



Scale: 5" / 100'
Measured Depth Log

Well Name Winder South 3

Location Sec. 9-T6N-R67W

State Colorado

County Weld

Country USA

Rig Number Patterson 346

Geographic Region DJ Basin

Field Wattenberg

Spud Date 8/29/2016

Surface Coordinates SHL: 2306'FNL, 508' FEL, Sec. 9

Lat: 40° 30' 9.63"

Long: -104° 53' 26.5158"

Bottom Hole Coordinates BHL: 2530'FFSLL, 460' FFWLL, Sec. 8

Ground Elevation 4,854'

K.B. Elevation 4,878.5'

Logged Interval 5,000' MD To 6,500'

Formation Niobrara B Chlk

Type of Drilling Fluid Oil Based Mud

Operator

Company Extaction Oil & Gas

Address 1888 Sherman St., Suite 200
Denver, CO 80203

Geologist

Name Jared Rouse

Company Extraction Oil & Gas

Address 1888 Sherman St., Suite 200
Denver, CO 80203

Zone Color Coding

Oil	Condensate	Gas
Note	Core	Pressure
Error	Water	Seal

Other

Equipment ML-166

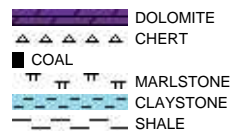
Comments Start: 8-29-16
TD: 8-xx-16

Services Provided 2-man Logging
On Site Geosteering

Logger Names Dominic Pitre/ Mark Gross

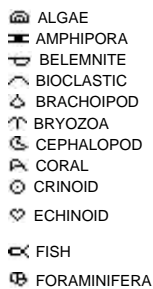
Address ALS Empirica
6510 Guhn Road
Houston, Texas 77040

Rock Types



Accessories

Fossils



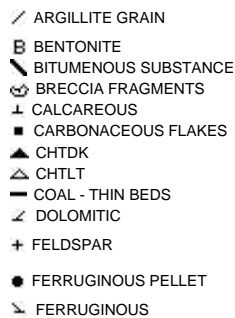
F FOSSIL



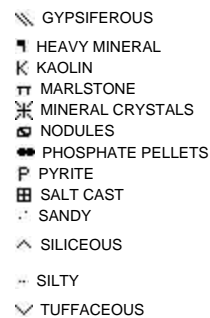
Minerals



ARGILLACEOUS



GLAUCONITE

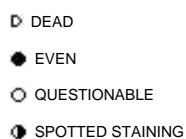


Stringer

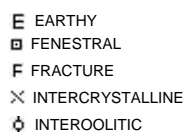


Other Symbols

Oil Show



Porosity



ORGANIC



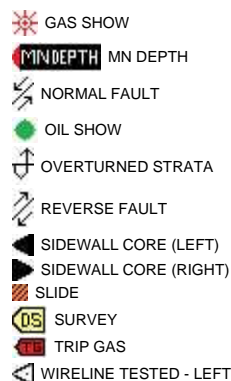
VUGGY



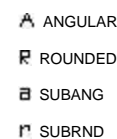
Engineering



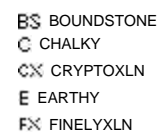
FORMATION TOP



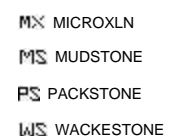
Rounding



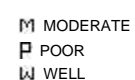
Textures



L LITHOGRAPHIC



Sorting



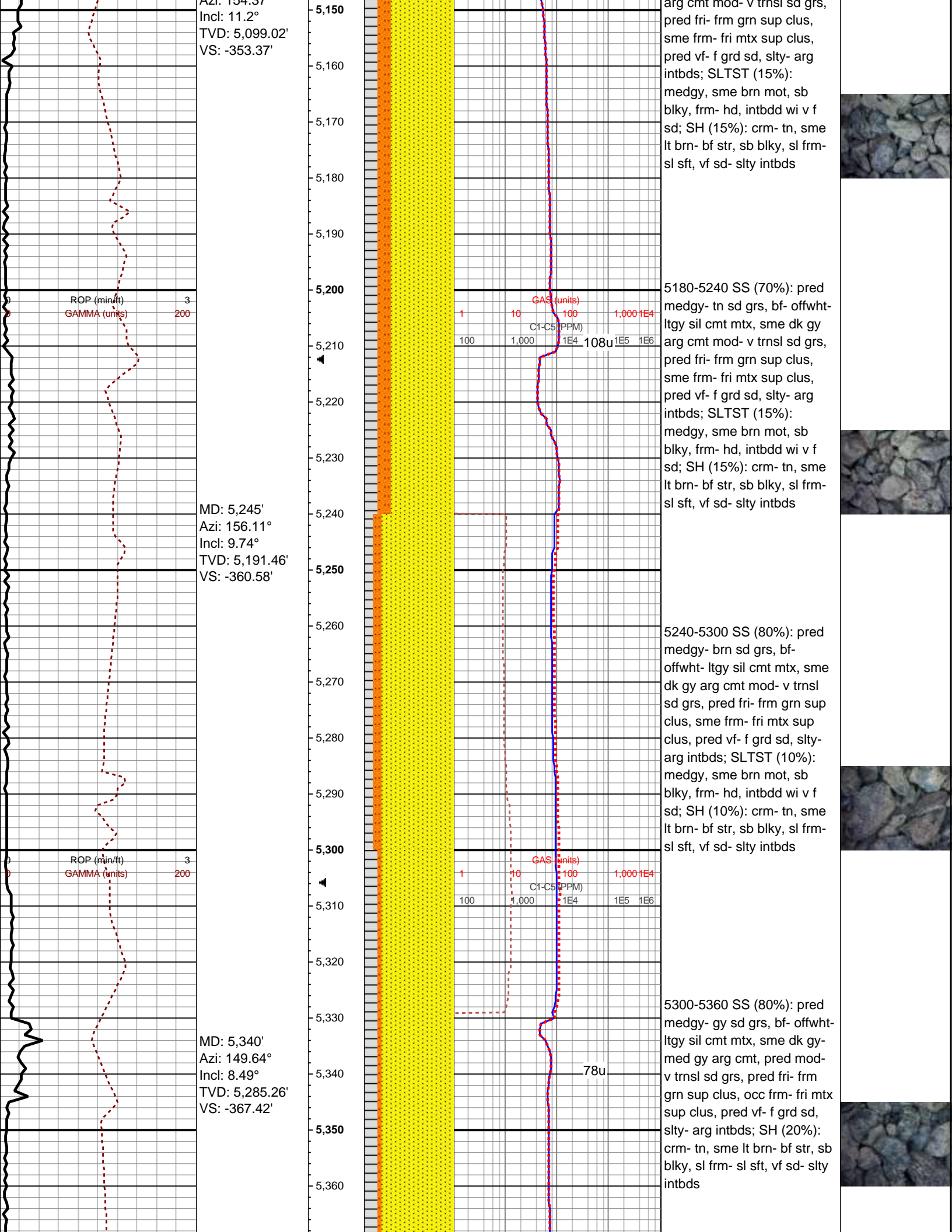
MOLDIC

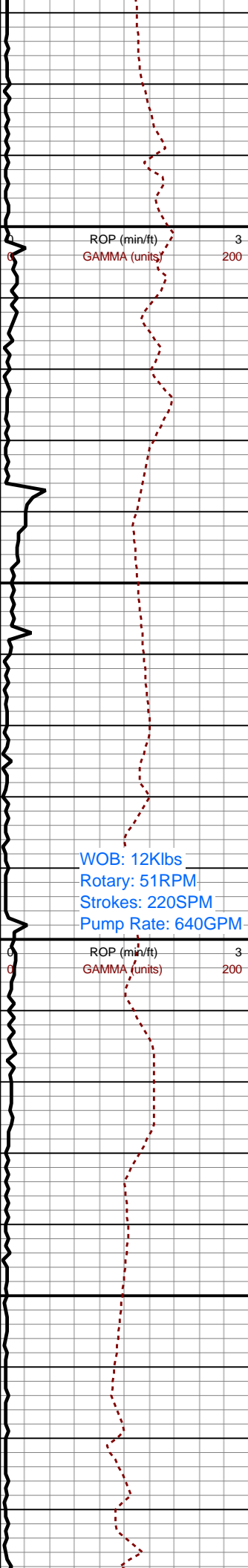
FAULT

WIRELINE TESTED - RT

GRAINSTONE

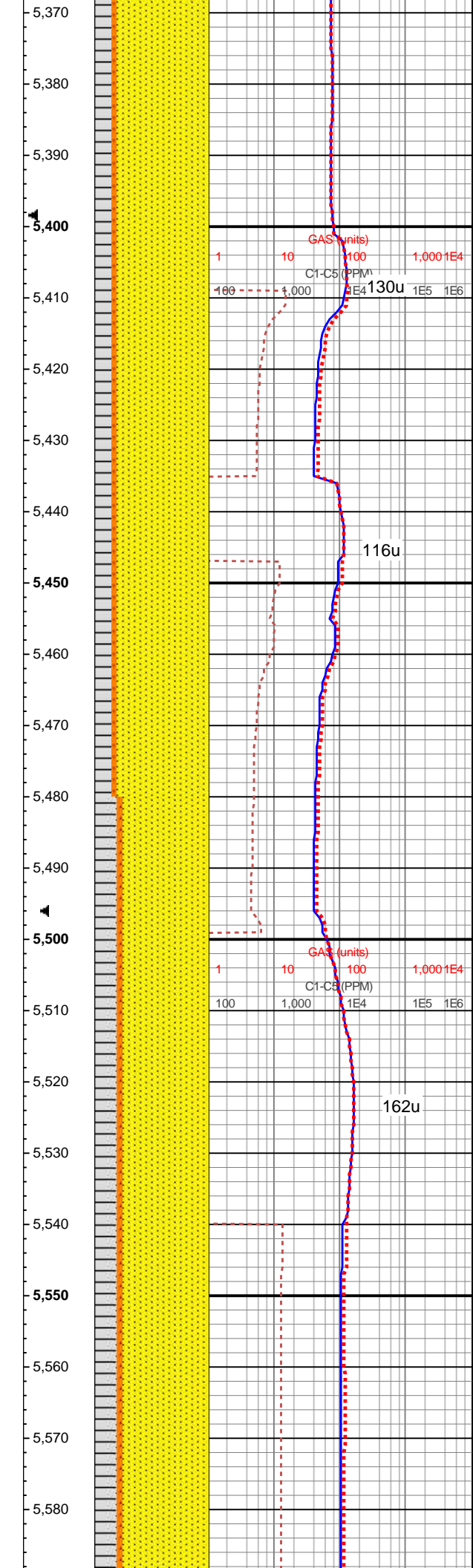
ROP ROP — GAMMA - - -		Depth Labels	% Lith	Total Gas & Chromatograph GAS C1 ——— C2 - - - C3 - . . . C4 - C5 ———	Lithology Descriptions	Images
Surveys						
Extraction OG Winder South 3 Weld County, Colorado Spud Date: 8-29-16 Surface Casing @ 1,552' 2-man logging / Geosteering Began: 8-29-16 100 units = 1% Methane 10000 units = 100% Methane All Depths Correspond to Driller's Pipe Tally WOB: 32Klbs Rotary: 50RPM Strokes: 220SPM Pump Rate: 640GPM		4,960 4,970 4,980 4,990 5,000 5,010 5,020 5,030 5,040 5,050 5,060 5,070 5,080 5,090 5,100 5,110 5,120 5,130 5,140		Bit #: 1 Type: k2 Size: 7 7/8 Depth In: 1,556' Jets: 7*12 <div style="text-align: right;"> GAS (units) 1 10 100 1,000 1E4 C1-C5 (PPM) 100 1,000 1E4 1E5 1E6 </div>		
					5000-5060 SS: pred medgy-tn sd grs, bf- offwht- ltgy sil cmt mtx, sme dk gy arg cmt mod- v trnsl sd grs, pred fri-frm grn sup clus, sme frm-fri mtz sup clus, pred vf- f grd sd, slty- arg intbds	
	MD: 5,056' Azi: 142.66° Incl: 11.3° TVD: 5,005.84' VS: -343.7'					
					5060-5120 SS: pred medgy-tn sd grs, bf- offwht- ltgy sil cmt mtx, sme dk gy arg cmt mod- v trnsl sd grs, pred fri-frm grn sup clus, sme frm-fri mtz sup clus, pred vf- f grd sd, slty- arg intbds	
ROP (min/ft) GAMMA (units)	MW: 8.7 VIS: 48					
					5120-5180 SS (70%): pred medgy- tn sd grs, bf- offwht- ltgy sil cmt mtx, sme dk gy	
	MD: 5,151' Azi: 154.37°					





MD: 5,435'
Azi: 143.15°
Incl: 7.8°
TVD: 5,379.3'
VS: -374.86'

MD: 5,530'
Azi: 137.3°
Incl: 8.56°
TVD: 5,473.33'
VS: -383.55'



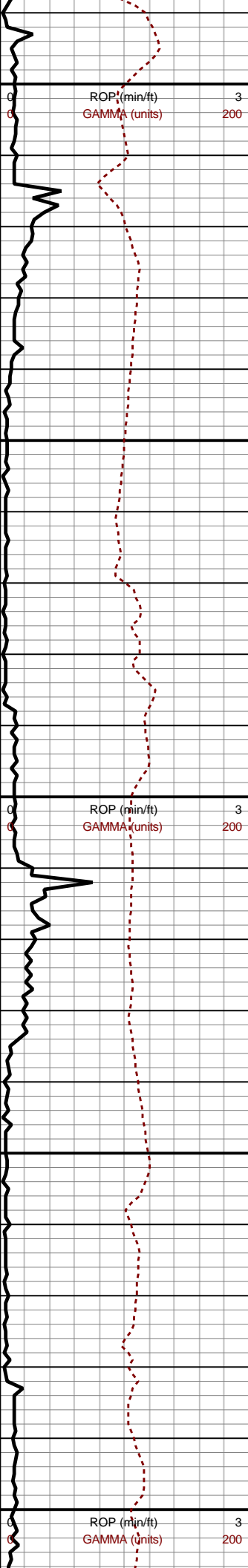
5360-5420 SS (80%): pred medgy- gy sd grs, bf- offwht- ltgy sil cmt mtx, sme dk gy- med gy arg cmt, pred mod- v trnsl sd grs, pred fri- frm grn sup clus, occ frm- fri mtx sup clus, pred vf- f grd sd, slty- arg intbds; SH (20%): crm- tn, sme lt brn- bf str, sb blkly, sl frm- sl sft, vf sd- slty intbds

5420-5480 SS (80%): pred medgy- gy sd grs, bf- offwht- ltgy sil cmt mtx, sme dk gy- med gy arg cmt, pred mod- v trnsl sd grs, pred fri- frm grn sup clus, occ frm- fri mtx sup clus, pred vf- f grd sd, slty- arg intbds; SH (20%): crm- tn, sme lt brn- bf str, sb blkly, sl frm- sl sft, vf sd- slty intbds

5480-5540 SS (80%): pred medgy- gy sd grs, bf- offwht- ltgy sil cmt mtx, sme dk gy- med gy arg cmt, pred mod- v trnsl sd grs, pred fri- frm grn sup clus, occ frm- fri mtx sup clus, pred vf grd sd, slty- arg intbds; SH (20%): crm- tn, sme lt brn- bf str, sb blkly, sl frm- sl sft, vf sd- slty intbds

5540-5600 SS (70%): pred medgy- gy sd grs, bf- offwht- ltgy sil cmt mtx, sme dk gy- med gy arg cmt, pred mod- v trnsl sd grs, pred fri- frm grn sup clus, occ frm- fri mtx sup clus, pred vf grd sd,

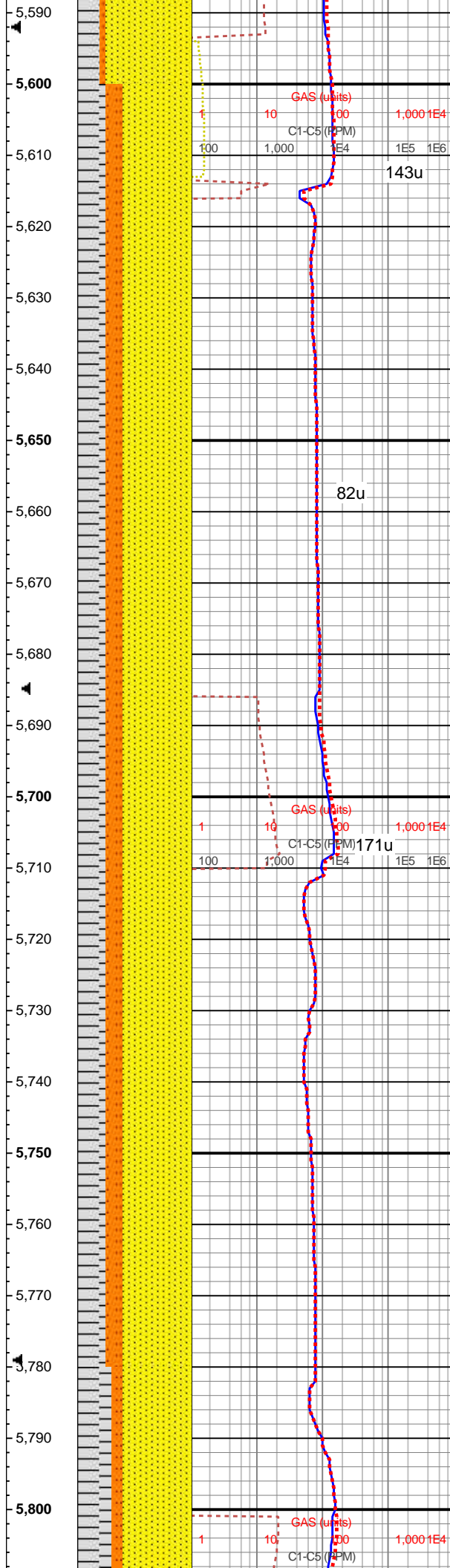




MD: 5,625'
Azi: 140.47°
Incl: 8.49°
TVD: 5,567.29'
VS: -392.83'

MD: 5,719'
Azi: 149.21°
Incl: 9.76°
TVD: 5,660.1'
VS: -401.36'

MD: 5,814'



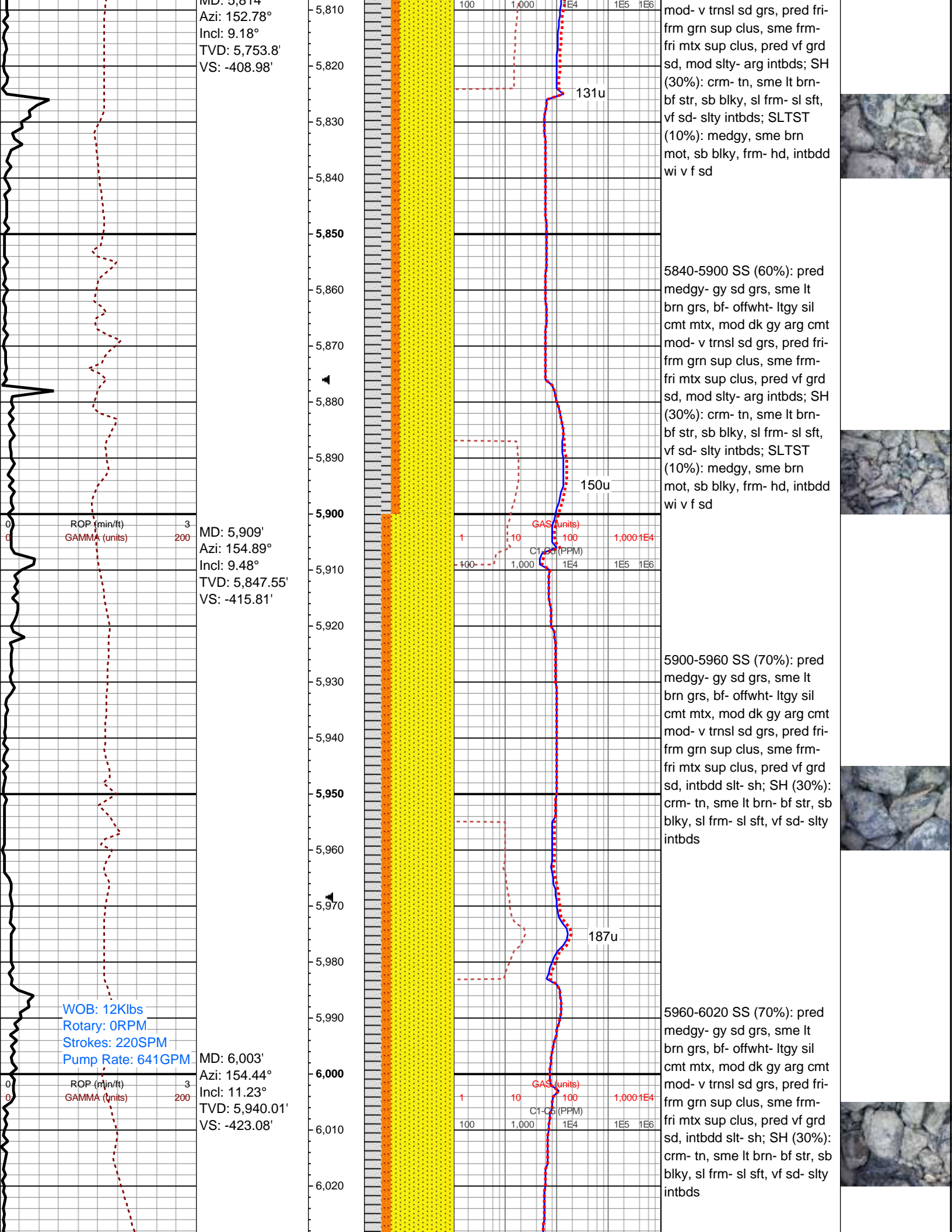
slty- arg intbds; SH (30%):
crm- tn, sme lt brn- bf str, sb
blky, sl frm- sl sft, vf sd- slty
intbds

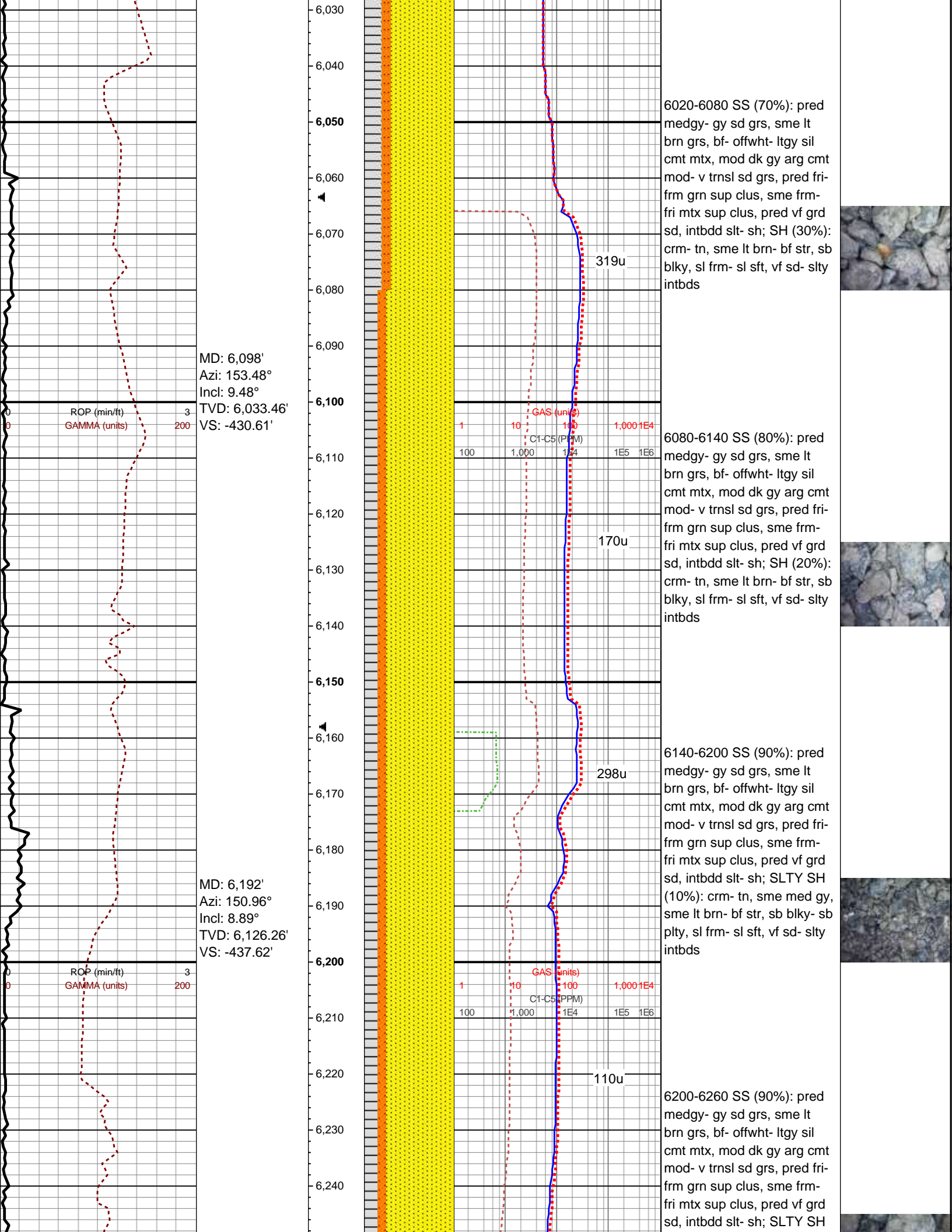
5600-5660 SS (60%): pred
medgy- tn sd grs, bf- offwht-
ltgy sil cmt mtx, sme dk gy
arg cmt mod- v trnsd sd grs,
pred fri- frm grn sup clus,
sme frm- fri mtx sup clus,
pred vf grd sd, slty- arg
intbds; SH (25%): crm- tn,
sme lt brn- bf str, sb blky, sl
frm- sl sft, vf sd- slty intbds;
SLTST (15%): medgy, sme
brn mot, sb blky, frm- hd,
intbdd wi v f sd

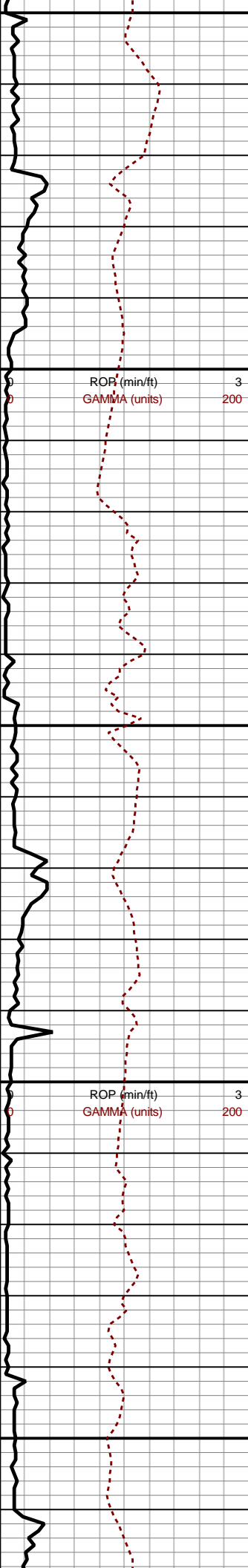
5660-5720 SS (60%): pred
medgy- tn sd grs, bf- offwht-
ltgy sil cmt mtx, sme dk gy
arg cmt mod- v trnsd sd grs,
pred fri- frm grn sup clus,
sme frm- fri mtx sup clus,
pred vf grd sd, slty- arg
intbds; SH (25%): crm- tn,
sme lt brn- bf str, sb blky, sl
frm- sl sft, vf sd- slty intbds;
SLTST (15%): medgy, sme
brn mot, sb blky, frm- hd,
intbdd wi v f sd

5720-5780 SS (60%): pred
medgy- gy sd grs, sme lt
brn grs, bf- offwht- ltgy sil
cmt mtx, mod dk gy arg cmt
mod- v trnsd sd grs, pred fri-
frm grn sup clus, sme frm-
fri mtx sup clus, pred vf grd
sd, mod slty- arg intbds; SH
(30%): crm- tn, sme lt brn-
bf str, sb blky, sl frm- sl sft,
vf sd- slty intbds; SLTST
(10%): medgy, sme brn
mot, sb blky, frm- hd, intbdd
wi v f sd

5780-5840 SS (60%): pred
medgy- gy sd grs, sme lt
brn grs, bf- offwht- ltgy sil
cmt mtx, mod dk gy arg cmt

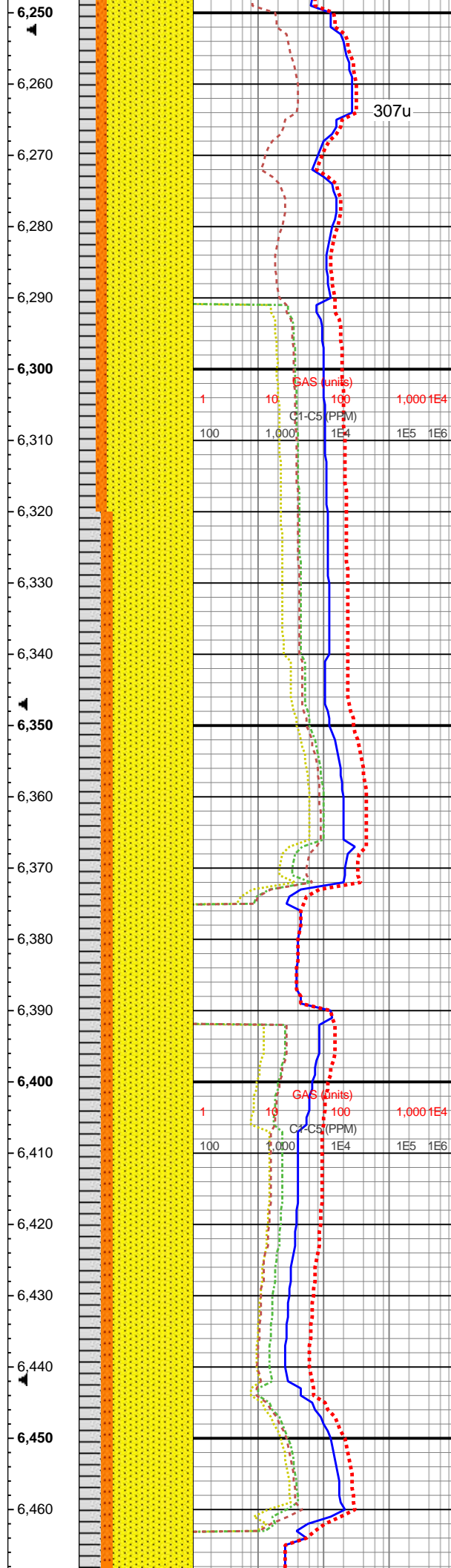






MD: 6,287'
Azi: 148.51°
Incl: 9.54°
TVD: 6,220.03'
VS: -445.33'

MD: 6,381'
Azi: 149.48°
Incl: 9.62°
TVD: 6,312.72'
VS: -453.43'



(10%): crm- tn, sme med gy, sme lt brn- bf str, sb blk- sb plty, sl frm- sl sft, vf sd- slty intbds

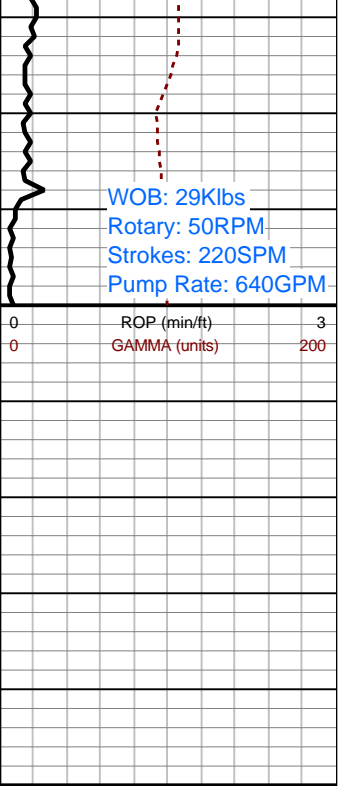
6260-6320 SS (90%): pred medgy- gy sd grs, sme lt brn grs, bf- offwht- ltgy sil cmt mtx, mod dk gy arg cmt mod- v trnsl sd grs, pred fri- frm grn sup clus, sme frm- fri mtx sup clus, pred vf grd sd, intbdd slt- sh; SLTY SH (10%): crm- tn, sme med gy, sme lt brn- bf str, sb blk- sb plty, sl frm- sl sft, vf sd- slty intbds

6320-6380 SS (80%): pred medgy- gy- lt brn sd grs, bf- offwht- ltgy sil cmt mtx, mod dk gy arg cmt, mod- v trnsl sd grs, pred fri- frm grn sup clus, ip frm- fri mtx sup clus, pred vf grd sd, intbdd slt- sh; SLTY SH (20%): crm- tn- med gy, sme med gy, sme lt brn- bf str, sb blk- sb plty, sl frm- sl sft, vf sd- slty intbds

6380-6440 SS (80%): pred medgy- gy- lt brn sd grs, bf- offwht- ltgy sil cmt mtx, mod dk gy arg cmt, mod- v trnsl sd grs, pred fri- frm grn sup clus, ip frm- fri mtx sup clus, pred vf grd sd, intbdd slt- sh; SLTY SH (20%): crm- tn- med gy, sme med gy, sme lt brn- bf str, sb blk- sb plty, sl frm- sl sft, vf sd- slty intbds

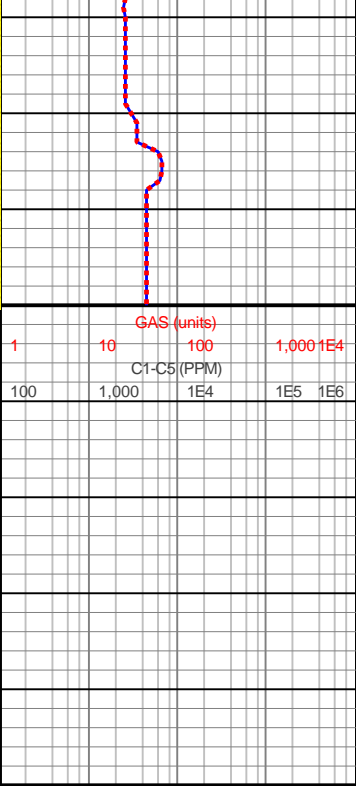
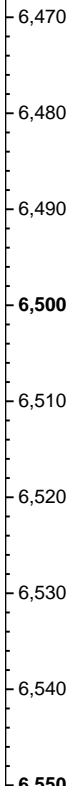
6380-6440 SS (75%): pred medgy- gy- lt brn sd grs, bf-





MD: 6,476'
Azi: 149.07°
Incl: 9.95°
TVD: 6,406.34'
VS: -461.71'

MW: 8.75
VIS: 43



offwht- ltgy sil cmt mtx, mod
dk gy arg cmt, mod- v trns
sd grs, pred fri- frm grn sup
clus, ip frm- fri mtx sup clus,
pred vf grd sd, intbdd slt- sh;
SLTY SH (25%): crm- tn-
med gy, sme med gy, sme lt
brn- bf str, sb blk- sb plty, sl
frm- sl sft, vf sd- slty intbds



Log Continued in
Horizontal Format