

LOG INTERVAL

DEPTH : 5.62 mMDRT TO 1180.0 mMDRT
DATE : 30 JUL 2015 TO 13 AUG 2015
SCALE : 1:500

CASING DATA

346 mm (13.375") TO 28.0 mMDRT
244 mm (9.625") TO 130.22 mMDRT
177.8 mm (7") TO - mMDRT

MUDLOG

COMPANY : Pangaea Resources
WELL : Tarlee-2
BLOCK LICENSE : EP-168,McArthur/Beetaloo
REGION : Northern Territory
COUNTRY : AUSTRALIA

MUD TYPES

Bentonite Spud Mud TO - mMDRT
KCL Polymer Mud TO 1180.0 mMDRT

HOLE DATA

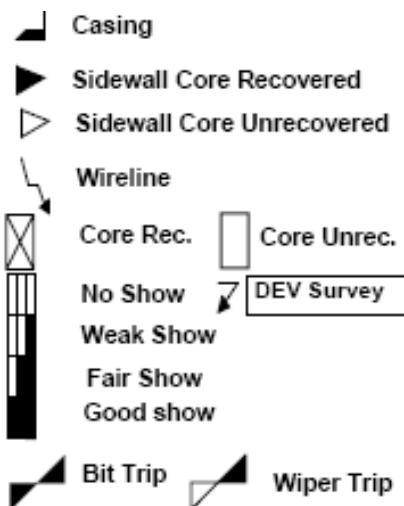
311 mm (12.25") TO 133.22 mMDRT
216 mm (8.50") TO 549.48 mMDRT
155.58 mm (6.125") 1180.00 mMDRT

COORDINATES : Lat 15° 53' 24.6387" S
Long 132° 41' 0.4484" E
Easting 251,956.75 m
Northing 8,241,839.08 m
ELEVATION : RT: 4.02 m GL:207.77 m AMSL

ABBREVIATION

NB New Bit	CL ppm Chloride Ion
RRB Rerun Bit	RM Mud Resistivity
CB Core Bit	RMF Filtrate Resistivity
TG Trip Gas	LAT Lagged After Trip
FG Formation Gas	LAS Lagged After Svy
POG Pumps off Gas	NR No Returns
WTG Wiper Trip Gas	PR Poor Returns
SWG Swab Gas	LC Lost Circulate Out
WOB Weight On Bit	CO Circulate Out
RPM Rotary Rev/Min	SVY Survey
PP Pump Pressure	AZI Azimuth
SPM Strokes/Min	CSG Casing
MW Mud Weight	SOL Solids %
VIS Funnel Viscosity	SD Sand %
PV Plastic Viscosit	MB Methylene Blue
YP Yield Point	CA ppm Calcium
FL Fluid Loss	FC Filter Cake Thick

SYMBOLS



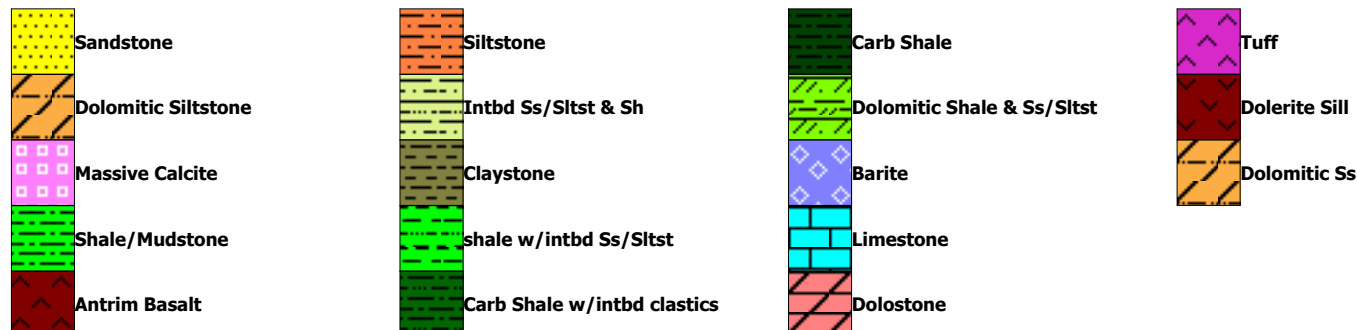
DATE ON SITE : 26 JUL 2015
SPUD DATE : 30 JUL 2015 @ 18:00 hrs
TD DATE : 12 AUG 2015 @ 11:00 hrs
DATE RELEASED : - AUG 2015
TOTAL DEPTH : 1180.0 mMDRT / 1180.0 mTVDRT
STATUS : NA
CONTRACTOR : DDH1
RIG/TYPE : Rig #33
LOGGING UNIT : Blue Modex

COMPANY Rep. : Dryden Strange

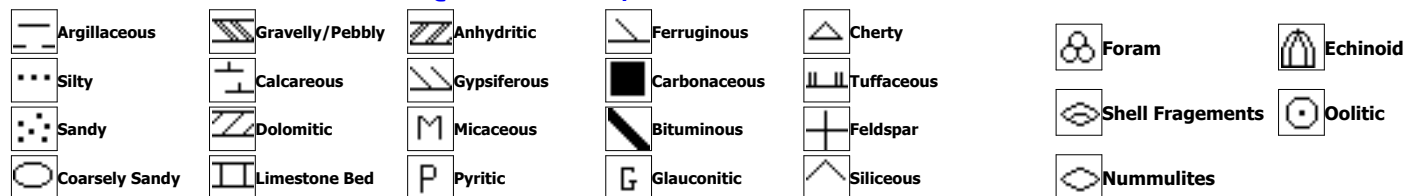
GEOLOGIST : Randy Laney

MUDLOGGERS : Edfer Lim
Potchara Aounlum
Dony Israyadi

GEOLOGICAL SYMBOLS



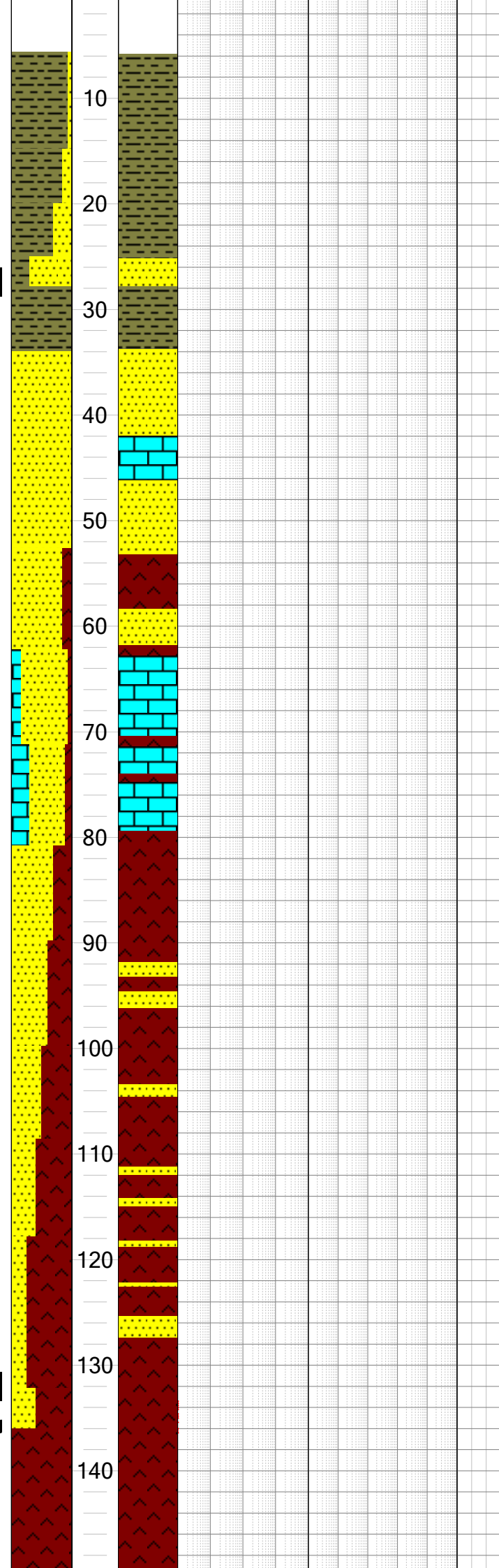
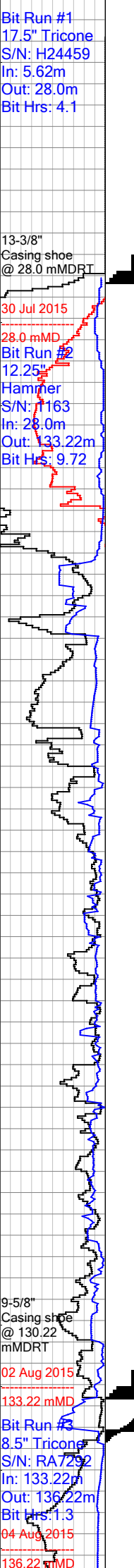
QUALIFIERS, ACCESSORIES AND FOSSILS



WEATHERFORD - SURFACE LOGGING SYSTEMS

Company: Pangaea Resources Well: Tarlee-2 Location: McArthur/Beetaloo Spud Date: 30 July 2015 Scale: 1:500

ROP Average			Symbol	Percentage Lithology	Depth	Interpreted Lithology	Carbon Dioxide Out		Methane Out		Oil Show	Coring	Descriptions/Remarks		
50	m/hr	0					10	ppm	100000	1				ppm	100000
ROP Average							Total Gas Out		Ethane Out						
250	m/hr	50					1	units	10000	1				ppm	100000
WOB			Symbol	Percentage Lithology	Depth	Interpreted Lithology	Propane Out		Iso-Butane Out		Oil Show	Coring	Descriptions/Remarks		
50	Klb	0					1	ppm	100000	1				ppm	100000
WOB							Total Gas Out		N-Butane Out						
50	Klb	0					1	ppm	100000	1				ppm	100000
WOB			Symbol	Percentage Lithology	Depth	Interpreted Lithology	Iso-Pentane Out		N-Pentane Out		Oil Show	Coring	Descriptions/Remarks		
50	Klb	0					1	ppm	100000	1				ppm	100000
WOB							Total Gas Out		N-Pentane Out						
50	Klb	0					1	ppm	100000	1				ppm	100000



**Tarlee-2 spudded
@ 18:00 hrs on 30 July 2015**

Drilled with water without NOV data.

CLAYSTONE: Moderate reddish brown, soft, occasionally firm, amorphous, occasionally sub blocky, dispersive, common greenish grey lithic fragments and coarse quartz crystals, non calcareous.

SANDSTONE: Pale yellowish white to white, generally clear, translucent to transparent, very fine to fine grain, well sorted, sub rounded to rounded, argillaceous matrix supported, poor inferred porosity, no show.

**Drilled 12-1/4" section with air drilling
@ 00:30 hrs on 2 August 2015**

CLAYSTONE: Dark yellowish orange, occasional yellowish orange to cream, locally moderate to dark reddish brown, trace dark brown, firm, occasionally soft, amorphous, occasionally sub blocky, dispersive, non calcareous.

SANDSTONE: Dominantly clear, trace pale to dark yellowish orange, translucent to transparent, dominantly loose quartz grains, trace friable aggregates, generally coarse, locally medium, very coarse grained, moderate sorted, sub rounded to rounded, poor inferred porosity, no show.

BASALT: Blackish red, dark reddish brown, dark yellowish orange, moderately hard to hard, weathered lithic fragments, non calcareous.

LIMESTONE: Dominantly mudstone, locally grainstone, pale to dark yellowish orange, trace yellowish grey, generally firm, locally hard, sub-blocky to sub rounded, no visible porosity, dull yellow mineral fluorescence, no shows.

SANDSTONE: Predominantly loose quartz, clear, translucent to transparent, locally pale to dark yellowish orange, Dominantly very coarse to coarse, trace medium grained, rounded to sub-rounded, spherical, well sorted, inferred porosity, no shows.

BASALT: Generally dark reddish brown, dusky red, locally brownish grey, blackish red, dusky green, olive black, generally moderately hard, trace firm, compact, locally Pyroxene phenocryst, trace Calcite crystals, non-calcareous.

BASALT: Dominantly dusky green, olive black, locally dark reddish brown, dusky red, trace blackish red, generally moderately hard, compact, generally Pyroxene phenocryst, trace Calcite crystals, non-calcareous.

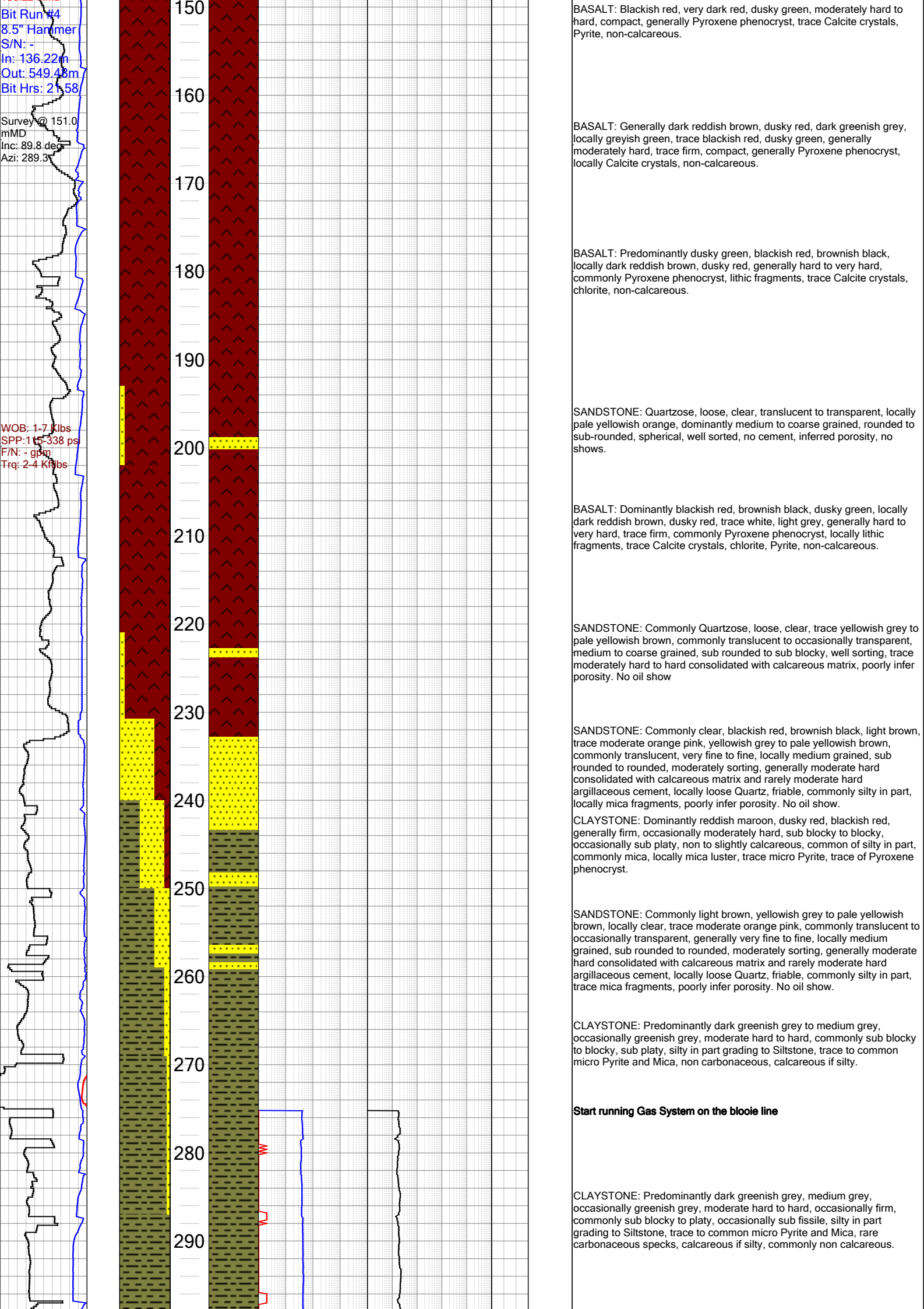
BASALT: Dominantly dusky green, olive black, locally dark reddish brown, dusky red, trace blackish red, generally moderately hard, compact, generally Pyroxene phenocryst, trace Calcite crystals, occasional secondary Pyrite, non-calcareous.

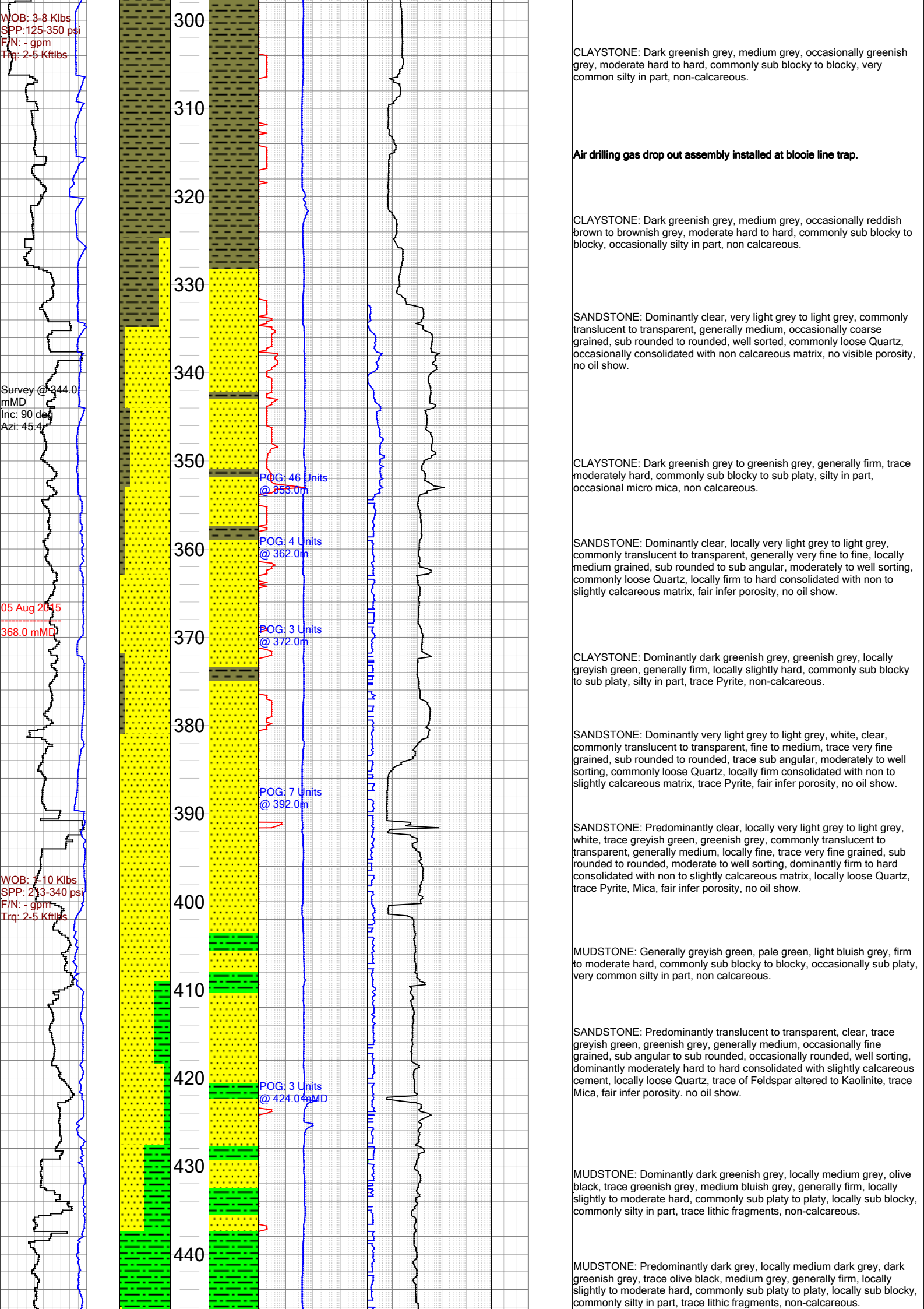
SANDSTONE: Quartzose, loose, clear, translucent to transparent, locally pale to dark yellowish orange, Dominantly very coarse to coarse, trace medium grained, rounded to sub-rounded, spherical, well sorted, inferred porosity, no shows.

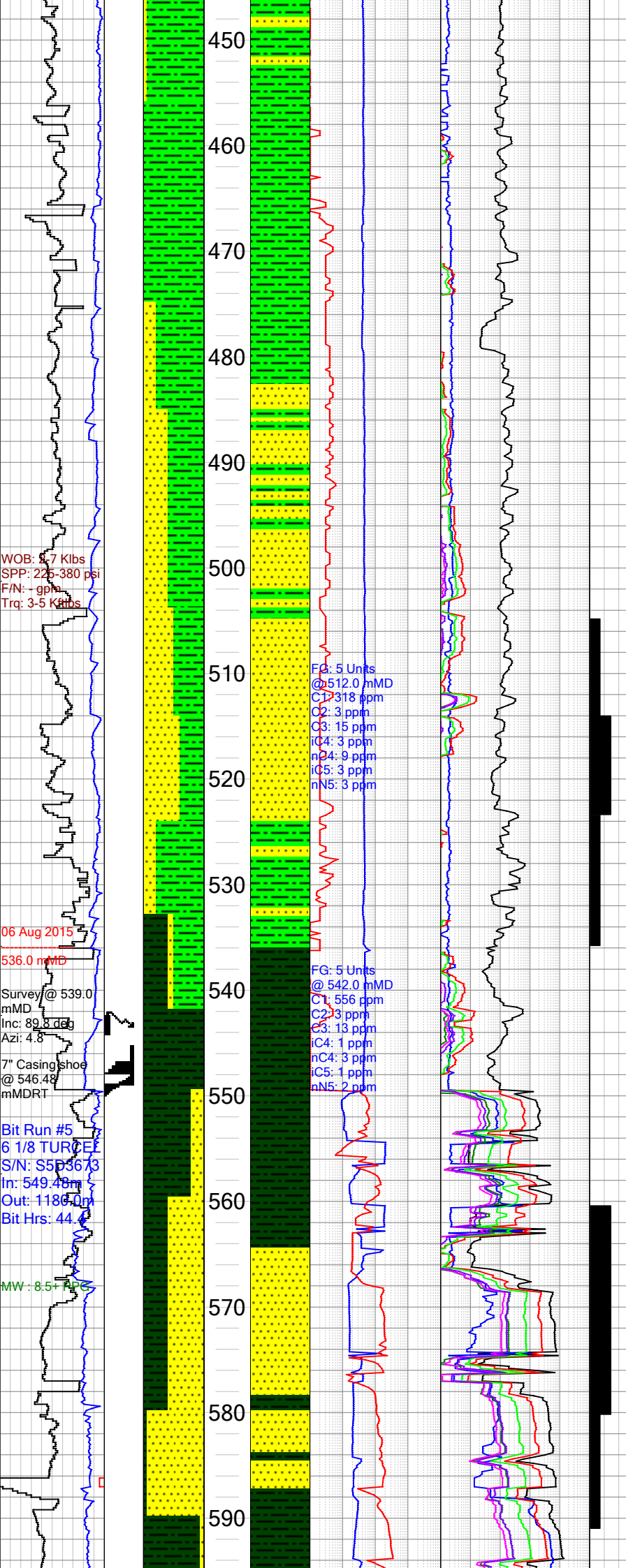
**Drilled 8-1/2" section with water
@ 16:00 hrs on 4 August 2015**

BASALT: Dusky green to olive black, generally moderately hard, compact, generally Pyroxene phenocryst, trace Calcite crystals, occasional secondary Pyrite, non-calcareous.

**Drilled 8-1/2" section with air drilling
@ 00:30 hrs on 5 August 2015**







SANDSTONE: Generally light to medium grey, trace greyish green, greenish grey, clear, translucent to transparent, generally very fine, trace fine grained, sub angular to sub rounded, well sorting, generally moderately hard consolidated with silica cement, trace lithic fragments, trace Pyrite, trace Mica, poorly infer porosity, no oil show.

First detected Propane and Butane.

MUDSTONE: Dominantly dark grey to greyish black, occasionally dark greenish grey to olive black, generally firm, locally slightly hard, commonly sub platy to platy, locally sub blocky, commonly silty in part grading to Siltstone, trace lithic fragments, trace carbonaceous specks, trace Mica, non calcareous.

SANDSTONE: Greenish grey to light greenish grey, generally very fine to fine, sub angular to sub rounded, poorly sorted, occasional loose Quartz, friable to moderately hard, argillaceous matrix supported, trace Mica, poor visible porosity, non calcareous, no oil show.

SANDSTONE: Light grey, greenish grey to light greenish grey, generally very fine to fine, sub angular to sub rounded, poorly sorted, rarely loose Quartz, friable to moderately hard, argillaceous matrix supported, occasionally silty grading to Siltstone, trace to common Chlorite, trace Mica, poor infer porosity, non calcareous, no oil show.

SANDSTONE: Light grey to very light grey, off white, trace greenish grey, translucent to transparent, fine grained, occasionally very fine grained, sub rounded to rounded, well sorting, occasionally loose Quartz, firm to hard, consolidated with non calcareous argillaceous matrix, trace chlorite, trace lithic fragments, trace Pyrite, trace Mica, poor visible porosity, oil show.

Trace oil show: pin point oil stain, no oil smell, dull yellow direct fluorescence, no cut fluorescence, very slow streaming faint bluish white crushed cut fluorescence, bluish white residual fluorescence.

SANDSTONE: Light grey to very light grey, off white, occasionally clear, trace greenish grey, translucent to transparent, fine grained, occasionally very fine grained, sub rounded to rounded, well sorting, occasionally loose Quartz, firm to hard, consolidated with non calcareous argillaceous matrix, trace chlorite, trace lithic fragments, trace Pyrite, trace Mica, poor visible porosity, oil show.

Fair oil show: spotted oil stain, no oil smell, dull yellow direct fluorescence, no cut fluorescence, very slow streaming faint bluish white crushed cut fluorescence, bluish white residual fluorescence.

MUDSTONE: Bluish grey to greenish grey, olive grey to brownish grey, generally firm, occasionally moderately hard, commonly sub platy to platy, occasionally sub blocky, commonly silty in part, trace lithic fragments, non calcareous.

Carb. SHALE: Predominantly dark grey, greyish black, olive black, locally black, dark greenish grey, trace greyish green, generally slightly hard, locally hard, trace firm, commonly sub platy to platy, locally sub elongate, sub blocky, commonly carbonaceous in part, locally silty in part, non-calcareous.

Run Wireline Logging

Gamma Ray, Spontaneous Potential, Lsterslogs, Micro-resistivity, Photo electric /Density/Calijer, Neutron, Sonic, Max Temperature

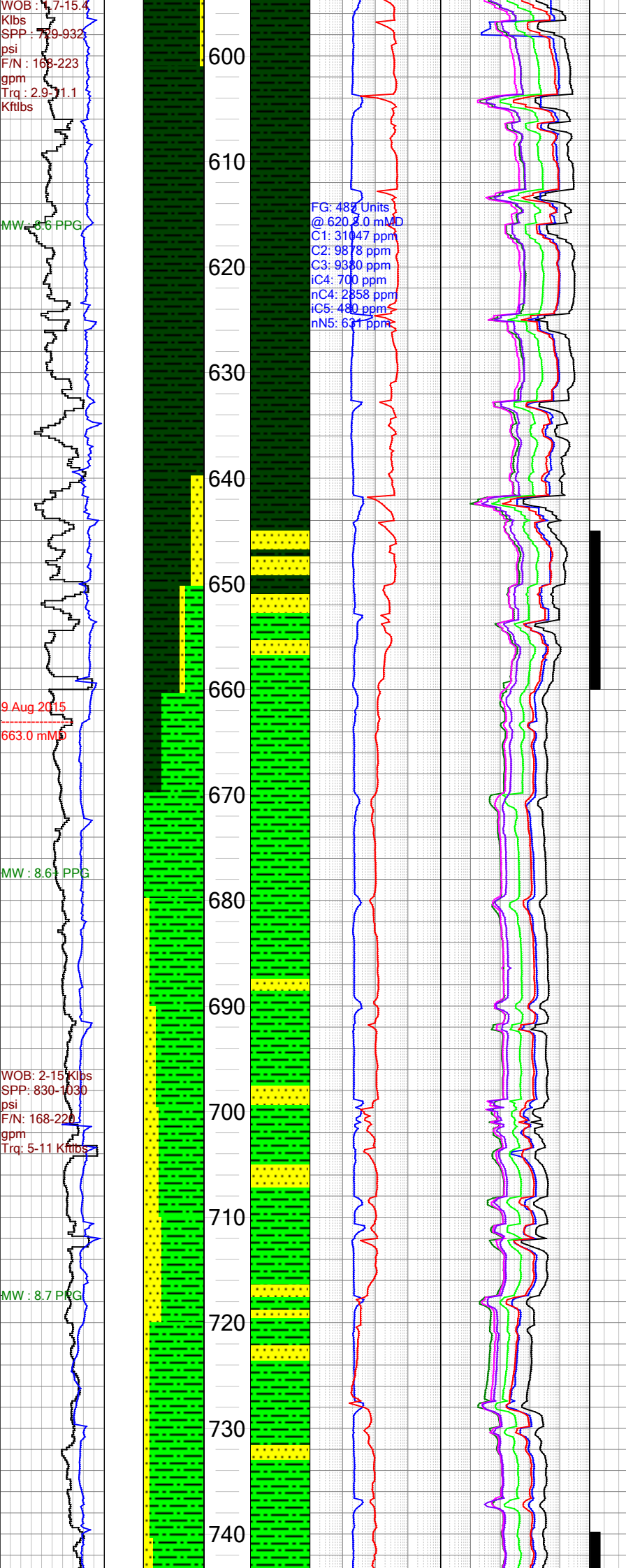
**Drilled 6-1/8" section with 8.5 ppg Mud
After LOT 21.4 PPG EMW
@ 13:15 hrs on 9 August 2015**

SANDSTONE: Light grey to very light grey, off white, occasionally clear, trace greenish grey, translucent to transparent, fine grained, occasionally very fine grained, sub rounded to rounded, well sorting, occasionally loose Quartz, firm to hard, consolidated with non calcareous argillaceous matrix, trace lithic fragments, trace Pyrite, trace Mica, poor visible porosity, oil show.

Fair oil show: no oil smell, dull yellow direct fluorescence, no cut fluorescence, no streaming crushed cut fluorescence, white residual fluorescence.

SANDSTONE: Light grey to very light grey, off white, occasionally clear, trace greenish grey, translucent to transparent, fine grained, occasionally very fine grained, sub rounded to rounded, well sorting, occasionally loose Quartz, firm to hard, consolidated with non calcareous argillaceous matrix, trace lithic fragments, trace Pyrite, trace Mica, poor visible porosity, oil show.

Fair oil show: no oil smell, dull yellow direct fluorescence, no cut fluorescence, no streaming crushed cut fluorescence, white residual fluorescence.



Carb. SHALE: Predominantly dark grey, greyish black, olive black, locally black, dark greenish grey, trace greyish green, generally slightly hard, locally hard, trace firm, commonly sub platy to platy, locally sub elongate, sub blocky, commonly carbonaceous in part, locally silty in part, non-calcareous.

Carb. SHALE: Predominantly dark grey, greyish black, olive black, locally black, dark greenish grey, trace greyish green, generally slightly hard, locally hard, trace firm, commonly sub platy to platy, locally sub elongate, sub blocky, commonly carbonaceous in part, locally silty in part, non-calcareous.

Carb. SHALE: Dominantly dark grey, greyish black, trace olive black, black, greyish green, dark greenish grey, generally slightly hard, trace firm, commonly sub platy to platy, locally sub elongate, sub blocky, commonly carbonaceous in part, locally silty in part, non-calcareous.

SANDSTONE: Generally off white, translucent, clear, locally greenish grey, generally fine to medium, sub angular to sub rounded, moderate to well sorting, generally moderately hard, trace firm, consolidated with silica cement, occasionally silty in part, poorly infer porosity
Trace oil show: pin point pale white, dull golden yellow direct fluorescence, light bluish milky white cut fluorescence, pale yellowish white residual fluorescence.

SHALE: Predominantly dark grey, greyish black, olive black, trace greyish green, dark greenish grey, generally firm, locally moderately hard, trace brittle, commonly sub platy to platy, locally blocky, commonly carbonaceous in part, silty in part, trace grading to siltstone, commonly micro mica, non calcareous.

SHALE: Dominantly olive black, greyish black, locally greenish black, dark grey, trace black, generally firm to moderately hard, commonly sub platy to platy, locally blocky, commonly carbonaceous in part, very silty in part, locally grading to siltstone, commonly micro mica, non-calcareous.

SANDSTONE: Generally off white, translucent, clear, locally greenish grey, greyish green, generally very fine to fine, trace medium, sub angular to sub rounded, moderate to well sorting, generally firm to moderately hard, consolidated with silica cement, trace loose Quartz, occasionally silty in part, poorly infer porosity, no oil shows.

Mud pump problems

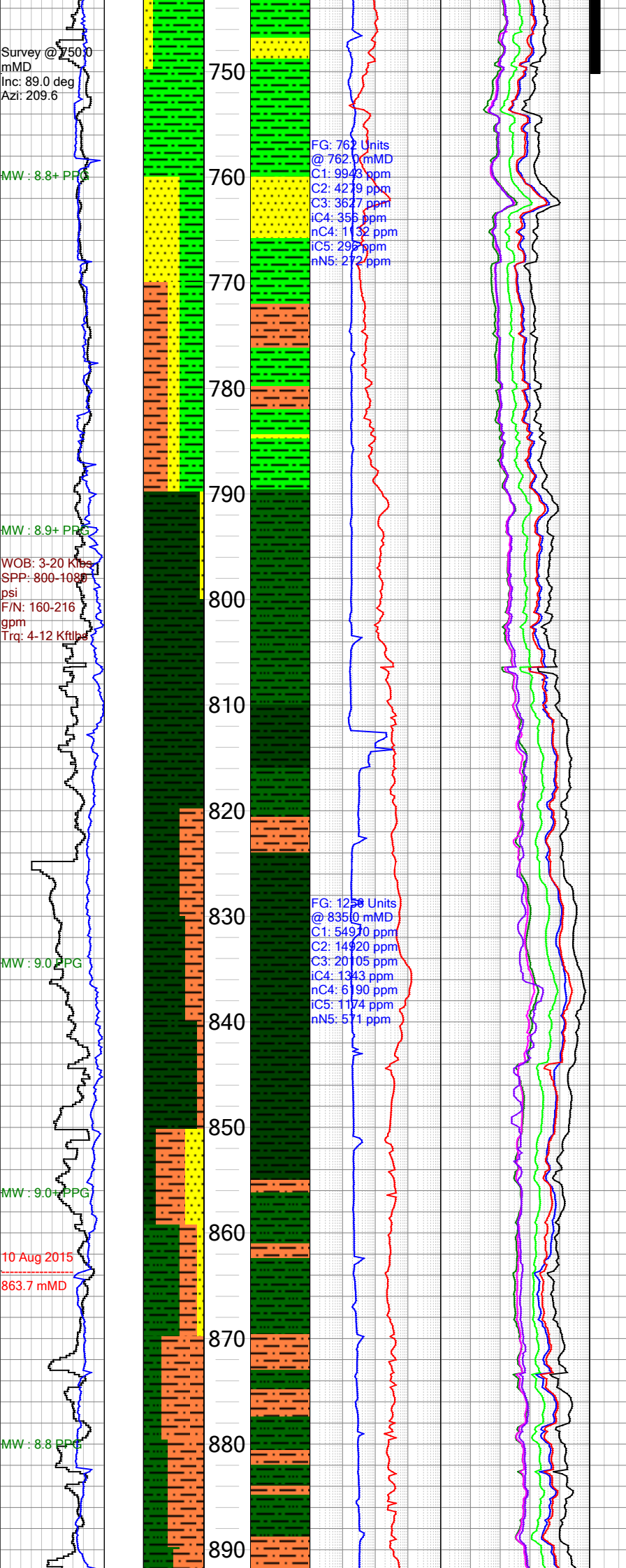
SANDSTONE: Dominantly off white, clear, translucent, trace greenish grey, generally fine, locally very fine grained, sub angular to sub rounded, well sorting, generally firm to moderately hard consolidated with silica cement, poorly infer porosity, no oil shows.

Service on Mud pump

SHALE: Olive black, greyish black to brownish black, occasionally interbedded with thin layer of light brown, dark reddish brown and greenish grey mud stone, generally firm to moderately hard, commonly sub platy to platy, locally blocky, very silty in part, trace commonly carbonaceous in part, trace grading to siltstone, commonly micro mica, non-calcareous.

SANDSTONE: Off white to light grey, occasionally greenish grey, translucent, trace clear Quartz, generally fine, trace medium, very fine grained, sub angular to sub rounded, well sorting, commonly consolidated with weak silica cement, trace light green lithic fragments, locally micro mica, poorly infer porosity, no oil show.

SHALE: Greyish green, greenish grey, occasionally dark olive grey, greyish black, trace brownish black, generally firm, locally moderately hard, commonly sub platy to platy, blocky, common carbonaceous specks, occasionally silty in part, locally grading to siltstone, commonly micro micaceous, non-calcareous.



SANDSTONE: Generally off white, translucent, clear, occasionally greenish grey, generally fine to medium, sub angular to sub rounded, well sorting, generally firm to moderately hard consolidated with silica cement, trace loose Quartz, poorly infer porosity.
Trace oil show: pin point pale white direct fluorescence, no cut fluorescence, dull bluish milky white, residual fluorescence.

SANDSTONE: Generally off white, translucent, clear, occasionally greenish grey, generally very fine to fine grained, sub angular to sub rounded, well sorting, generally firm to moderately hard consolidated with silica cement, trace loose Quartz, poorly infer porosity, no oil shows.

Siltstone: dominantly quartzose, off white, slightly greenish grey, sub-blocky, dominantly silt size quartz, trace argillaceous in part, firm, poor visible porosity, no oil shows.

SHALE: Generally greyish green, greenish grey, occasionally dark olive grey to dark greyish black, locally brownish black, locally interbedded with thin layer of light brown mud stone, generally firm to moderately hard, commonly sub platy, occasionally blocky, locally carbonaceous specks, locally silty in part, commonly micro micaceous, non-calcareous.

Carb. SHALE: Dark grey to dark greyish black, dark to medium brownish grey, sub platy to sub fissile, occasionally blocky, firm to moderately hard, soft in parts, moderately to very carbonaceous, silty in part, grading to siltstone, common disseminated micro pyrite and micro mica.

SILTSTONE: Predominant dark greenish gray, olive black, dark grey, moderate hard to hard, commonly blocky to sub blocky, sub platy, non-calcareous, occasional sandy grading to very fine sandstone, carbonaceous specks, commonly micro pyrite.

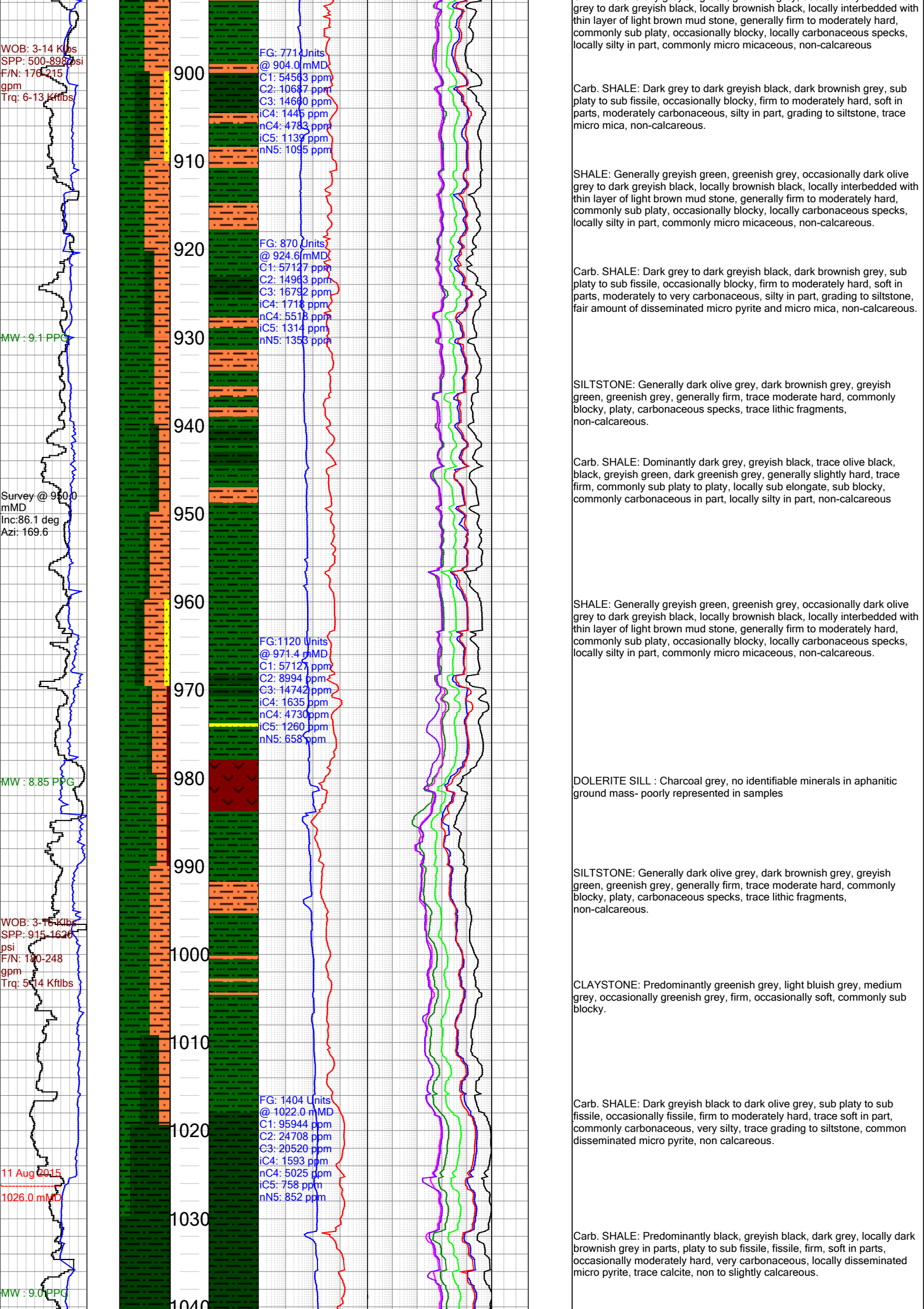
Carb. SHALE: Dark grey to dark greyish black, dark to medium brownish grey, sub platy to sub fissile, occasionally blocky, firm to moderately hard, soft in parts, moderately to very carbonaceous, silty in part, grading to siltstone, common disseminated micro pyrite and micro mica.

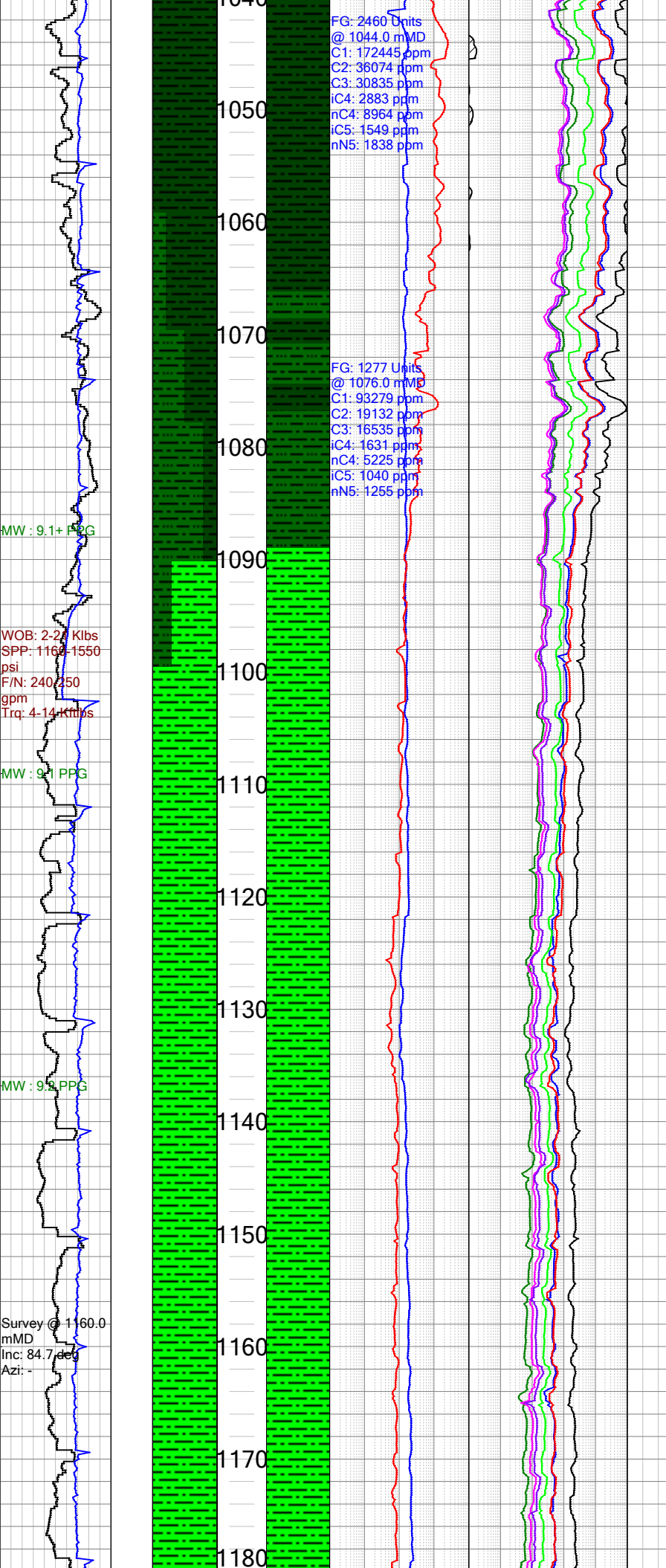
SANDSTONE: Light brown to light grey, off white, translucent to transparent, clear quartz, occasionally light greenish grey, fine, occasionally very fine grained, sub angular to sub rounded, loose Quartz, friable, no cement, common, light green lithic fragments, very common micro mica, poor inferred porosity, no oil show.

Carb. SHALE: Dark grey to dark greyish black, dark brownish grey, sub platy to sub fissile, occasionally blocky, firm to moderately hard, soft in parts, moderately carbonaceous, silty in part, grading to siltstone, trace micro mica, non-calcareous.

SILTSTONE: Predominant dark greenish gray, olive black, dark grey, generally firm, trace moderate hard to hard, commonly blocky to sub blocky, sub platy, non-calcareous, occasional sandy grading to very fine sandstone, carbonaceous specks, commonly micro Pyrite, no oil show.

SHALE: Generally greyish green, greenish grey, occasionally dark olive





Carb. SHALE: Greyish black to black, dark grey to dark brownish grey in parts, platy to sub fissile, fissile, firm, soft in parts, occasionally moderately hard, very carbonaceous, common disseminated micro pyrite, trace calcite, slightly to non calcareous.

Carb. SHALE: Dominantly greyish black to black, locally dark grey to dark brownish grey in parts, platy to sub fissile, fissile, locally sub blocky, firm to moderately hard, very carbonaceous, disseminated micro pyrite, locally calcite, slightly to very calcareous.

SHALE: Medium grey to light grey, dark greenish grey to brownish grey in parts, platy to sub fissile, occasionally fissile, firm to moderately hard, silty in part, commonly grading to siltstone, non carbonaceous, trace micro pyrite, locally calcite, non to slightly calcareous.

SHALE: Dominantly dark greenish grey, medium dark grey, locally greenish grey, brownish grey in parts, platy to sub fissile, occasionally fissile, dominantly firm, locally moderately hard, silty in part, non carbonaceous, trace micro pyrite, trace calcite, non calcareous.

SHALE: Predominantly medium grey to medium dark grey, locally medium light grey, dark greenish grey, greenish grey, platy to sub fissile, occasionally fissile, dominantly firm, locally moderately hard, trace silty in part, non carbonaceous, trace micro mica, trace calcite, non to slightly calcareous.

SHALE: Medium grey to light grey, locally greenish grey, medium dark grey, trace brownish grey, sub platy to fissile, trace sub blocky, generally firm, trace moderate hard, trace silty in part, non carbonaceous, trace micro pyrite, non calcareous.

SHALE: Medium grey to light grey, greenish grey to brownish grey in parts, platy to sub fissile, occasionally fissile, firm, locally moderately hard, silty in part, non carbonaceous, trace micro pyrite, trace calcite, non to slightly calcareous.

SHALE: Dominantly medium grey to medium dark grey, locally medium light grey, greenish grey, sub platy to fissile, locally sub blocky, firm to moderate hard, silty in part, non carbonaceous, trace micro pyrite, trace calcite, non to slightly calcareous.

Reached Tarlee-2 well TD at 1180.0m
@ 11:00 hrs on 12 August 2015