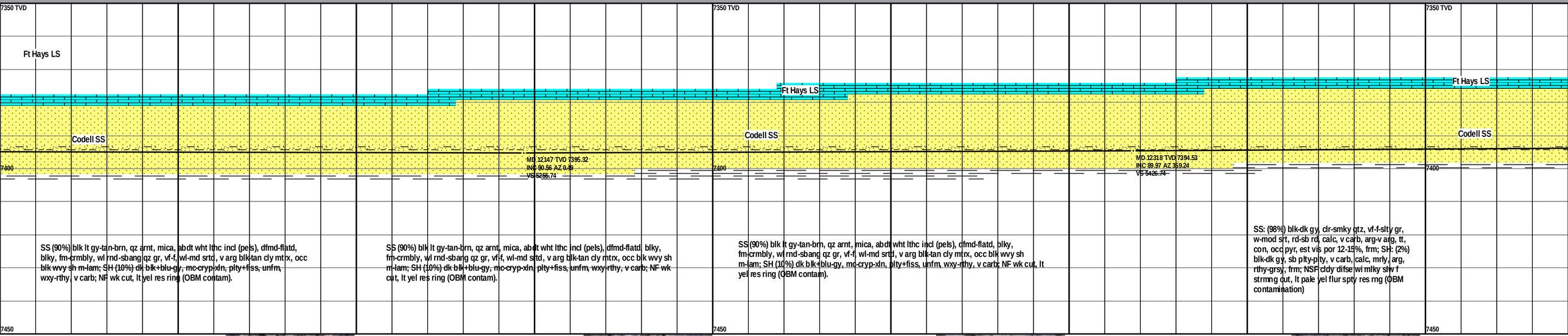


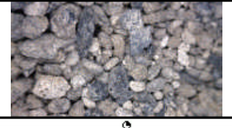


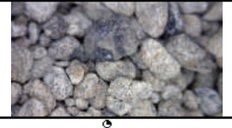


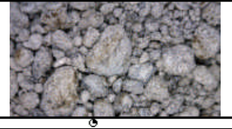

WOB 50.6k
RPM 0
SPM 85
PP 3157
WOB 24k
RPM 100
SPM 85
PP 4024
WOB 25.8k
RPM 100
SPM 84
PP 3939
5000
200
Total gas (units)
MWD_GR (API)
0
11600
11650
11700
11750
11800
11850
11900
11950
7350 TVD
Ft. Hays LS
Codell SS
7400
MD 11634 TVD 7394.71
INC 90.19 AZ 1.02
VS 4742.78
MD 11805 TVD 7394.05
INC 90.25 AZ 0.44
VS 4913.76
MD 11975 TVD 7394.91
INC 89.17 AZ 0.39
VS 5083.75
7450
(pels), tr blu glauc, occ
-sbang qz gr, vf-f,
-lam; SH (10%) dk
, v carb; NF wk cut, lt yel
SS (85%) blk lt gy-tan-brn, qz arnt, mica, abdt wht lthc incl (pels), tr blu glauc, occ pyri occ dfmd-flatd, blky fm-crmbly, wl rnd-sbang qz gr, vf-f, wl-md srtd, v arg blk-tan cly mtrx, occ blk wvy sh m-lam; SH (15%) dk blk+blu-gy, mc-cryp-xln, plty+fiss, unfm, wxy-rthy, v carb; NF wk cut, lt yel res ring (OBM contam).
SS (90%) blk lt gy-tan-brn, qz arnt, mica, abdt wht lthc incl (pels), dfmd-flatd, blky, fm-crmbly, wl rnd-sbang qz gr, vf-f, wl-md srtd, v arg blk-tan cly mtrx, occ blk wvy sh m-lam; SH (10%) dk blk+blu-gy, mc-cryp-xln, plty+fiss, unfm, wxy-rthy, v carb; NF wk cut, lt yel res ring (OBM contam).
SS (90%) blk lt gy-tan-brn, qz arnt, mica, abdt wht lthc incl (pels), dfmd-flatd, blky, fm-crmbly, wl rnd-sbang qz gr, vf-f, wl-md srtd, v arg blk-tan cly mtrx, occ blk wvy sh m-lam; SH (10%) dk blk+blu-gy, mc-cryp-xln, plty+fiss, unfm, wxy-rthy, v carb; NF wk cut, lt yel res ring (OBM contam).
SS (100%) blk lt gy-tan-brn, qz arnt, mica, abdt wht lthc incl (pels), dfmd-flatd, blky, fm-crmbly, wl rnd-sbang qz gr, vf-f, wl-md srtd, v arg blk-tan cly mtrx; SH (tr%) dk blk+blu-gy, mc-cryp-xln, plty+fiss, unfm, wxy-rthy, v carb; NF wk cut, lt yel res ring (OBM contam).
MW 9.60
VIS 63
Mud Data @ 11,765
Wt 9.7
Vis 61
PV/YP 22/10
Gel 10/14/15
Fil 3
Sol 12%
Oil 60.5%
H2O 27.5%
MW 9.6
VIS 61

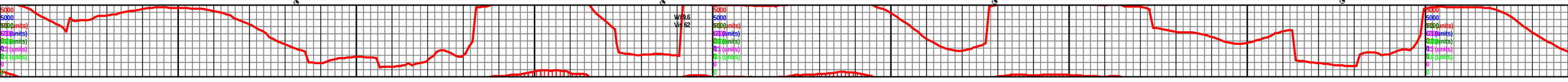

5000
200
ROP (min/ft)
Total gas (units)
MWD_GR (API)
0
12050
12100
12150
12200
12250
12300
12350
12400

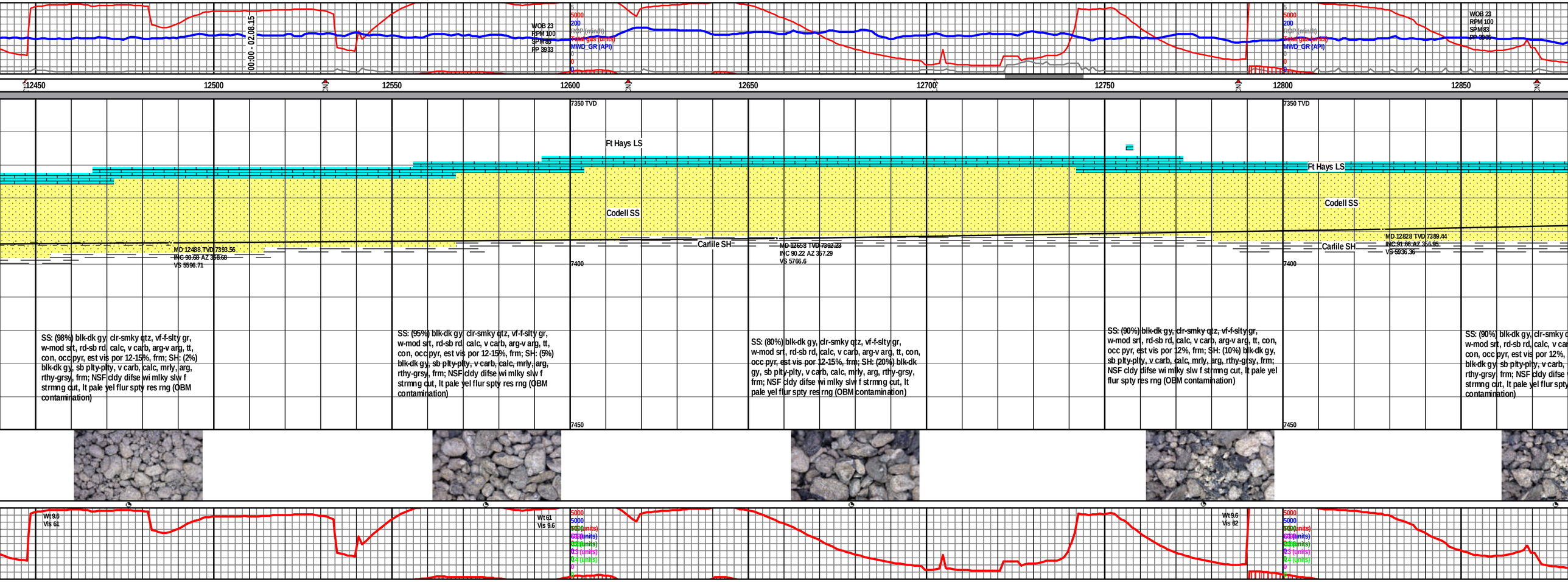

7350 TVD
Ft Hays LS
Codell SS
7400
7450
MD 12147 TVD 7395.32
INC 90.56 AZ 0.49
VS 5255.74
MD 12318 TVD 7394.53
INC 89.97 AZ 359.24
VS 5426.74
SS (90%) blk lt gy-tan-brn, qz arnt, mica, abdt wht lthc incl (pels), dfmd-flatd, blky, fm-crmbly, wl rnd-sbang qz gr, vf-f, wl-md srtd, v arg blk-tan cly mtrx, occ blk wvy sh m-lam; SH (10%) dk blk+blu-gy, mc-cryp-xln, plty+fiss, unfm, wxy-rthy, v carb; NF wk cut, lt yel res ring (OBM contam).
SS (90%) blk lt gy-tan-brn, qz arnt, mica, abdt wht lthc incl (pels), dfmd-flatd, blky, fm-crmbly, wl rnd-sbang qz gr, vf-f, wl-md srtd, v arg blk-tan cly mtrx, occ blk wvy sh m-lam; SH (10%) dk blk+blu-gy, mc-cryp-xln, plty+fiss, unfm, wxy-rthy, v carb; NF wk cut, lt yel res ring (OBM contam).
SS (90%) blk lt gy-tan-brn, qz arnt, mica, abdt wht lthc incl (pels), dfmd-flatd, blky, fm-crmbly, wl rnd-sbang qz gr, vf-f, wl-md srtd, v arg blk-tan cly mtrx, occ blk wvy sh m-lam; SH (10%) dk blk+blu-gy, mc-cryp-xln, plty+fiss, unfm, wxy-rthy, v carb; NF wk cut, lt yel res ring (OBM contam).
SS: (98%) blk-dk gy, clr-smky qtz, vf-f-slty gr, w-mod srt, rd-sb rd, calc, v carb, arg-v arg, tt, con, occ pyr, est vis por 12-15%, frm; SH: (2%) blk-dk gy, sb plty-pty, v carb, calc, mrly, arg, rthy-grsy, frm; NSF cldy difse wi mlky slw f strmng cut, lt pale yel flur spty res rng (OBM contamination)

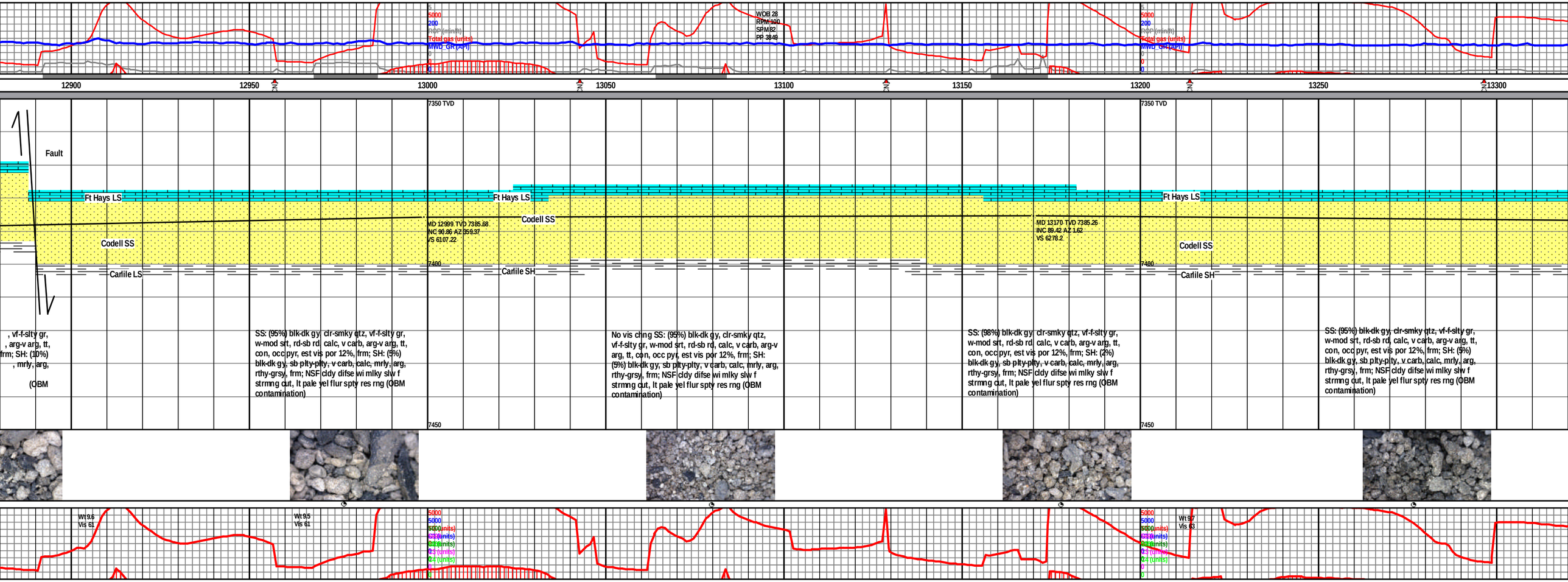


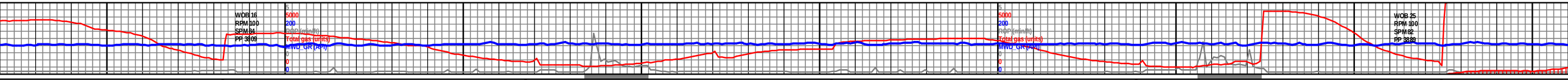


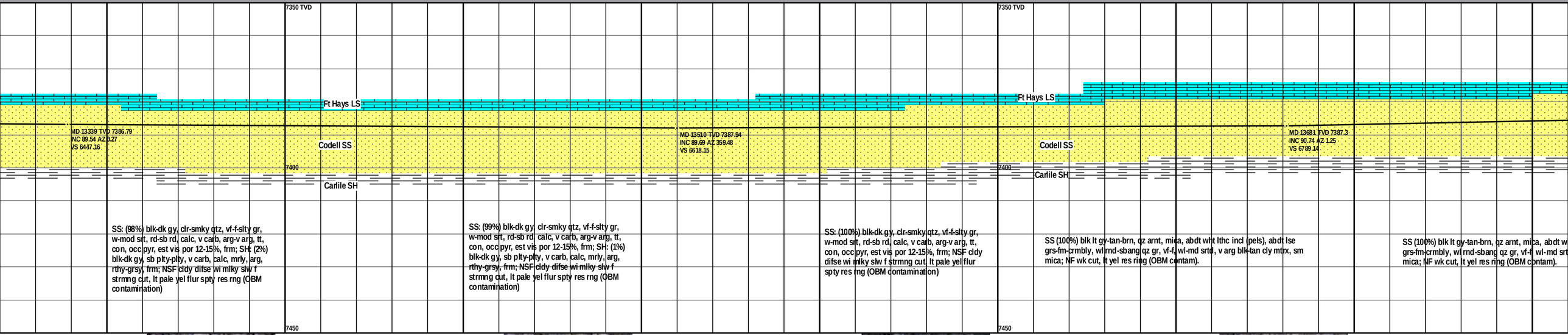


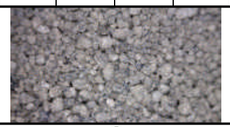

5000
5000
5000 (units)
C1 (units)
C2 (units)
C3 (units)
C4 (units)
0
WT 9.6
VIS 52

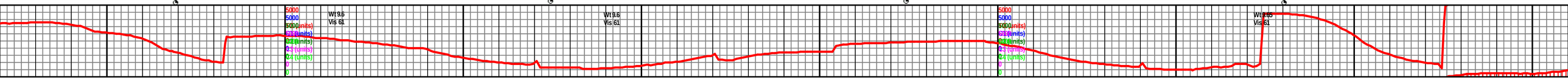

00:00 - 02.08.15
WOB 23
RPM 100
SPM 83
PP 3933
5000
200
ROP (min/ft)
Total gas (units)
MWD_GR (API)
0
12450
12500
12550
12600
12650
12700
12750
12800
12850
7350 TVD
Ft Hays LS
Codell SS
Carlile SH
MD 12488 TVD 7393.56
INC 90.58 AZ 358.68
VS 5596.71
MD 12658 TVD 7392.23
INC 90.22 AZ 357.29
VS 5766.6
MD 12828 TVD 7389.44
INC 91.86 AZ 356.95
VS 5936.36
7400
7450
SS: (98%) blk-dk gy, clr-smky qtz, vf-f-slty gr, w-mod srt, rd-sb rd, calc, v carb, arg-v arg, tt, con, occ pyr, est vis por 12-15%, frm; SH: (2%) blk-dk gy, sb plty-plty, v carb, calc, mrly, arg, rthy-grsy, frm; NSF cldy difse wi mlky slw f strmng cut, lt pale yel flur spty res rng (OBM contamination)
SS: (95%) blk-dk gy, clr-smky qtz, vf-f-slty gr, w-mod srt, rd-sb rd, calc, v carb, arg-v arg, tt, con, occ pyr, est vis por 12-15%, frm; SH: (5%) blk-dk gy, sb plty-plty, v carb, calc, mrly, arg, rthy-grsy, frm; NSF cldy difse wi mlky slw f strmng cut, lt pale yel flur spty res rng (OBM contamination)
SS: (80%) blk-dk gy, clr-smky qtz, vf-f-slty gr, w-mod srt, rd-sb rd, calc, v carb, arg-v arg, tt, con, occ pyr, est vis por 12-15%, frm; SH: (20%) blk-dk gy, sb plty-plty, v carb, calc, mrly, arg, rthy-grsy, frm; NSF cldy difse wi mlky slw f strmng cut, lt pale yel flur spty res rng (OBM contamination)
SS: (90%) blk-dk gy, clr-smky qtz, vf-f-slty gr, w-mod srt, rd-sb rd, calc, v carb, arg-v arg, tt, con, occ pyr, est vis por 12%, frm; SH: (10%) blk-dk gy, sb plty-plty, v carb, calc, mrly, arg, rthy-grsy, frm; NSF cldy difse wi mlky slw f strmng cut, lt pale yel flur spty res rng (OBM contamination)
SS: (90%) blk-dk gy, clr-smky qtz, vf-f-slty gr, w-mod srt, rd-sb rd, calc, v car
con, occ pyr, est vis por 12%,
blk-dk gy, sb plty-plty, v carb,
rthy-grsy, frm; NSF cldy difse
strmng cut, lt pale yel flur spty
contamination)
Wt 9.6
Vis 61
Wt 61
Vis 9.6
Wt 9.6
Vis 62

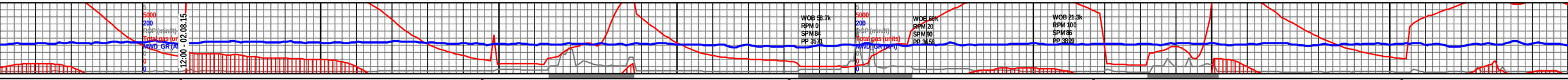

WOB 28
RPM 100
SPM 82
PP 3849
5
5000
200
ROP (min/ft)
Total gas (units)
MWD_GR (API)
0
12900
12950
13000
13050
13100
13150
13200
13250
13300
7350 TVD
Fault
Ft Hays LS
Codell SS
Carlile LS
Carlile SH
MD 12999 TVD 7385.68
INC 90.86 AZ 359.37
VS 6107.22
MD 13170 TVD 7385.26
INC 89.42 AZ 1.62
VS 6278.2
7400
7450
, vf-f-slty gr,
, arg-v arg, tt,
frm; SH: (10%)
, mrly, arg,
(OBM
SS: (95%) blk-dk gy, clr-smky qtz, vf-f-slty gr, w-mod srt, rd-sb rd, calc, v carb, arg-v arg, tt, con, occ pyr, est vis por 12%, frm; SH: (5%) blk-dk gy, sb plty-plty, v carb, calc, mrly, arg, rthy-grsy, frm; NSF cldy difse wi mlky slw f strmng cut, lt pale yel flur spty res rng (OBM contamination)
No vis chng SS: (95%) blk-dk gy, clr-smky qtz, vf-f-slty gr, w-mod srt, rd-sb rd, calc, v carb, arg-v arg, tt, con, occ pyr, est vis por 12%, frm; SH: (5%) blk-dk gy, sb plty-plty, v carb, calc, mrly, arg, rthy-grsy, frm; NSF cldy difse wi mlky slw f strmng cut, lt pale yel flur spty res rng (OBM contamination)
SS: (98%) blk-dk gy, clr-smky qtz, vf-f-slty gr, w-mod srt, rd-sb rd, calc, v carb, arg-v arg, tt, con, occ pyr, est vis por 12%, frm; SH: (2%) blk-dk gy, sb plty-plty, v carb, calc, mrly, arg, rthy-grsy, frm; NSF cldy difse wi mlky slw f strmng cut, lt pale yel flur spty res rng (OBM contamination)
SS: (95%) blk-dk gy, clr-smky qtz, vf-f-slty gr, w-mod srt, rd-sb rd, calc, v carb, arg-v arg, tt, con, occ pyr, est vis por 12%, frm; SH: (5%) blk-dk gy, sb plty-plty, v carb, calc, mrly, arg, rthy-grsy, frm; NSF cldy difse wi mlky slw f strmng cut, lt pale yel flur spty res rng (OBM contamination)
Wt 9.6
Vis 61
Wt 9.5
Vis 61
Wt 9.7
Vis 63
C1 (units)
C2 (units)
C3 (units)
C4 (units)


WOB 16
RPM 100
SPM 84
PP 3809
5000
200
ROP (min/ft)
Total gas (units)
MWD_GR (API)
0
WOB 25
RPM 100
SPM 82
PP 3809
13350
13400
13450
13500
13550
13600
13650
13700
13750


7350 TVD
Ft Hays LS
Codell SS
Carlile SH
7400
7450
MD 13339 TVD 7386.79
INC 89.54 AZ 0.27
VS 6447.16
MD 13510 TVD 7387.94
INC 89.69 AZ 359.48
VS 6618.15
MD 13681 TVD 7387.3
INC 90.74 AZ 1.25
VS 6789.14
SS: (98%) blk-dk gy, clr-smky qtz, vf-f-slty gr, w-mod srt, rd-sb rd, calc, v carb, arg-v arg, tt, con, occ pyr, est vis por 12-15%, frm; SH: (2%) blk-dk gy, sb plty-plty, v carb, calc, mrly, arg, rthy-grsy, frm; NSF cldy difse wi mlky slw f strmng cut, lt pale yel flur spty res rng (OBM contamination)
SS: (99%) blk-dk gy, clr-smky qtz, vf-f-slty gr, w-mod srt, rd-sb rd, calc, v carb, arg-v arg, tt, con, occ pyr, est vis por 12-15%, frm; SH: (1%) blk-dk gy, sb plty-plty, v carb, calc, mrly, arg, rthy-grsy, frm; NSF cldy difse wi mlky slw f strmng cut, lt pale yel flur spty res rng (OBM contamination)
SS: (100%) blk-dk gy, clr-smky qtz, vf-f-slty gr, w-mod srt, rd-sb rd, calc, v carb, arg-v arg, tt, con, occ pyr, est vis por 12-15%, frm; NSF cldy difse wi mlky slw f strmng cut, lt pale yel flur spty res rng (OBM contamination)
SS (100%) blk lt gy-tan-brn, qz arnt, mica, abdt wht lthc incl (pels), abdt lse grs-fm-crmbly, wl rnd-sbang qz gr, vf-f, wl-md srtd, v arg blk-tan cly mtrx, sm mica; NF wk cut, lt yel res ring (OBM contam).
SS (100%) blk lt gy-tan-brn, qz arnt, mica, abdt wl grs-fm-crmbly, wl rnd-sbang qz gr, vf-f wl-md srt mica; NF wk cut, lt yel res ring (OBM contam).




5000
5000
5000 (units)
C1 (units)
C2 (units)
C3 (units)
C4 (units)
0
Wt 9.6
Vis 61
Wt 9.6
Vis 61
Wt 9.65
Vis 61



13800 CN 13850 CN 13900 CN 13950 CN 14000 14050 CN 14100 14150 CN 142

7350 TVD

Ft Hays LS

Codell SS

MD 13852 TVD 7383.61
INC 91.73 AZ 0.64
VS 6960.07

Carlile SH

7400

(pels), abdt lse
, v arg blk-tan cly mtrx, sm

SS (100%) blk lt gy-tan-brn, qz arnt, mica, abdt wht lthc incl (pels), abdt lse grs-fm-crmbly, wl rnd-sbang qz gr, vf-f, wl-md srtd, v arg blk-tan cly mtrx, sm mica; NF wk cut, lt yel res ring (OBM contam).

SS (100%) blk lt gy-tan-brn, qz arnt, abdt wht v calc cmt ptgs, mica, abdt wht lthc incl (pels), abdt lse grs-fm-crmbly, wl rnd-sbang qz gr, vf-f, wl-md srtd, v arg blk-tan cly mtrx, sm mica; NF wk cut, lt yel res ring (OBM contam).

7450

7350 TVD

Ft Hays LS

Codell SS

MD 14024 TVD 7384.3
INC 87.81 AZ 358.65
VS 7132.03

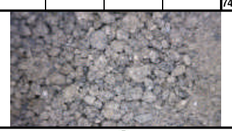
Carlile SH

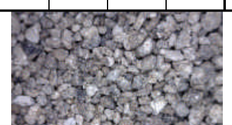
7400

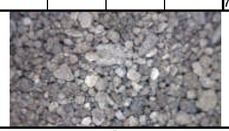
SS (100%) blk lt gy-tan-brn, qz arnt, mica, abdt wht lthc incl (pels), abdt lse grs-fm-crmbly, wl rnd-sbang qz gr, vf-f, wl-md srtd, v arg blk-tan cly mtrx, sm mica; NF wk cut, lt yel res ring (OBM contam).

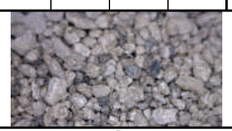
SS (100%) blk lt gy-tan-brn, qz arnt, mica, abdt wht lthc incl (pels), dfmc-flatd, blky, fm-crmbly, wl rnd-sbang qz gr, vf-f, wl-md srtd, v arg blk-tan cly mtrx; SH (tr) blu-gy, mc-cryp-xln, plty+fiss, unfm, wxy-rthy; NF wk cut, lt yel res ring (OBM contam).

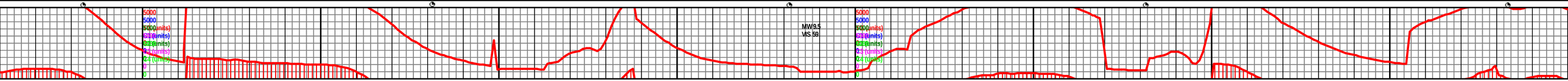
7450

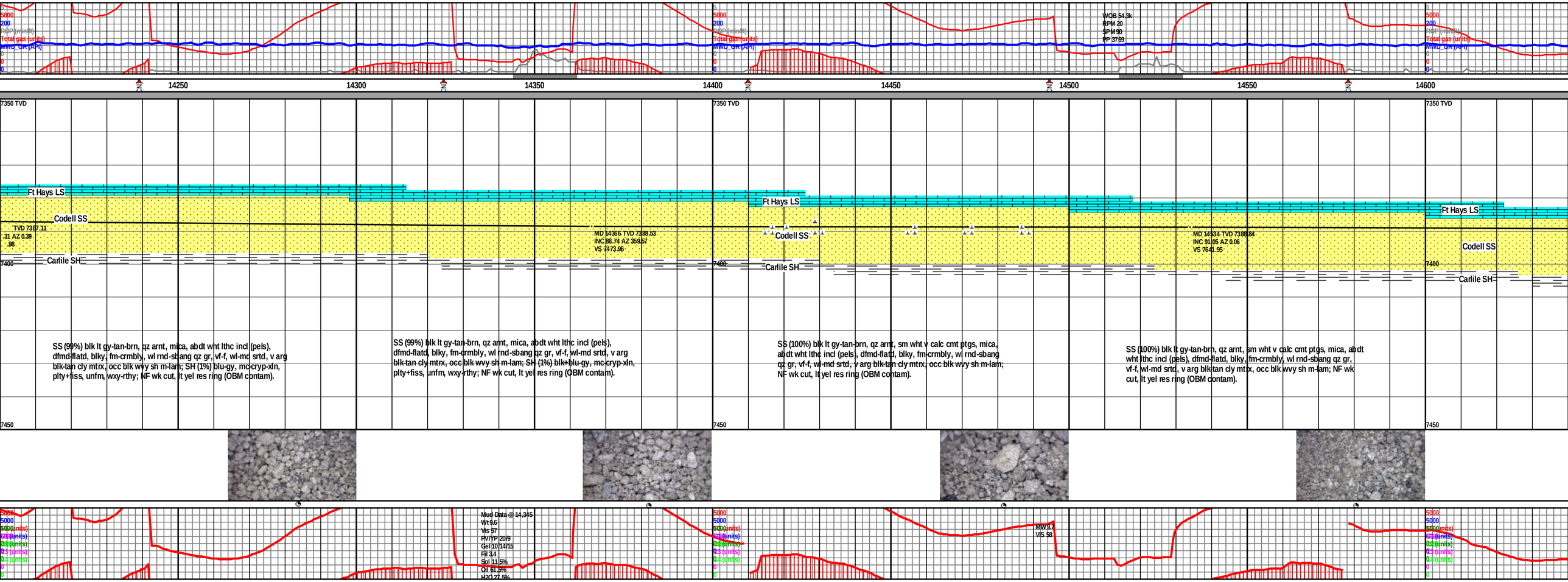


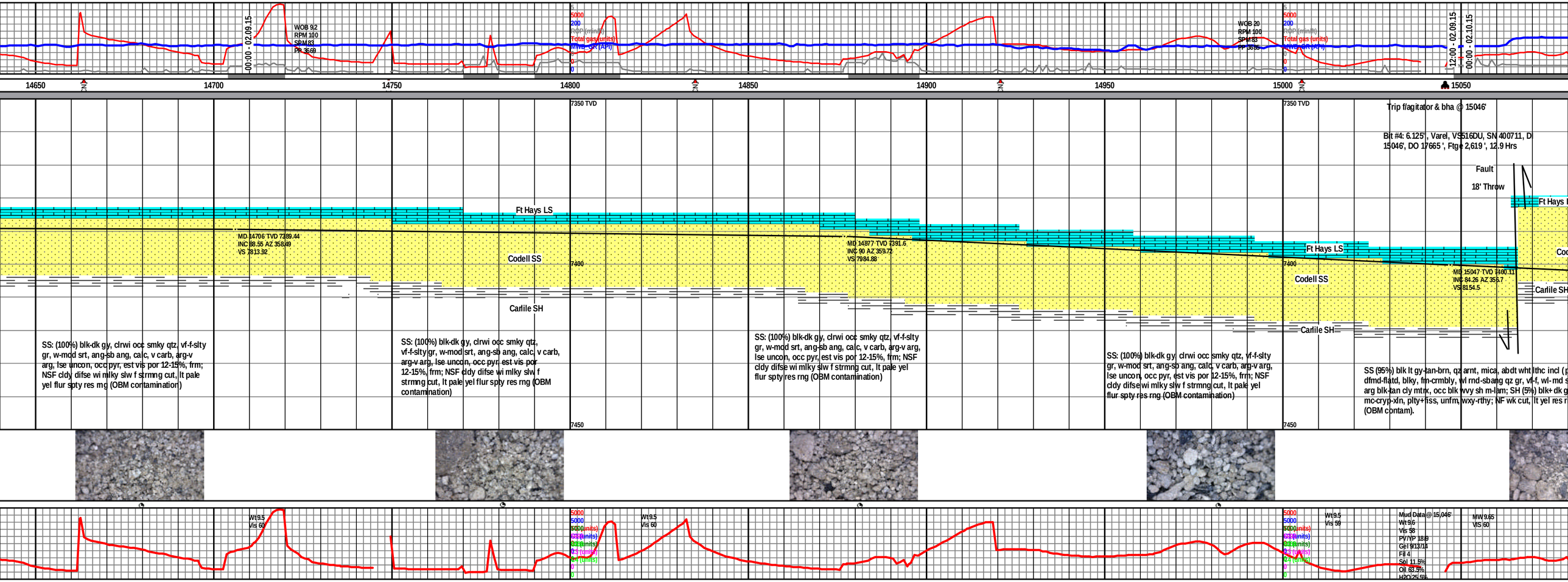


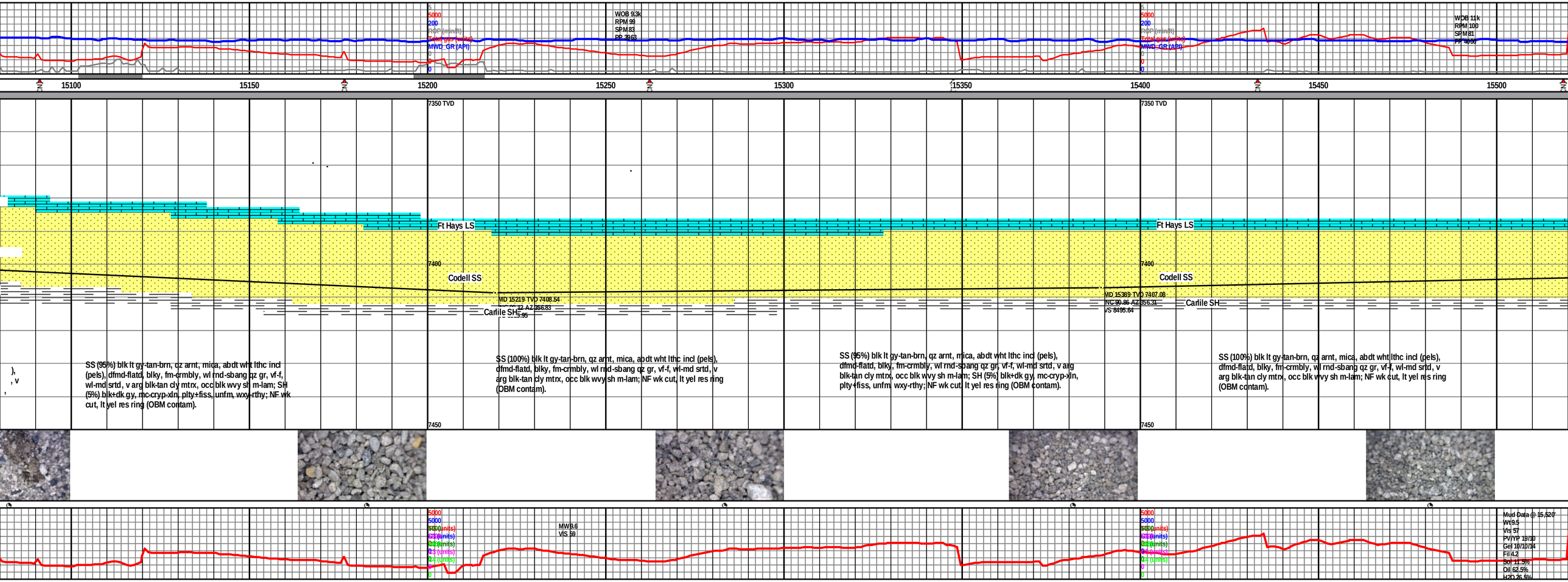


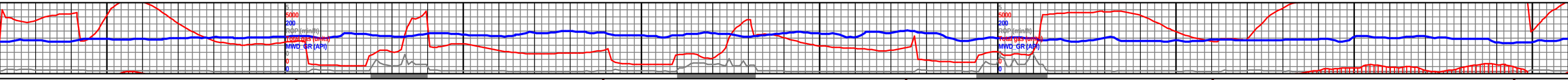


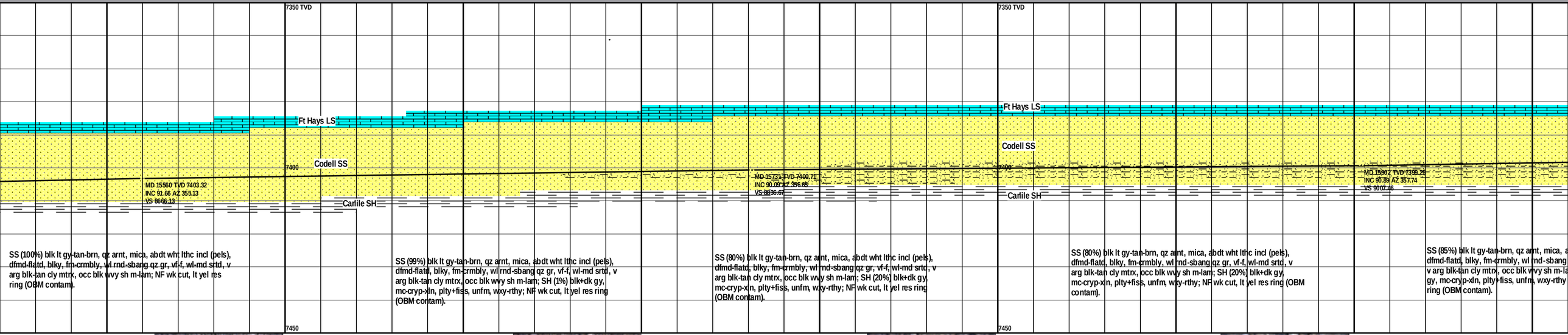


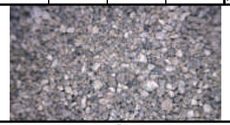

5000
200
ROP (min/ft)
Total gas (units)
MWD_GR (API)
WOB 54.3k
RPM 20
SPM 90
PP 3769
14250
14300
14350
14400
14450
14500
14550
14600
7350 TVD
Ft Hays LS
Codell SS
TVD 7387.11
.31 AZ 0.39
.98
Carlile SH
7400
7450
MD 14366 TVD 7388.53
INC 88.74 AZ 359.57
VS 7473.96
MD 14534 TVD 7388.84
INC 91.05 AZ 0.06
VS 7641.95
SS (99%) blk lt gy-tan-brn, qz arnt, mica, abdt wht lthc incl (pels), dfmd-flatd, blky, fm-crmbly, wl rnd-sbang qz gr, vf-f, wl-mc srtd, v arg blk-tan cly mtrx, occ blk wvy sh m-lam; SH (1%) blu-gy, mc-cryp-xln, plty+fiss, unfm, wxy-rthy; NF wk cut, lt yel res ring (OBM contam).
SS (99%) blk lt gy-tan-brn, qz arnt, mica, abdt wht lthc incl (pels), dfmd-flatd, blky, fm-crmbly, wl rnd-sbang qz gr, vf-f, wl-md srtd, v arg blk-tan cly mtrx, occ blk wvy sh m-lam; SH (1%) blk+blu-gy, mc-cryp-xln, plty+fiss, unfm, wxy-rthy; NF wk cut, lt yel res ring (OBM contam).
SS (100%) blk lt gy-tan-brn, qz arnt, sm wht v calc cmt ptgs, mica, abdt wht lthc incl (pels), dfmd-flatd, blky, fm-crmbly, wl rnd-sbang qz gr, vf-f, wl-md srtd, v arg blk-tan cly mtrx, occ blk wvy sh m-lam; NF wk cut, lt yel res ring (OBM contam).
SS (100%) blk lt gy-tan-brn, qz arnt, sm wht v calc cmt ptgs, mica, abdt wht lthc incl (pels), dfmd-flatd, blky, fm-crmbly, wl rnd-sbang qz gr, vf-f, wl-md srtd, v arg blk-tan cly mtrx, occ blk wvy sh m-lam; NF wk cut, lt yel res ring (OBM contam).
Mud Data @ 14,345
Wt 9.6
Vis 57
PV/YP 20/9
Gel 10/14/15
Fil 3.4
Sol 11.5%
Oil 61.5%
H2O 27.5%
MW 9.7
VIS 58

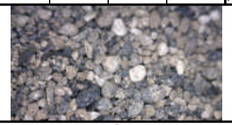

00:00 - 02.09.15
WOB 9.2
RPM 100
SPM 83
PP 3668
5000
200
ROP (min/ft)
Total gas (units)
C1 (units)
C2 (units)
C3 (units)
C4 (units)
C5 (units)
0
WOB 20
RPM 100
SPM 83
PP 3655
12:00 - 02.09.15
00:00 - 02.10.15
14650
14700
14750
14800
14850
14900
14950
15000
15050
7350 TVD
7400
7450
Ft Hays LS
Codell SS
Carlile SH
MD 14706 TVD 7389.44
INC 88.55 AZ 358.49
VS 7813.92
MD 14877 TVD 7391.6
INC 90 AZ 359.72
VS 7984.88
MD 15047 TVD 7400.11
INC 84.26 AZ 356.7
VS 8154.5
Trip flagitator & bha @ 15046'
Bit #4: 6.125", Varel, VS516DU, SN 400711, D
15046', DO 17665 ', Ftge 2,619 ', 12.9 Hrs
Fault
18' Throw
SS: (100%) blk-dk gy, clrwi occ smky qtz, vf-f-slty gr, w-mod srt, ang-sb ang, calc, v carb, arg-v arg, lse uncon, occ pyr, est vis por 12-15%, frm; NSF cldy difse wi mlky slw f strmng cut, lt pale yel flur spty res rng (OBM contamination)
SS: (100%) blk-dk gy, clrwi occ smky qtz, vf-f-slty gr, w-mod srt, ang-sb ang, calc, v carb, arg-v arg, lse uncon, occ pyr, est vis por 12-15%, frm; NSF cldy difse wi mlky slw f strmng cut, lt pale yel flur spty res rng (OBM contamination)
SS: (100%) blk-dk gy, clrwi occ smky qtz, vf-f-slty gr, w-mod srt, ang-sb ang, calc, v carb, arg-v arg, lse uncon, occ pyr, est vis por 12-15%, frm; NSF cldy difse wi mlky slw f strmng cut, lt pale yel flur spty res rng (OBM contamination)
SS: (100%) blk-dk gy, clrwi occ smky qtz, vf-f-slty gr, w-mod srt, ang-sb ang, calc, v carb, arg-v arg, lse uncon, occ pyr, est vis por 12-15%, frm; NSF cldy difse wi mlky slw f strmng cut, lt pale yel flur spty res rng (OBM contamination)
SS (95%) blk lt gy-tan-brn, qz arnt, mica, abdt wht lthc incl (p
dfmd-flatd, blky, frn-crmbly, wl rnd-sbang qz gr, vf-f, wl-md s
arg blk-tan cly mtrx, occ blk wvy sh m-lam; SH (5%) blk+ dk g
mc-cryp-xln, plty+ fiss, unfm, wxy-rthy; NF wk cut, lt yel res r
(OBM contam).
Wt 9.5
Vis 60
Wt 9.5
Vis 60
Wt 9.5
Vis 59
Mud Data @ 15,046'
Wt 9.6
Vis 58
PV/YP 18/9
Gel 9/13/14
Fil 4
Sol 11.5%
Oil 63.5%
H2O 25.5%
MW 9.65
VIS 60

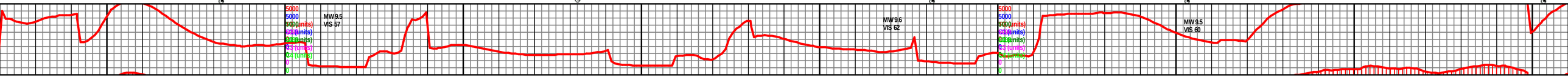

WOB 9.3k
RPM 96
SPM 83
PP 3963
WOB 11k
RPM 100
SPM 81
PP 4000
MWD_GR (API)
15100
15150
15200
15250
15300
15350
15400
15450
15500
7350 TVD
Ft Hays LS
7400
Codell SS
MD 15219 TVD 7408.54
INC 90.12 AZ 356.83
VS 8395.95
Carlile SH
MD 15389 TVD 7407.08
INC 90.86 AZ 356.31
VS 8495.64
7450
SS (95%) blk lt gy-tan-brn, qz arnt, mica, abdt wht lthc incl (pels), dfmd-flatd, blky, fm-crmbly, wl rnd-sbang qz gr, vf-f, wl-md srtd, v arg blk-tan cly mtrx, occ blk wvy sh m-lam; SH (5%) blk+dk gy, mc-cryp-xln, plty+fiss, unfm, wxy-rthy; NF wk cut, lt yel res ring (OBM contam).
SS (100%) blk lt gy-tan-brn, qz arnt, mica, abdt wht lthc incl (pels), dfmd-flatd, blky, fm-crmbly, wl rnd-sbang qz gr, vf-f, wl-md srtd, v arg blk-tan cly mtrx, occ blk wvy sh m-lam; NF wk cut, lt yel res ring (OBM contam).
MW 9.6
VIS 59
Mud Data @ 15,520'
Wt 9.5
Vis 57
PV/YP 19/10
Gel 10/10/14
Fil 4.2
Sol 11.5%
Oil 62.5%
H2O 26.5%

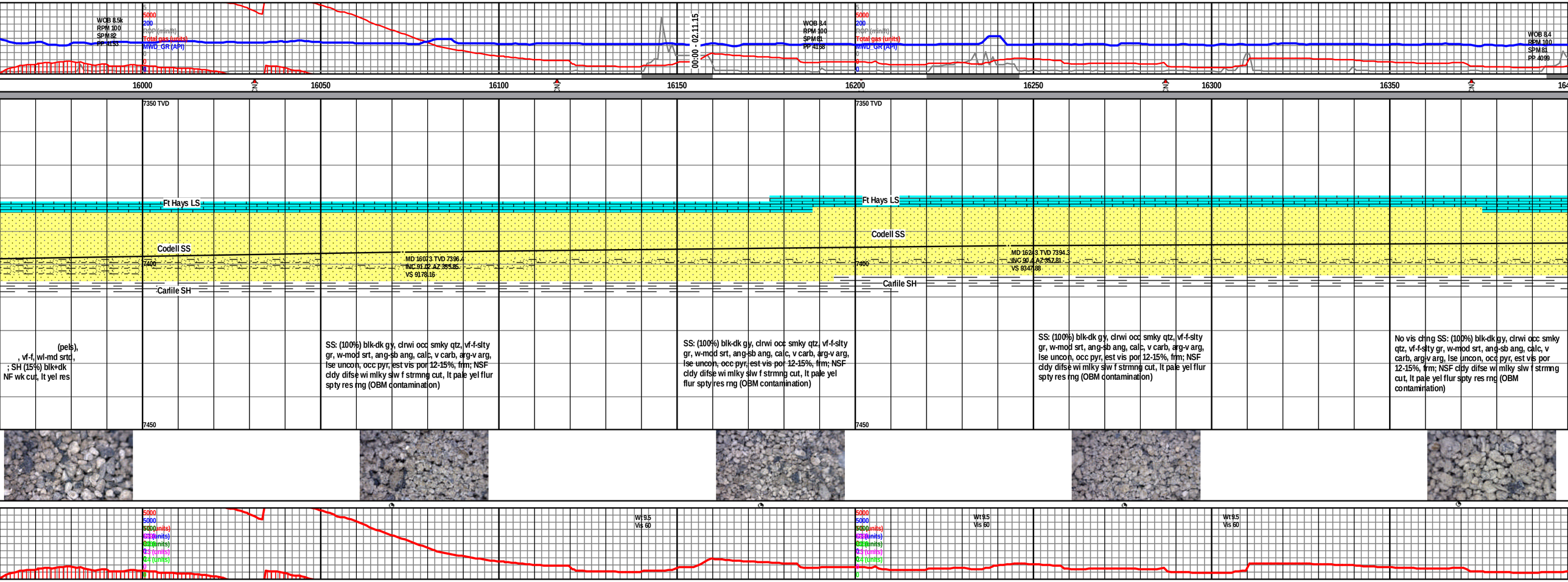

5000
200
ROP (min/ft)
Total Gas (units)
MWD GR (API)
0
0
15550
15600
15650
15700
15750
15800
15850
15900
15950

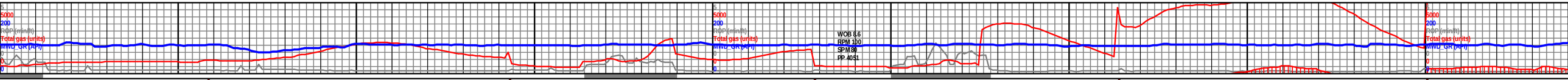

7350 TVD
Ft Hays LS
Codell SS
7400
Carlile SH
7450
MD 15560 TVD 7403.32
INC 91.66 AZ 355.13
VS 8666.13
MD 15731 TVD 7400.71
INC 90.09 AZ 356.65
VS 8836.67
MD 15982 TVD 7399.25
INC 90.39 AZ 357.74
VS 9087.66
SS (100%) blk lt gy-tan-brn, qz arnt, mica, abdt wht lthc incl (pels), dfmd-flatd, blky, fm-crmbly, wl rnd-sbang qz gr, vf-f, wl-md srtd, v arg blk-tan cly mtrx, occ blk wvy sh m-lam; NF wk cut, lt yel res ring (OBM contam).
SS (99%) blk lt gy-tan-brn, qz arnt, mica, abdt wht lthc incl (pels), dfmd-flatd, blky, fm-crmbly, wl rnd-sbang qz gr, vf-f, wl-md srtd, v arg blk-tan cly mtrx, occ blk wvy sh m-lam; SH (1%) blk+dk gy, mc-cryp-xln, plty+fiss, unfm, wxy-rthy; NF wk cut, lt yel res ring (OBM contam).
SS (80%) blk lt gy-tan-brn, qz arnt, mica, abdt wht lthc incl (pels), dfmd-flatd, blky, fm-crmbly, wl rnd-sbang qz gr, vf-f, wl-md srtd, v arg blk-tan cly mtrx, occ blk wvy sh m-lam; SH (20%) blk+dk gy, mc-cryp-xln, plty+fiss, unfm, wxy-rthy; NF wk cut, lt yel res ring (OBM contam).
SS (80%) blk lt gy-tan-brn, qz arnt, mica, abdt wht lthc incl (pels), dfmd-flatd, blky, fm-crmbly, wl rnd-sbang qz gr, vf-f, wl-md srtd, v arg blk-tan cly mtrx, occ blk wvy sh m-lam; SH (20%) blk+dk gy, mc-cryp-xln, plty+fiss, unfm, wxy-rthy; NF wk cut, lt yel res ring (OBM contam).
SS (85%) blk lt gy-tan-brn, qz arnt, mica, a
dfmd-flatd, blky, fm-crmbly, wl rnd-sbang
v arg blk-tan cly mtrx, occ blk wvy sh m-la
gy, mc-cryp-xln, plty+fiss, unfm, wxy-rthy
ring (OBM contam).






5000
5000
5000 (units)
0-1 (units)
0-2 (units)
0-3 (units)
0-4 (units)
0
0
MW 9.5
VIS 57
MW 9.6
VIS 62
MW 9.5
VIS 60


WOB 8.5k
RPM 100
SPM 82
PP 4133
5000
200
ROP (min/ft)
Total gas (units)
MWD_GR (API)
0
00:00 - 02.11.15
WOB 3-4
RPM 100
SPM 81
PP 4186
WOB 8.4
RPM 100
SPM 81
PP 4099
16000
16050
16100
16150
16200
16250
16300
16350
7350 TVD
Ft Hays LS
Codell SS
7400
MD 16073 TVD 7396.4
INC 91.02 AZ 355.85
VS 9178.16
Carlile SH
7450
(pels),
, vf-f, wl-md srtd,
; SH (15%) blk+dk
NF wk cut, lt yel res
SS: (100%) blk-dk gy, clrwi occ smky qtz, vf-f-slty gr, w-mod srt, ang-sb ang, calc, v carb, arg-v arg, lse uncon, occ pyr, est vis por 12-15%, frm; NSF cldy difse wi mlky slw f strmng cut, lt pale yel flur spty res rng (OBM contamination)
SS: (100%) blk-dk gy, clrwi occ smky qtz, vf-f-slty gr, w-mod srt, ang-sb ang, calc, v carb, arg-v arg, lse uncon, occ pyr, est vis por 12-15%, frm; NSF cldy difse wi mlky slw f strmng cut, lt pale yel flur spty res rng (OBM contamination)
MD 16243 TVD 7394.3
INC 90.4 AZ 352.81
VS 9347.88
SS: (100%) blk-dk gy, clrwi occ smky qtz, vf-f-slty gr, w-mod srt, ang-sb ang, calc, v carb, arg-v arg, lse uncon, occ pyr, est vis por 12-15%, frm; NSF cldy difse wi mlky slw f strmng cut, lt pale yel flur spty res rng (OBM contamination)
No vis chng SS: (100%) blk-dk gy, clrwi occ smky qtz, vf-f-slty gr, w-mod srt, ang-sb ang, calc, v carb, arg-v arg, lse uncon, occ pyr, est vis por 12-15%, frm; NSF cldy difse wi mlky slw f strmng cut, lt pale yel flur spty res rng (OBM contamination)
5000
5000
5000 (units)
C1 (units)
C2 (units)
C3 (units)
C4 (units)
0
Wt 9.5
Vis 60



16450 16500 16550 16600 16650 16700 16750 16800

7350 TVD

Ft Hays LS

Codell SS

MD 16415 TVD 7393.43
INC 90.18 AZ 358.21
VS 9619.78

MD 16586 TVD 7392.74
INC 90.28 AZ 357.59
VS 9690.57

MD 16757 TVD 7392.19
INC 90.09 AZ 358.75
VS 9861.59

7400

Carlile SH

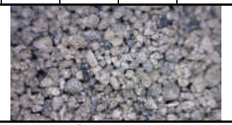
No vis chng SS: (100%) blk-dk gy, clrwi occ smky qtz, vf-f-slty gr, w-mod srt, ang-sb ang, calc, v carb, arg-v arg, lse uncon, occ pyr, est vis por 12-15%, frm; NSF cldy difse wi mlky slw f strmmg cut, lt pale yel flur spty res rng (OBM contamination)

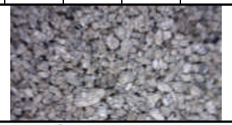
SS: (100%) blk-dk gy, clrwi occ smky qtz, vf-f-slty gr, w-mod srt, ang-sb ang, calc, v carb, arg-v arg, lse uncon, occ pyr, est vis por 12-15%, frm; NSF cldy difse wi mlky slw f strmmg cut, lt pale yel flur spty res rng (OBM contamination)

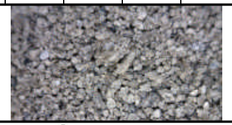
SS: (100%) blk-dk gy, clrwi occ smky qtz, vf-f-slty gr, w-mod srt, ang-sb ang, calc, v carb, arg-v arg, lse uncon, occ pyr, est vis por 12-15%, frm; NSF cldy difse wi mlky slw f strmmg cut, lt pale yel flur spty res rng (OBM contamination)

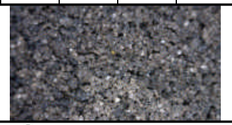
SS: (100%) blk-dk gy, clrwi occ smky qtz, vf-f-slty gr, w-mod srt, sb ang-sb rd, calc, v carb, arg-v arg, lse uncon, occ pyr, est vis por 12-15%, frm; NSF cldy difse wi mlky slw f strmmg cut, lt pale yel flur spty res rng (OBM contamination)

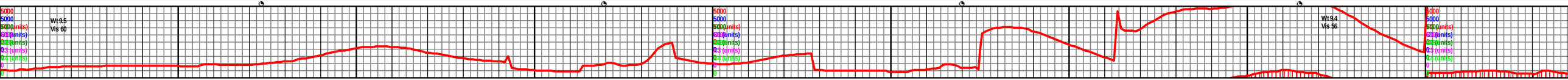
7450

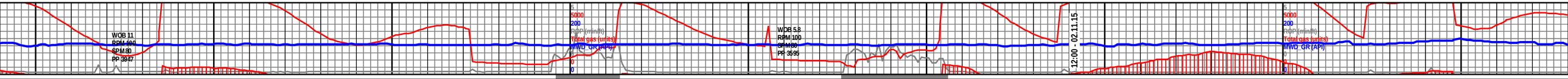


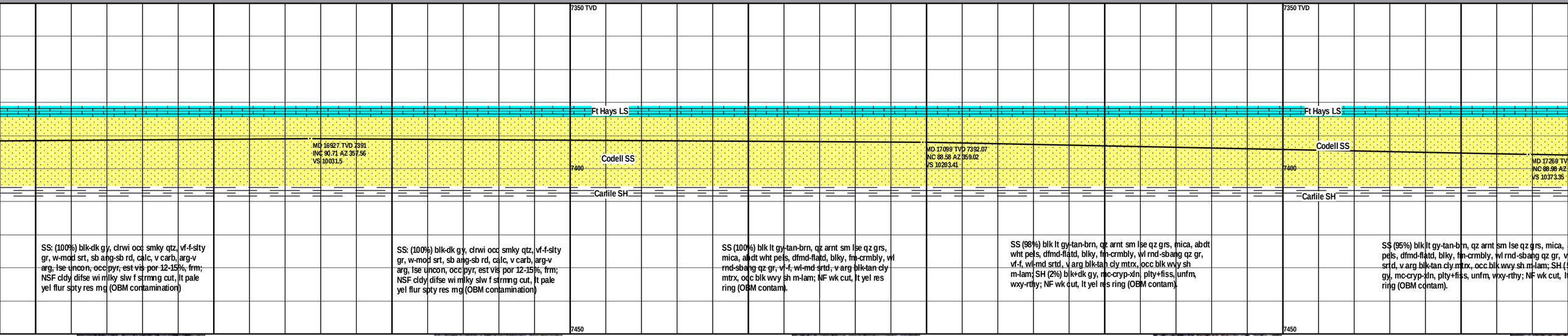












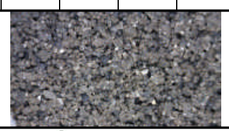
SS: (100%) blk-dk gy, clrwi occ smky qtz, vf-f-slty gr, w-mod srt, sb ang-sb rd, calc, v carb, arg-v arg, lse uncon, occ pyr, est vis por 12-15%, frm; NSF cldy difse wi mlky slw f strmmg cut, lt pale yel flur spty res mg (OBM contamination)

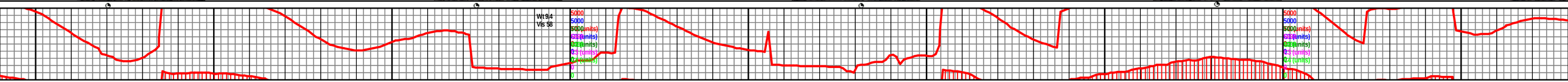
SS: (100%) blk-dk gy, clrwi occ smky qtz, vf-f-slty gr, w-mod srt, sb ang-sb rd, calc, v carb, arg-v arg, lse uncon, occ pyr, est vis por 12-15%, frm; NSF cldy difse wi mlky slw f strmmg cut, lt pale yel flur spty res mg (OBM contamination)

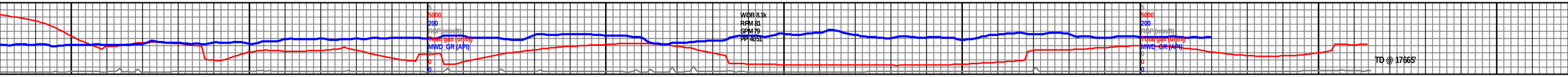
SS (100%) blk lt gy-tan-brn, qz arnt sm lse qz grs, mica, abdt wht pels, dfmd-flatd, blky, fm-crmbly, wl rnd-sbang qz gr, vf-f, wl-md srtd, v arg blk-tan cly mtrx, occ blk wvy sh m-lam; NF wk cut, lt yel res ring (OBM contam).

SS (98%) blk lt gy-tan-brn, qz arnt sm lse qz grs, mica, abdt wht pels, dfmd-flatd, blky, fm-crmbly, wl rnd-sbang qz gr, vf-f, wl-md srtd, v arg blk-tan cly mtrx, occ blk wvy sh m-lam; SH (2%) blk+dk gy, mc-cryp-xln, plty+fiss, unfm, wxy-rthy; NF wk cut, lt yel res ring (OBM contam).

SS (95%) blk lt gy-tan-brn, qz arnt sm lse qz grs, mica, pels, dfmd-flatd, blky, fm-crmbly, wl rnd-sbang qz gr, v srtd, v arg blk-tan cly mtrx, occ blk wvy sh m-lam; SH (5 gy, mc-cryp-xln, plty+fiss, unfm, wxy-rthy; NF wk cut, lt ring (OBM contam).







17300 17350 17400 17450 17500 17550 17600 17650 17700

7350 TVD

TD 17,665'; 14:43 Wednesday, 11 February 2015

Pump 2 sweeps Circ 4 BU & Condition Hole TOOH to shoe

Liner set @ 17,660'

BOTTOM HOLE LOCATION
558' FSL 1925' FEL

Bit Projection

Ft Hays Ls

Codell SS

7395.69
358.99

7400

MD 17439 TVD 7399.02
INC 88.77 AZ 358.03
VS 10543.26

MD 17622 TVD 7402.57
INC 89.01 AZ 357.18
VS 10726.07

MD 17665 TVD 7403.31
INC 89.01 AZ 357.13
VS 10769.01

Carlile Sh

-f, wl-md
%) blk+dk

SS (90%) blk lt gy-tan-brn, qz arnt sm lse qz grs, mica, abdt wht pels, dfmd-flatd, blky, fm-crmbly, wl rnd-sbang qz gr, vf-f, wl-md srtd, v arg blk-tan cly mtrx, occ blk wvy sh m-lam; SH (10%) blk+dk gy, mc-cryp-xln, plty+fiss, unfm, wxy-rthy; NF wk cut, lt yel res ring (OBM contam).

SS (85%) blk lt gy-tan-brn, qz arnt sm lse qz grs, mica, abdt wht pels, dfmd-flatd, blky, fm-crmbly, wl rnd-sbang qz gr, vf-f, wl-md srtd, v arg blk-tan cly mtrx, occ blk wvy sh m-lam; SH (15%) blk+dk gy, mc-cryp-xln, plty+fiss, unfm, wxy-rthy; NF wk cut, lt yel res ring (OBM contam).

SS (85%) blk lt gy-tan-brn, qz arnt sm lse qz grs, mica, abdt wht pels, dfmd-flatd, blky, fm-crmbly, wl rnd-sbang qz gr, vf-f, wl-md srtd, v arg blk-tan cly mtrx, occ blk wvy sh m-lam; SH (15%) blk+dk gy, mc-cryp-xln, plty+fiss, unfm, wxy-rthy; NF wk cut, lt yel res ring (OBM contam).

SS (90%) blk lt gy-tan-brn, qz arnt sm lse qz grs, mica, occ glauc, abdt wht pels, dfmd-flatd, blky, fm-crmbly, wl rnd-sbang qz gr, vf-f, wl-md srtd, v arg blk-tan cly mtrx, occ blk wvy sh m-lam; SH (10%) blk+dk gy, mc-cryp-xln, plty+fiss, unfm, wxy-rthy; NF wk cut, lt yel res ring (OBM contam).

THANK YOU
GOOLSBY B
& ASSOCIAT

Jack R. R
Alex Caru

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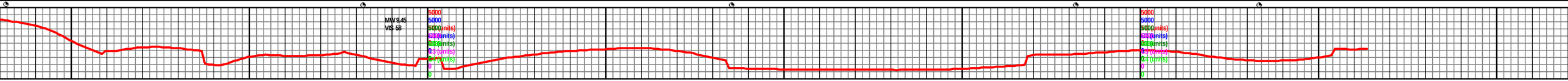

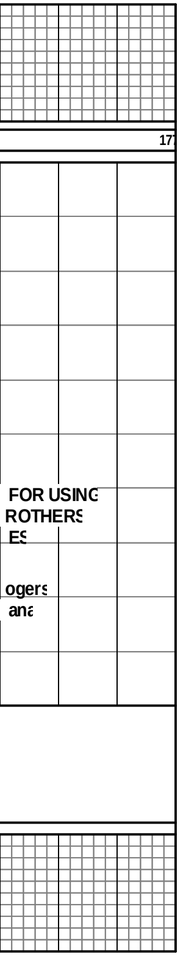
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