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Gamma Mudlog TVD

COMPANY	ExxonMobil Production
WELL	PCU 296-6B1
FIELD	PICEANCE CREEK UNIT
REGION	ROCKIES MOUNTAINS
COORDINATES	LAT 39.905268000 LON 108.204977000
ELEVATION	GL = 7364.3' KB = 7391.3'
COUNTY, STATE	RIO BLANCO CO.
API INDEX	051031154600
SPUD DATE	12-17-2010
CONTRACTOR	HELMRICH AND PAYNE
CO. REP.	RICKY T OWENS
RIG/TYPE	215 / FLEX 3
LOGGING UNIT	MLU 51
GEOLOGISTS	BRENDA MARSH GEORGE BAKER
ADD. PERSONS	DEVIN CLAAR BILL JOHANNING
CO. GEOLOGIST	WILLIAM HOFFMAN

LOG INTERVAL

DEPTHS: 144' **TO** 14,015'
DATES: 12-19-2010 **TO** 01-16-2011
SCALE: 1" = 100'

CASING DATA

16" **AT** 144'
10.75" **AT** 4,528'
7" **AT** 9,967'
AT

MUD TYPES

LSND **TO** 14,015'
TO
TO
TO

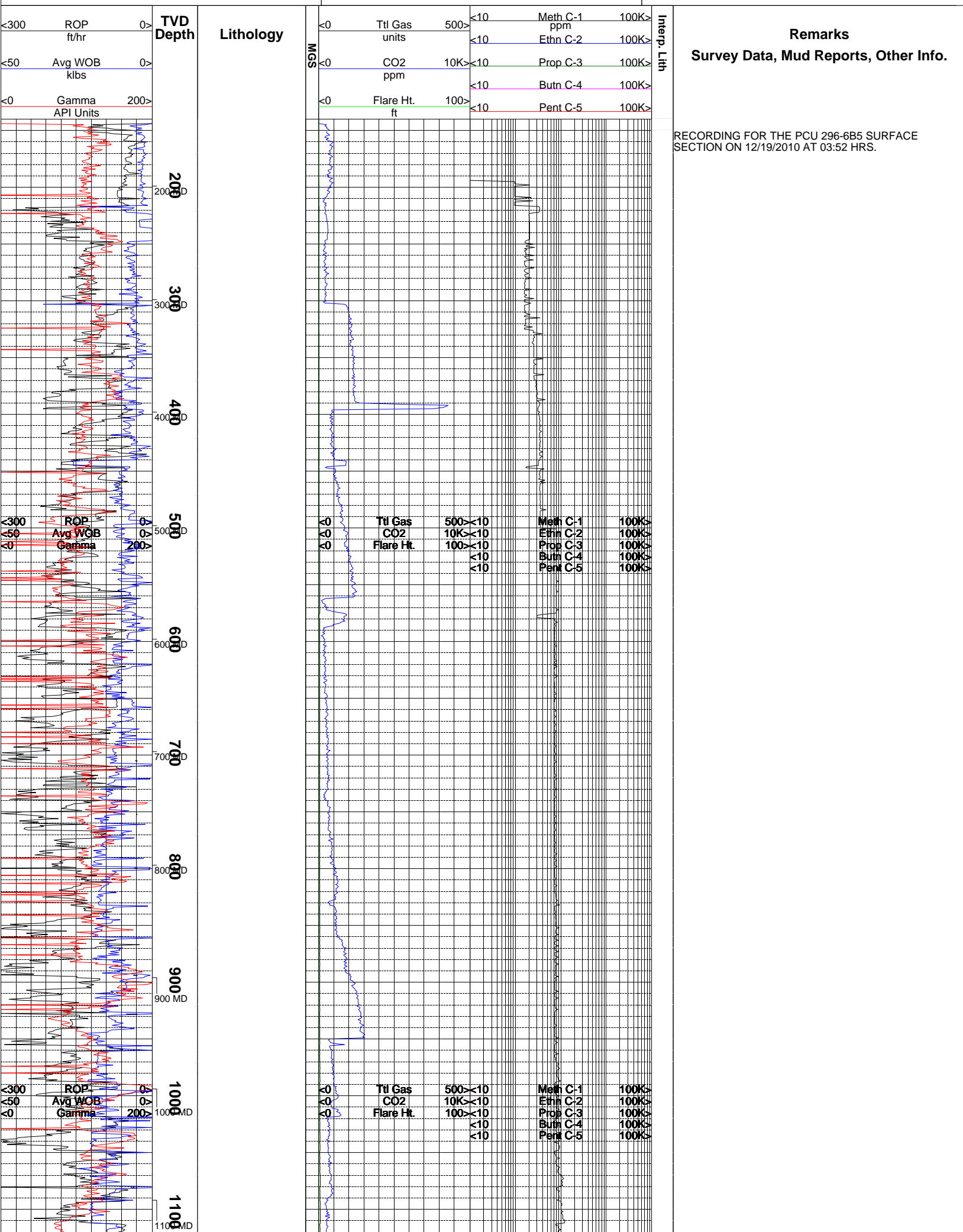
HOLE SIZE

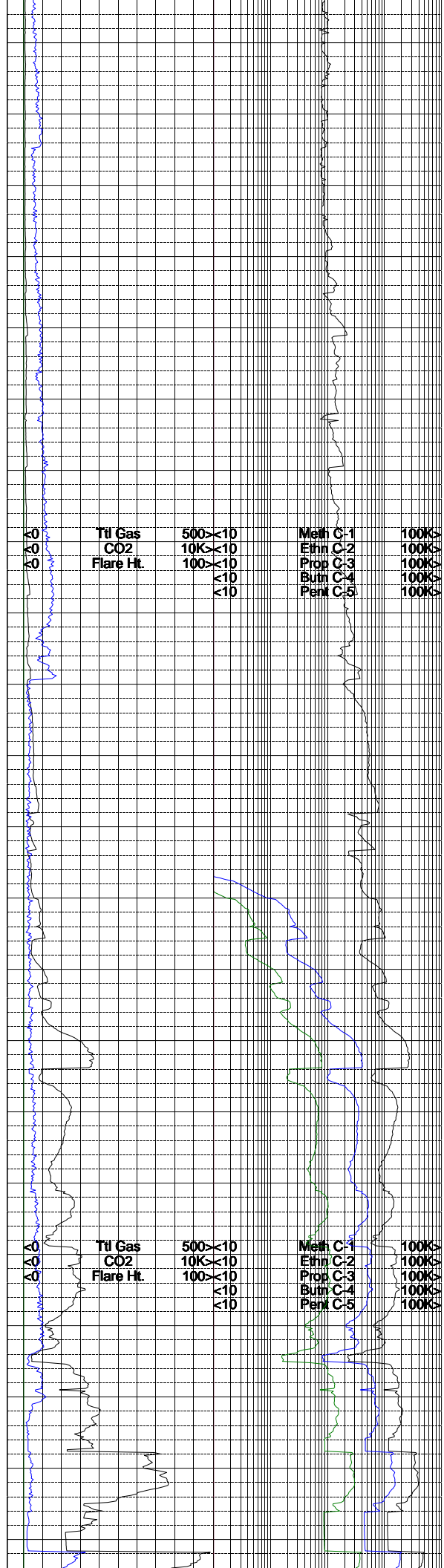
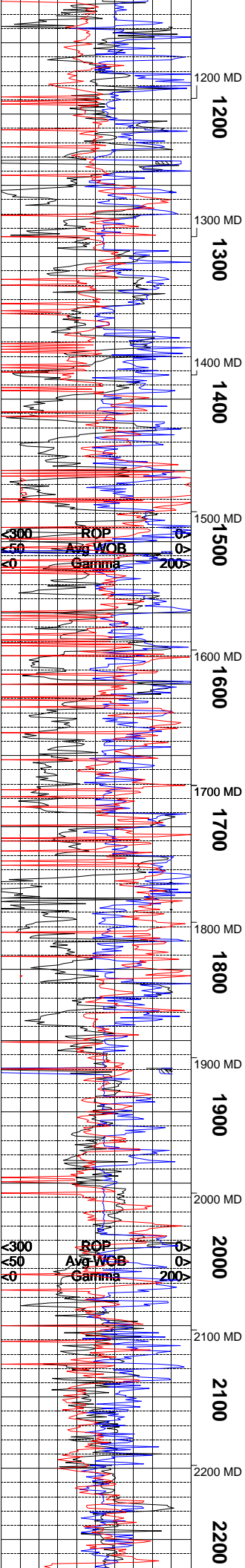
20" **TO** 144'
14.75" **TO** 4,528'
9.875" **TO** 10,067'
6.125" **TO** 14,015'

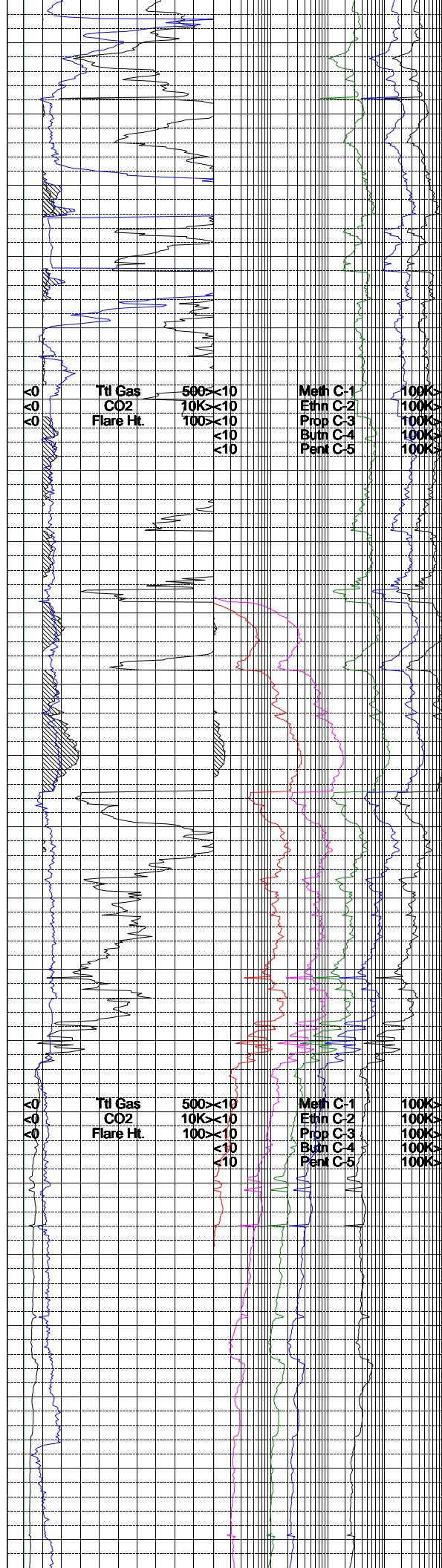
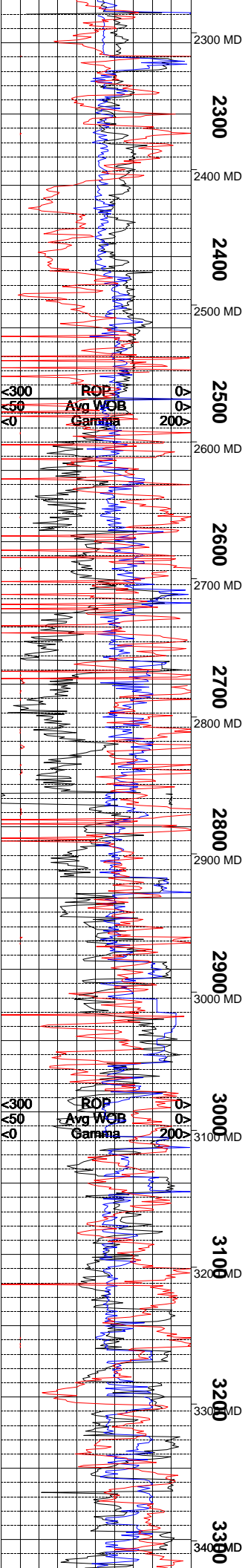
ABBREVIATIONS

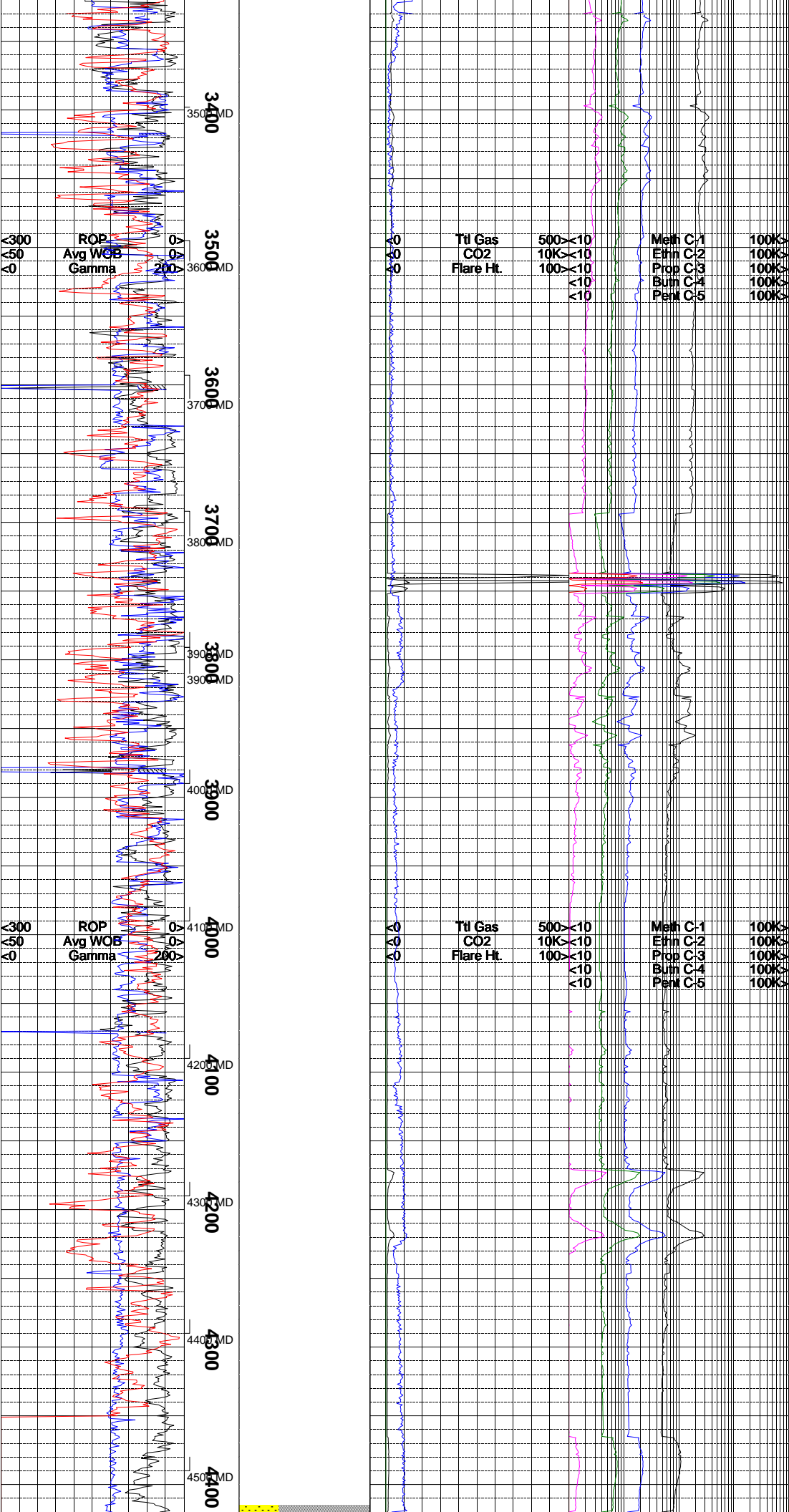
<i>NB</i> NEWBIT	<i>PV</i> PLASTIC VISCOSITY	<i>LC</i> LOST CIRCULATION
<i>RRB</i> RERUN BIT	<i>YP</i> YIELD POINT	<i>CO</i> CIRCULATE OUT
<i>CB</i> CORE BIT	<i>FL</i> FLUID LOSS	<i>NR</i> NO RETURNS
<i>WOB</i> WEIGHT ON BIT	<i>CL</i> PPM CLORIDE ION	<i>TG</i> TRIP GAS
<i>RPM</i> ROTARY REV/MIN	<i>Rm</i> MUD RESISTIVITY	<i>SG</i> SURVEY GAS
<i>PP</i> PUMP PRESSURE	<i>Rmf</i> FILTRATE RESISTIVITY	<i>WG</i> WIPER GAS
<i>SPM</i> STROKES/MIN	<i>PR</i> POOR RETURNS	<i>CG</i> CONNECTION GAS
<i>MW</i> MUD WEIGHT	<i>LAT</i> LOGGED AFTER TRIP	
<i>VIS</i> FUNNEL VISCOSITY	<i>LAS</i> LOGGED AFTER SURVEY	

ALTERED ZONE	CHERT - GLASSY	FELSIC SILIC DIKE	MARL - CALC	SANDSTONE
ANDESITE	CHERT - PORCEL	FOSSIL	METAMORPHICS	SANDSTONE-TUFFACEOUS
ANHYDRITE	CHERT - TIGER STRIPE	GABBRO	MUDSTONE	SERICITIZATION
BASALT	CHERT - UNDIFF	GLASSY TUFF	OBSIDIAN	SERPENTINE
BENTONITE	CLAY	GRANITE	PALEOSOL	SHALE
BIOTITIZATION	CLAY-MUDSTONE	GRANITE WASH	PHOSPHATE	SHALE TUFFACEOUS
BRECCIA	CLYST-TUFFACEOUS	GRANODIORITE	PORCELANITE	SHELL FRAGMENTS
CALCARENITE	CHLORITIZATION	GYPSUM	PORCELANEOUS CLYST	SIDERITE
CALCAREOUS TUFF	COAL	HALITE	PYRITE	SILICIFICATION
CALCILUTITE	CONGLOMERATE	HORNBL-QTZ-DIO	PYROCLASTICS	SILTSTONE
CARBONATES	CONGL. SAND	IGNEOUS (ACIDIC)	QUARTZ DIORITE	SILTST-TUFFACEOUS
CARBONACEOUS MAT	CONGL. SANDSTONE	IGNEOUS (BASIC)	QUARTZ LATITE	TUFF
CARBONACEOUS SH	COQUINA	INTRUSIVES	QUARTZ MONZONITE	VOLCANICLASTICS SEDS
CEMENT CONTAM.	DACITE	KAOLINITIC	RECRYSTALLIZED CALCITE	VOLCANICS
CHALK	DIATOMITE	LIMESTONE	RHYOLITE	
CRYSTALLINE TUFF	DIORITE	LITHIC TUFF	SALT	
CHERT - ARGILL	DOLOSTONE	MARL - DOLO	SAND	







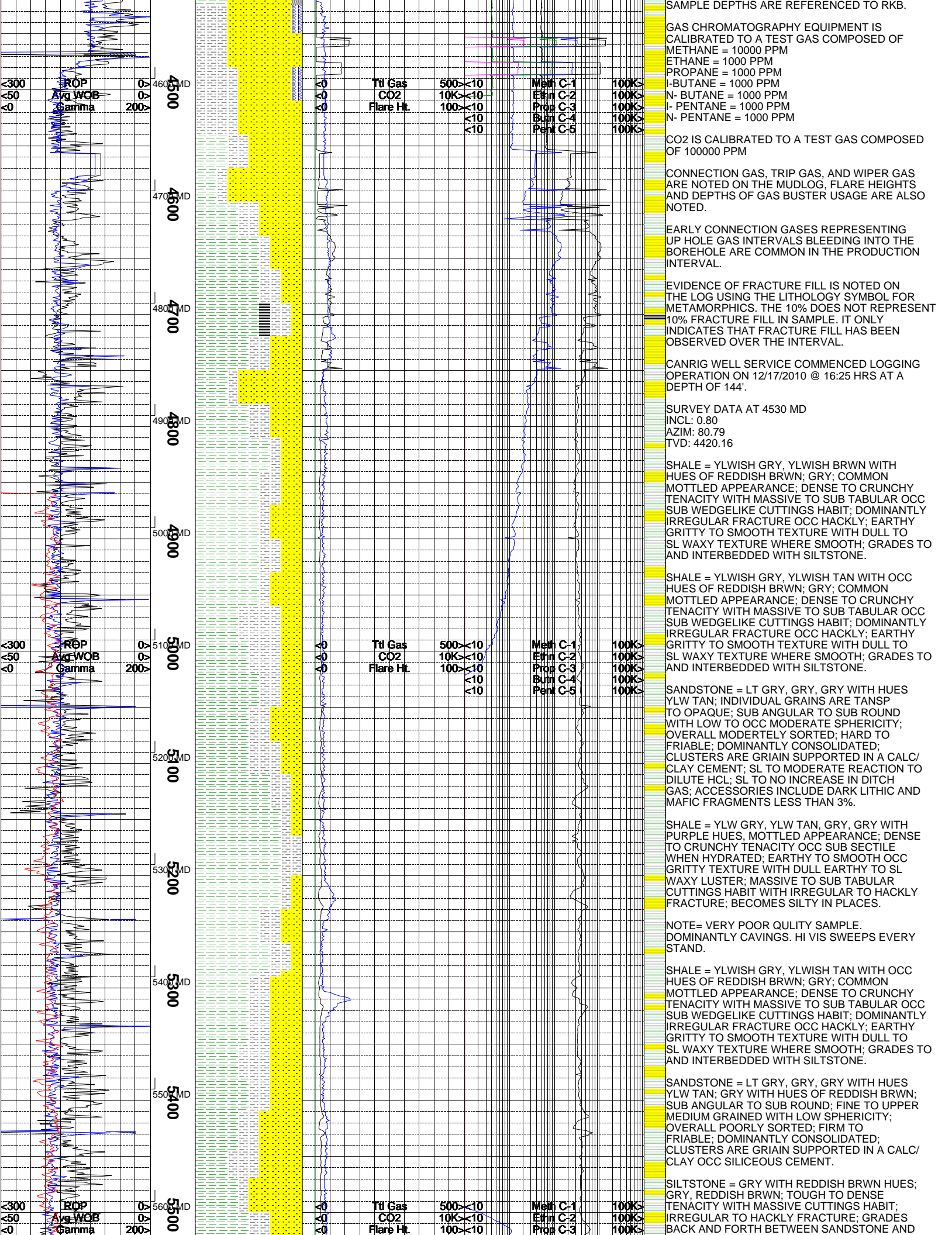


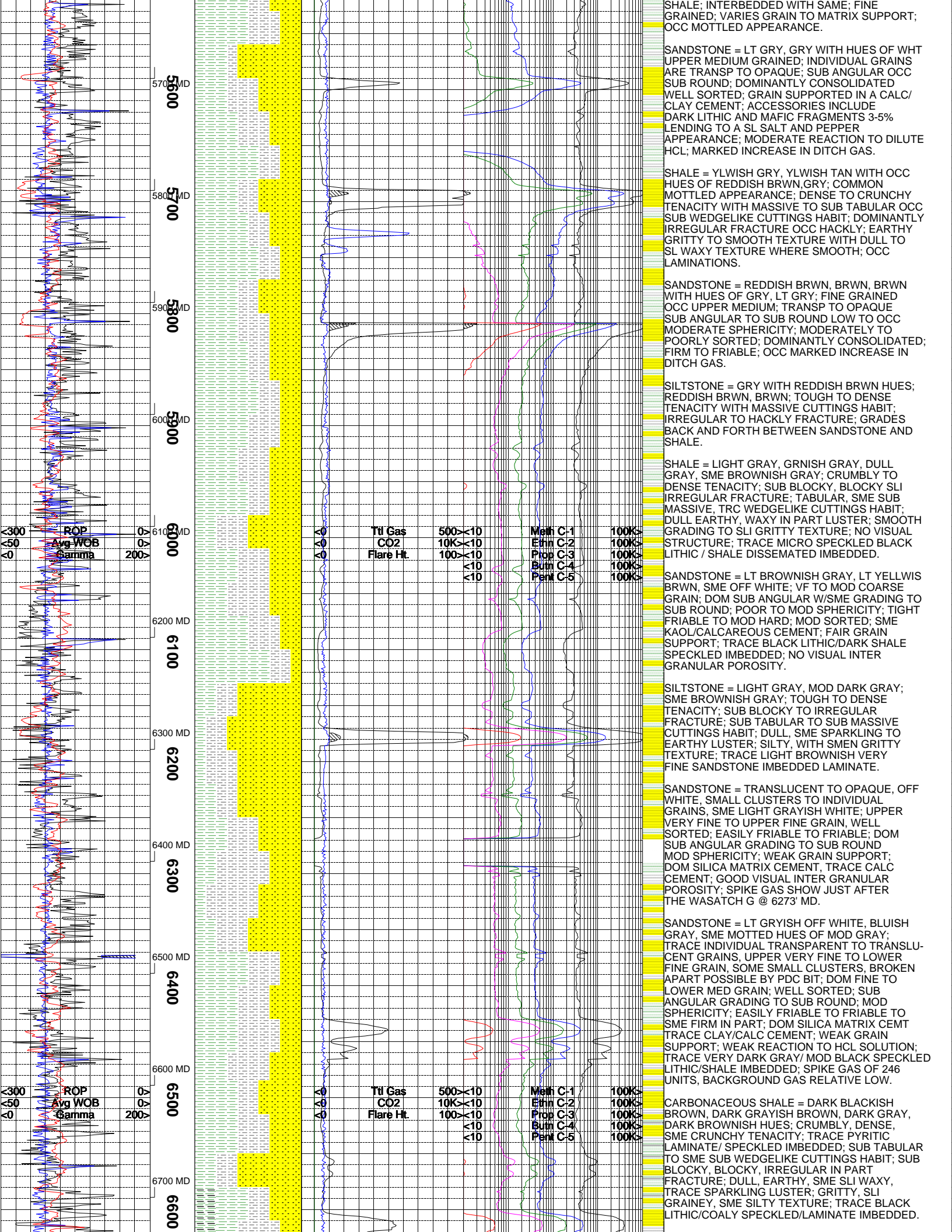
SHOOTING DRAWWORKS MOTOR AND SENSORS.

AHEAD 12/23/2010 05:00 HRS.

NOTE = REACHED CASING POINT 12/24/2010
BEGAN TRIPPING OUT OF HOLE AT 16:30 HRS.
RESUMED DRILLING AHEAD IN INTERMEDIATE
SECTION 12/28/2010 AT 02:13 HRS

ALL ROCK COLORS ARE REFERENCED TO THE
GSA ROCK COLOR CHART, ROCK CONSTITUENTS
ARE DESCRIBED WET AND LISTED IN ORDER OF
MOST ABUNDANT TO LEAST ABUNDANT, ALL





SHALE; INTERBEDDED WITH SAME; FINE GRAINED; VARIES GRAIN TO MATRIX SUPPORT; OCC MOTTLED APPEARANCE.

SANDSTONE = LT GRY, GRY WITH HUES OF WHT UPPER MEDIUM GRAINED; INDIVIDUAL GRAINS ARE TRANSP TO OPAQUE; SUB ANGULAR OCC SUB ROUND; DOMINANTLY CONSOLIDATED WELL SORTED; GRAIN SUPPORTED IN A CALC/CLAY CEMENT; ACCESSORIES INCLUDE DARK LITHIC AND MAFIC FRAGMENTS 3-5% LENDING TO A SL SALT AND PEPPER APPEARANCE; MODERATE REACTION TO DILUTE HCL; MARKED INCREASE IN DITCH GAS.

SHALE = YLWISH GRY, YLWISH TAN WITH OCC HUES OF REDDISH BRWN, GRY; COMMON MOTTLED APPEARANCE; DENSE TO CRUNCHY TENACITY WITH MASSIVE TO SUB TABULAR OCC SUB WEDGELIKE CUTTINGS HABIT; DOMINANTLY IRREGULAR FRACTURE OCC HACKLY; EARTHY GRITTY TO SMOOTH TEXTURE WITH DULL TO SL WAXY TEXTURE WHERE SMOOTH; OCC LAMINATIONS.

SANDSTONE = REDDISH BRWN, BRWN, BRWN WITH HUES OF GRY, LT GRY; FINE GRAINED OCC UPPER MEDIUM; TRANSP TO OPAQUE SUB ANGULAR TO SUB ROUND LOW TO OCC MODERATE SPHERICITY; MODERATELY TO POORLY SORTED; DOMINANTLY CONSOLIDATED; FIRM TO FRIABLE; OCC MARKED INCREASE IN DITCH GAS.

SILTSTONE = GRY WITH REDDISH BRWN HUES; REDDISH BRWN, BRWN; TOUGH TO DENSE TENACITY WITH MASSIVE CUTTINGS HABIT; IRREGULAR TO HACKLY FRACTURE; GRADES BACK AND FORTH BETWEEN SANDSTONE AND SHALE.

SHALE = LIGHT GRAY, GRNISH GRAY, DULL GRAY, SME BROWNISH GRAY; CRUMBLY TO DENSE TENACITY; SUB BLOCKY, BLOCKY SLI IRREGULAR FRACTURE; TABULAR, SME SUB MASSIVE, TRC WEDGELIKE CUTTINGS HABIT; DULL EARTHY, WAXY IN PART LUSTER; SMOOTH GRADING TO SLI GRITTY TEXTURE; NO VISUAL STRUCTURE; TRACE MICRO SPECKLED BLACK LITHIC / SHALE DISSEMINATED IMBEDDED.

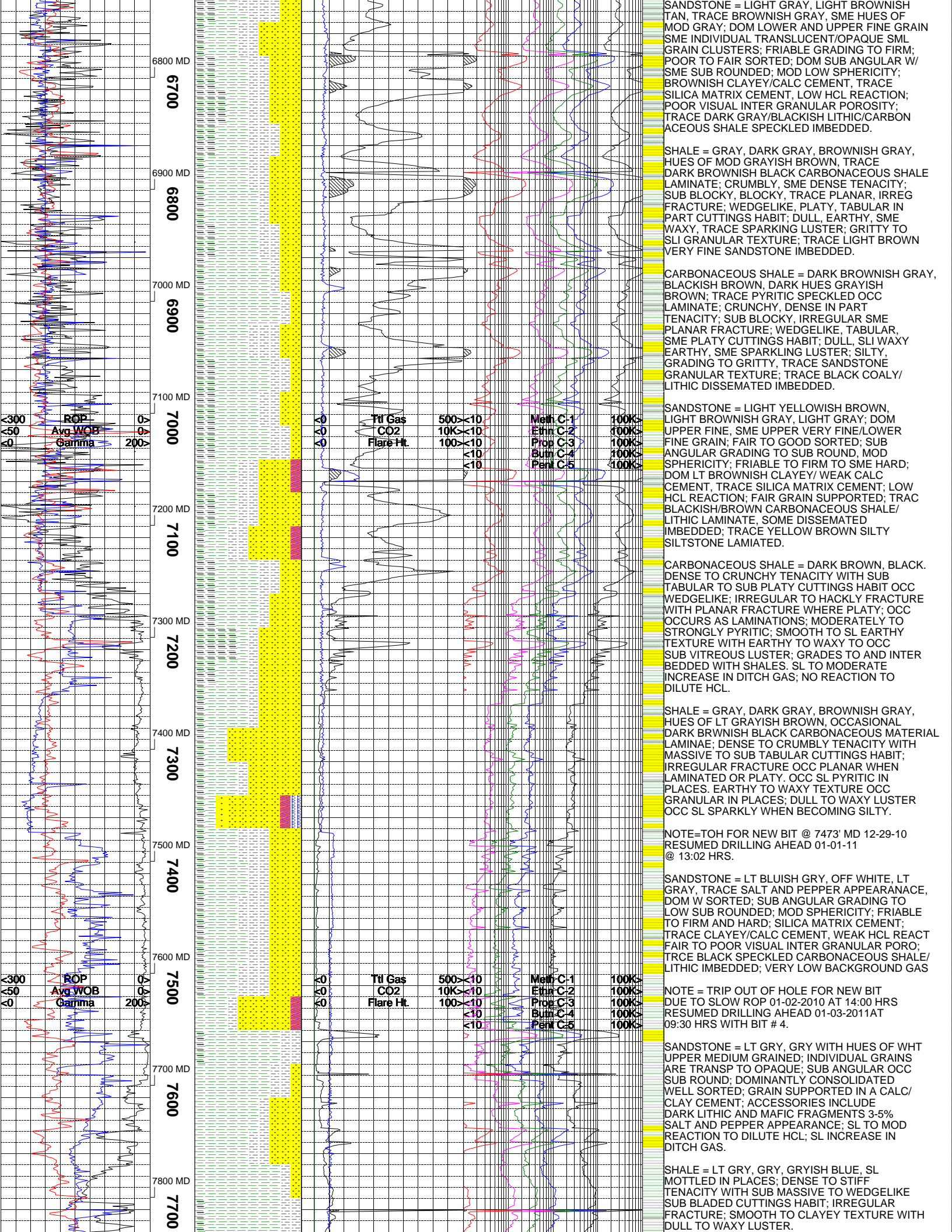
SANDSTONE = LT BROWNISH GRAY, LT YELLWIS BRWN, SME OFF WHITE; VF TO MOD COARSE GRAIN; DOM SUB ANGULAR W/SME GRADING TO SUB ROUND; POOR TO MOD SPHERICITY; TIGHT FRIABLE TO MOD HARD; MOD SORTED; SME KAOL/CALCAREOUS CEMENT; FAIR GRAIN SUPPORT; TRACE BLACK LITHIC/DARK SHALE SPECKLED IMBEDDED; NO VISUAL INTER GRANULAR POROSITY.

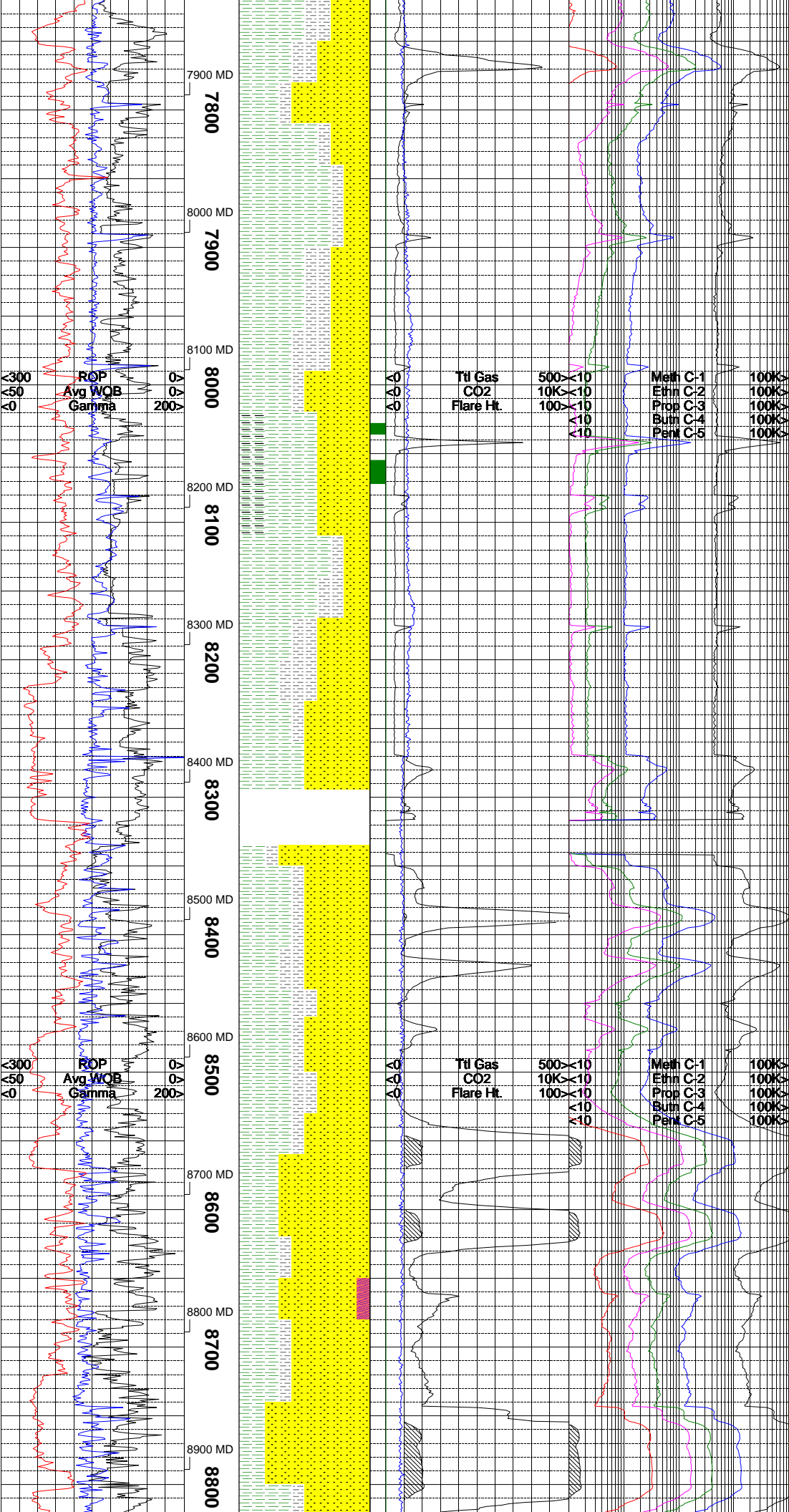
SILTSTONE = LIGHT GRAY, MOD DARK GRAY; SME BROWNISH GRAY; TOUGH TO DENSE TENACITY; SUB BLOCKY TO IRREGULAR FRACTURE; SUB TABULAR TO SUB MASSIVE CUTTINGS HABIT; DULL, SME SPARKLING TO EARTHY LUSTER; SILTY, WITH SMEN GRITTY TEXTURE; TRACE LIGHT BROWNISH VERY FINE SANDSTONE IMBEDDED LAMINATE.

SANDSTONE = TRANSLUCENT TO OPAQUE, OFF WHITE, SMALL CLUSTERS TO INDIVIDUAL GRAINS, SME LIGHT GRAYISH WHITE; UPPER VERY FINE TO UPPER FINE GRAIN, WELL SORTED; EASILY FRIABLE TO FRIABLE; DOM SUB ANGULAR GRADING TO SUB ROUND MOD SPHERICITY; WEAK GRAIN SUPPORT; DOM SILICA MATRIX CEMENT, TRACE CALC CEMENT; GOOD VISUAL INTER GRANULAR POROSITY; SPIKE GAS SHOW JUST AFTER THE WASATCH G @ 6273' MD.

SANDSTONE = LT GRYISH OFF WHITE, BLUISH GRAY, SME MOTTED HUES OF MOD GRAY; TRACE INDIVIDUAL TRANSPARENT TO TRANSLUCENT GRAINS, UPPER VERY FINE TO LOWER FINE GRAIN, SOME SMALL CLUSTERS, BROKEN APART POSSIBLE BY PDC BIT; DOM FINE TO LOWER MED GRAIN; WELL SORTED; SUB ANGULAR GRADING TO SUB ROUND; MOD SPHERICITY; EASILY FRIABLE TO FRIABLE TO SME FIRM IN PART; DOM SILICA MATRIX CEMENT TRACE CLAY/CALC CEMENT; WEAK GRAIN SUPPORT; WEAK REACTION TO HCL SOLUTION; TRACE VERY DARK GRAY/ MOD BLACK SPECKLED LITHIC/SHALE IMBEDDED; SPIKE GAS OF 246 UNITS, BACKGROUND GAS RELATIVE LOW.

CARBONACEOUS SHALE = DARK BLACKISH BROWN, DARK GRAYISH BROWN, DARK GRAY, DARK BROWNISH HUES; CRUMBLY, DENSE, SME CRUNCHY TENACITY; TRACE PYRITIC LAMINATE/ SPECKLED IMBEDDED; SUB TABULAR TO SME SUB WEDGELIKE CUTTINGS HABIT; SUB BLOCKY, BLOCKY, IRREGULAR IN PART FRACTURE; DULL, EARTHY, SME SLI WAXY, TRACE SPARKLING LUSTER; GRITTY, SLI GRAINEY, SME SILTY TEXTURE; TRACE BLACK LITHIC/COALY SPECKLED/LAMINATE IMBEDDED.





SANDSTONE = WHITE TO SPECKLED BROWN WH; LOWER MEDIUM TO FINE GRAINED; ANGULAR TO SUBANGULAR; MOD SORTED; TAN/BROWN LITHIC FRAGMENTS; SCATTERED BLACK TO DARK GRAY MATERIAL; DOM CALCITE CEMENT; MINOR WH CLAY IN MATRIX; LOW TO MOD SPERICITY; MINOR GAS INCREASES.

SHALE = LIGHT GRAY; LIGHT GREENISH GRAY; SME REDDISH BROWN; FIRM TO SLI HARD; PLATY TO WEDGELIKE CUTTINGS; IRREGULAR FRACTURE; SOME MOTTLED EXAMPLES; SLI TO MOD CALCAREOUS; COMMONLY SILTY TO SANDY WITH ISOLATED QUARTZ GRAINS; SME CARB LAYERS; NO VISIBLE STRUCTURE.

SANDSTONE = WHITE; LIGHT GREENISH GRAY; FINE TO VERY FINE GRAINED; ANGULAR TO SUBANGULAR; MOD WELL SORTED; SME MOTTLED TAN SPECIMENS; DOM GRAIN SUPPORTED; VARIABLE AMOUNT OF CALCITE CEMENTATION; LOW TO MOD SPHERICITY; MINOR CARBON MATERIAL; MINOR GAS INCREASES.

SHALE = LIGHT GRAY TO LIGHT GREENISH GRAY; IRREGULAR FRACTURE; SLI PLATY TO MASSIVE IN SILTY EXAMPLES; FIRM TO VERY HARD IN SILTY SPECIMENS; SLI CALCAREOUS; SILTY TO SANDY IN PART; THIN CARBON LAYERS; SME TAN TO REDDISH BROWN SILTST; SOME VERY SILTY SPECIMENS; SOME BLACK TO DARK GRAY CARBONACEOUS SPECIMENS; TR COAL IN SAMPLES.

SILTSTONE = LT GREENISH GRAY; RED TAN; MOD TO VERY HARD; PLATY TO FLAKY CTGS IRREGULAR FRACTURE; NON TO SLI CALC; DULL TO SLI SPARKLING LUSTER WHEN DRIED; SILTY TO SLI GRITTY TEXTURE; OCC CARB.

OHIO CREEK SANDSTONE = WHITE TO VERY LIGHT GRAY WITH SOME FLAKES OF KAOLINIC CLAY THROUGHOUT; FINE TO UPPER VERY FINE GRAINED; MAINLY SMALL TIGHT MODERATELY TO NON-FRIABLE CLUSTERS; FAIR SORTING; SUB ANGULAR TO ROUND; MODERATE SPHERICITY; HIGHLY REACTIVE TO DILUTE HCL; CALCAREOUS CEMENTATION;

SHALE = LIGHT GRAY TO GRAY; BRITTLE TO CRUMBLY; PLANAR; VERY FLAKY TO SCALY; DULL TO EARTHY LUSTER; SMOOTH TO SILTY TEXTURE; GRADES TO SILTSTONE IN PLACES; THIN STRUCTURE; THINLY INTER-BEDDED.

NOTE: LOST CIRC. @ 8375' (WORKED PIPE); NO RETURNS @ 8430'; LOST CIRC. AGAIN @ 8470'.

SANDSTONE = POOR SAMPLE QUALITY IN LOST CIRCULATION ZONE; ABUNDANT LOOSE GRAINS; UPPER MEDIUM TO UPPER FINE GRAINED; MOD SORTED; ANGULAR TO SUBROUNDED; SILICEOUS TO CALCAREOUS CEMENT; GRAIN SUPPORTED; SCATTERED DARK BROWN CARBONACEOUS MAT; TRACE GREEN GRAINS; ASSOCIATED WITH MINOR GAS INCREASES.

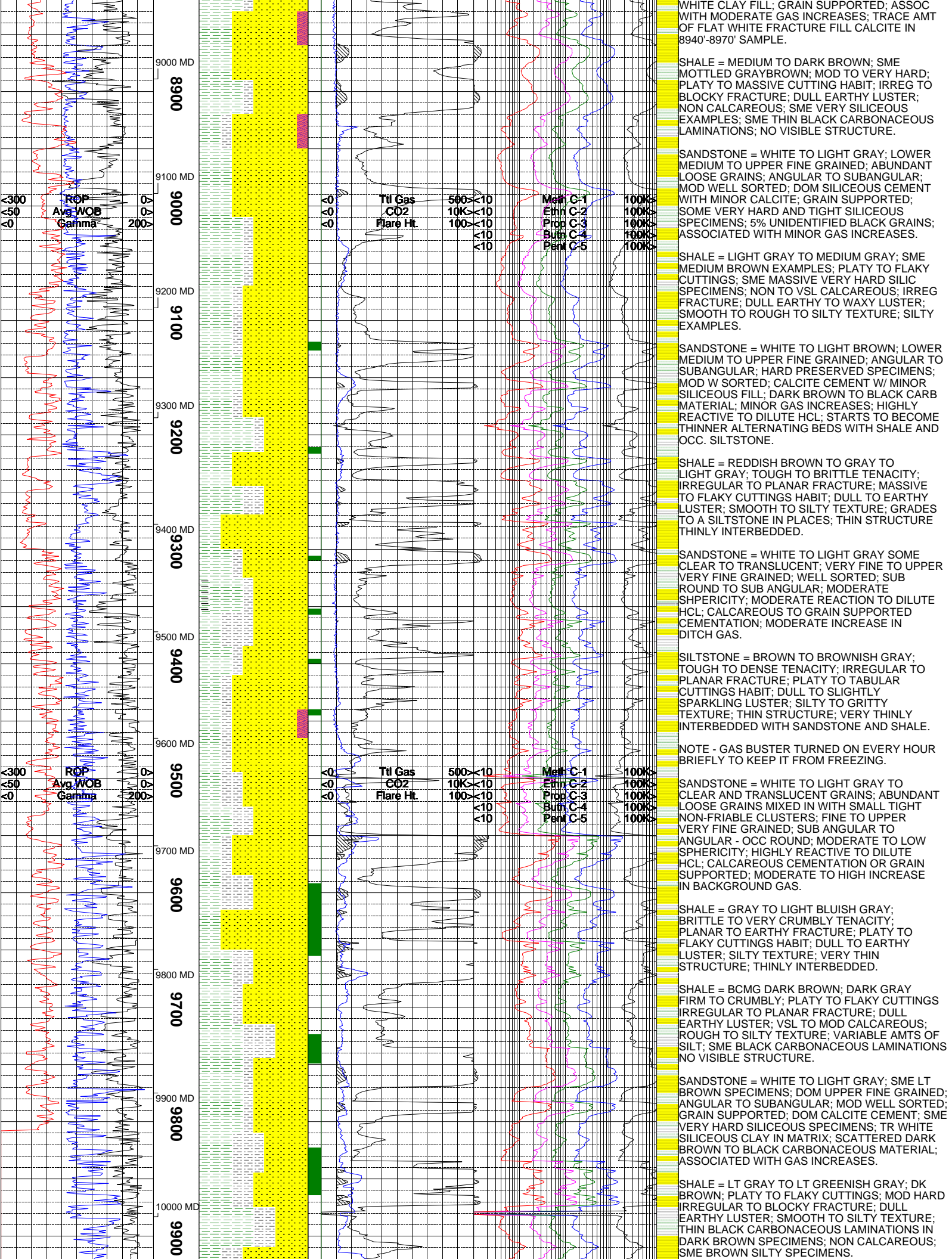
SHALE = LT REDDISH BROWN; LIGHT GRAY TO LT GREENISH GRAY; MOTTLED IN PART; FIRM TO OCC HARD; PLATY TO FLAKY CUTTINGS; IRREGULAR TO BLOCKY FRACTURE; DULL EARTHY LUSTER; SMOOTH TO SILTY TEXTURE; SOME SANDY TO SILTY EXAMPLE; VSL CALC; OCC BLACK CARBONACEOUS MATERIAL; NO VIS STRUCTURE.

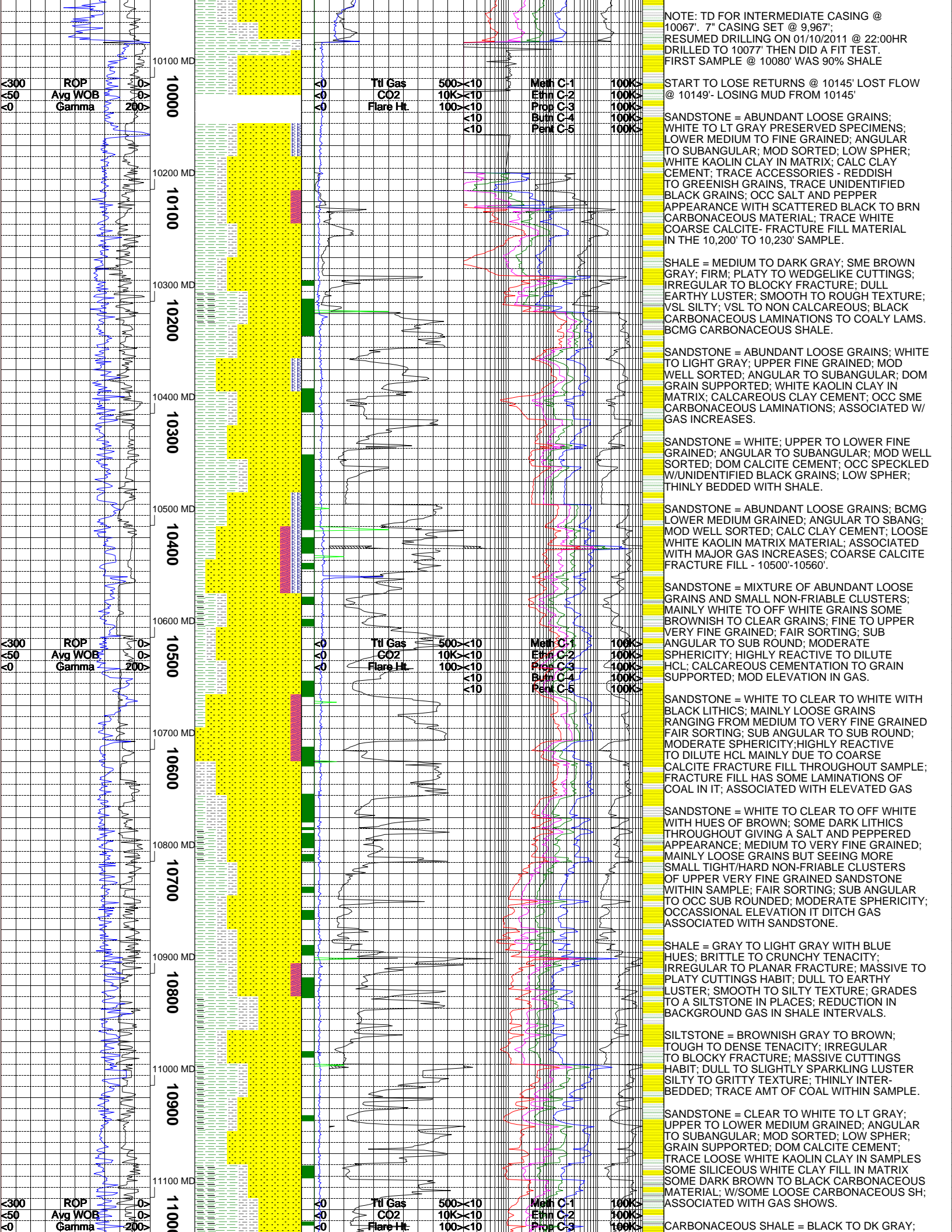
NOTE: POOR SAMPLE AND GAS QUALITY IN HIGH MUD LOSS INTERVALS AFTER WORKING ON LOST CIRCULATION.

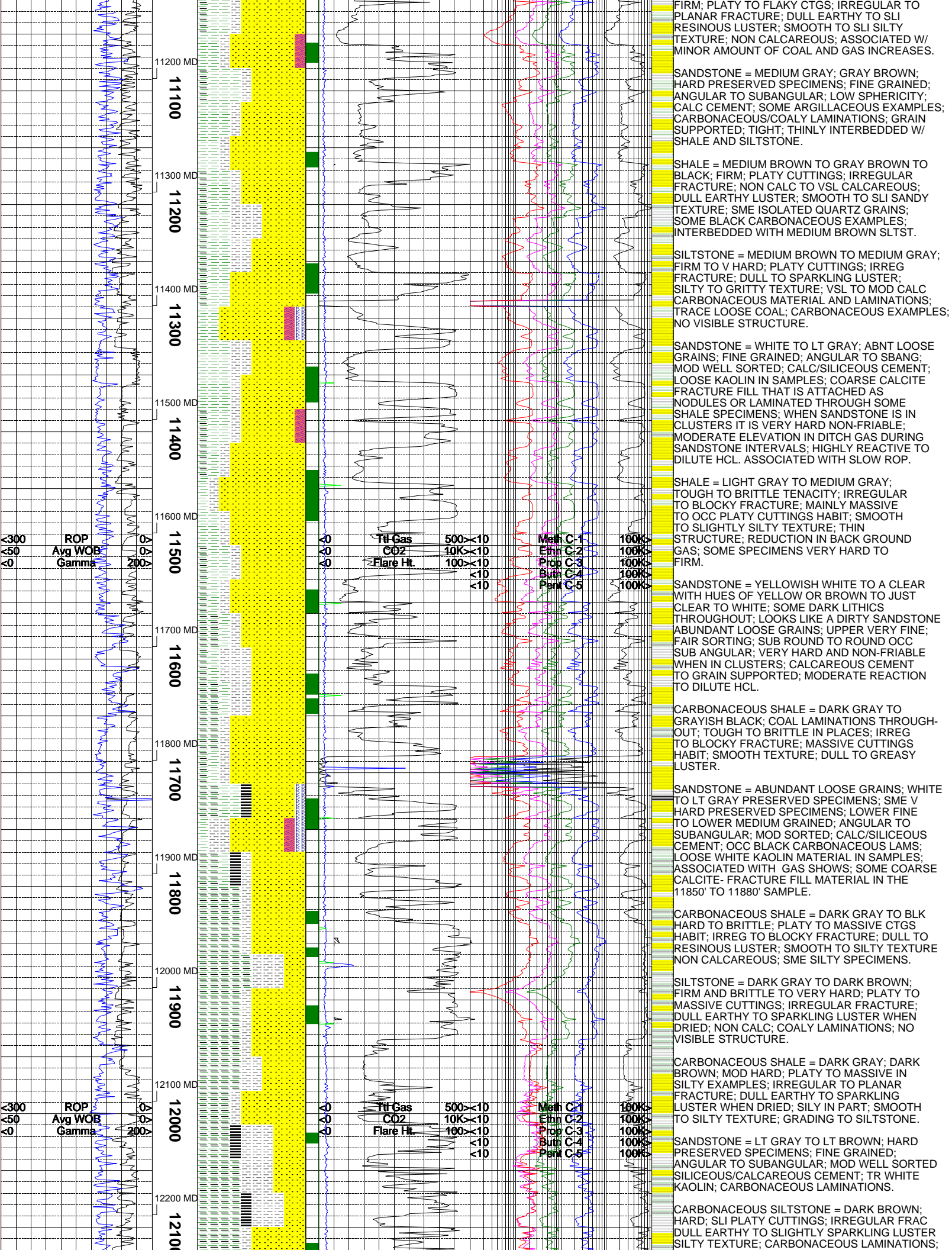
SANDSTONE = LIGHT GRAY TO WHITE; MINOR LT GREENISH GRAY; ABUNDANT LOOSE GRAINS; UPPER MEDIUM TO LOWER MEDIUM GRAINED; SILICEOUS CALCAREOUS CEMENT; ANGULAR TO SUBROUNDED; MOD WELL SORTED; GRAIN SUPPORTED; LOW TO MOD SPHERICITY; SCATT BLACK MAFIC AND CARBONACEOUS GRAINS; TR GREEN GRAINS; SOME SILICEOUS WHITE CLAY IN MATRIX; TRACE MICA; RARE BLACK COALY LAMINATIONS; ASSOCIATED WITH MODERATE GAS INCREASES; THIN WHITE CALCITE LAYERS FRACTURE FILL MATERIAL IN THE 8760-8790' SAMPLE.

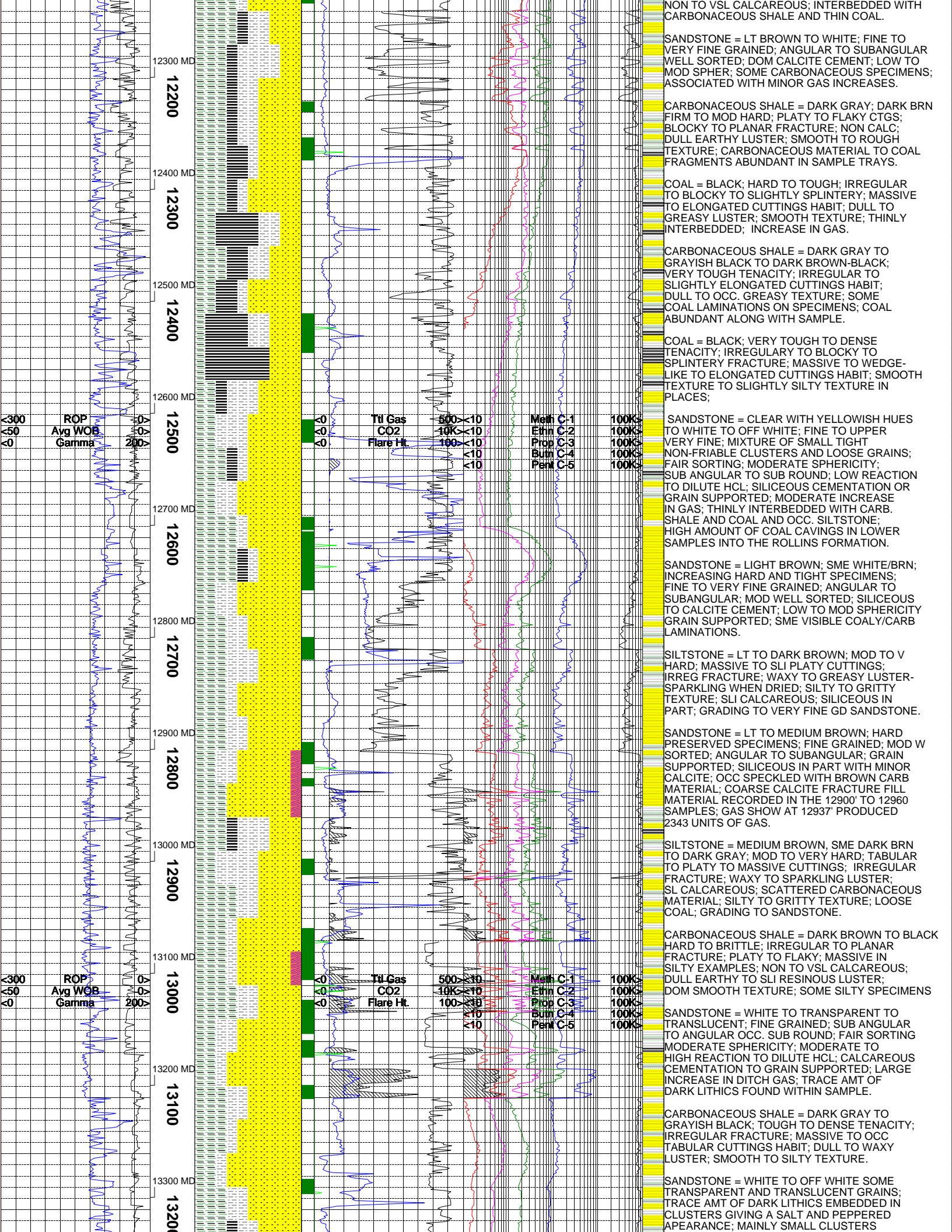
SHALE = LT GRAY; SOME GREENISH GRAY; FIRM TO MOD HARD; PLATY TO FLAKY TO WEDGELIKE CUTTINGS; IRREGULAR FRACTURE; VSL CALCAREOUS; GRADING TO SILTSTONE; DULL EARTHY TO WAXY WHEN DRIED; SMOOTH TO ROUGH TEXTURE; NO VISIBLE STRUCTURE.

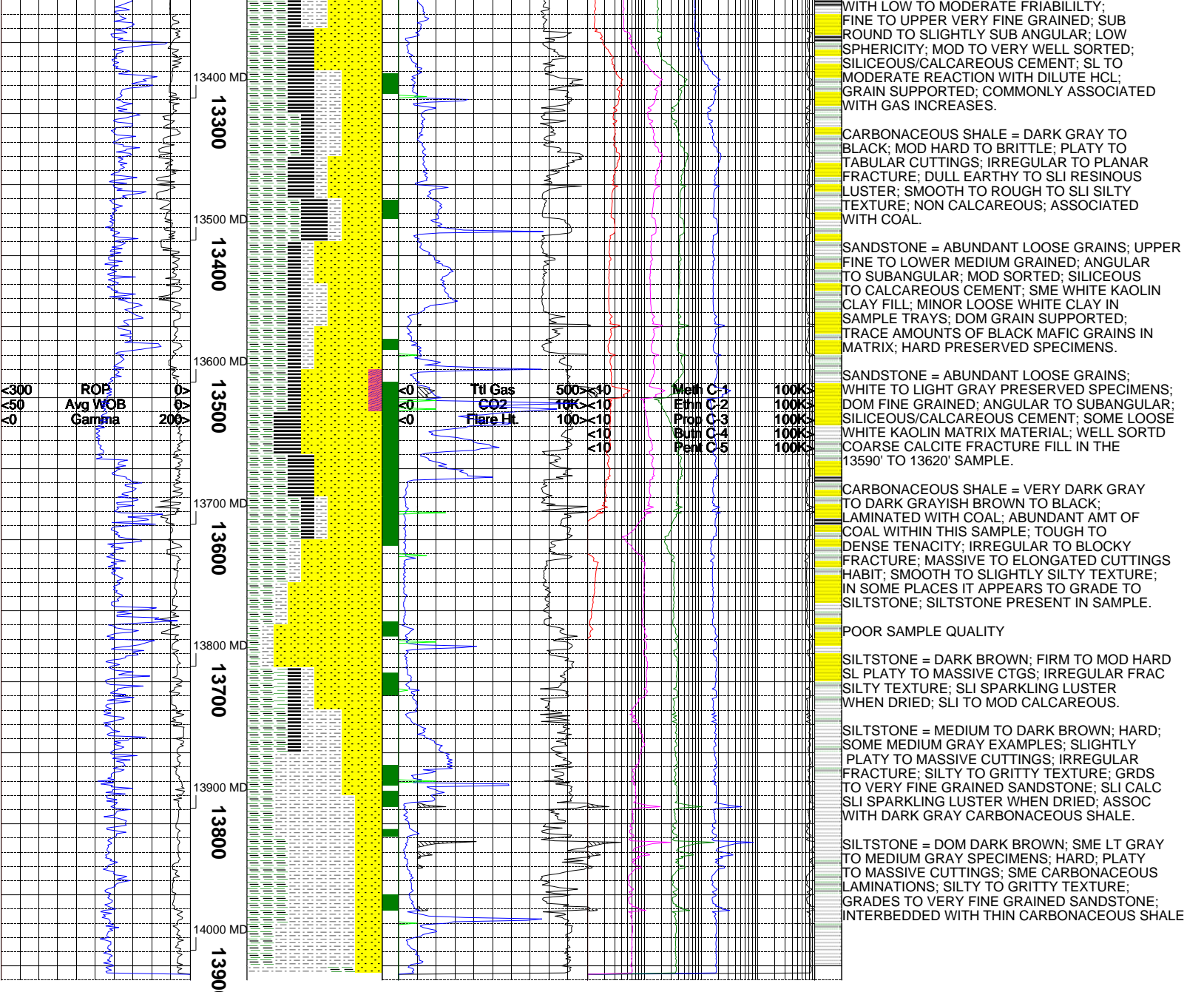
SANDSTONE = WHITE TO LIGHT GRAY; UPPER TO LOWER MEDIUM GRAINED; ANGULAR TO SUBROUNDED; MOD SORTED; OCC SALT AND PEPPER APPEARANCE WITH SCATTERED BLACK MAFIC FRAGMENTS AND CARBONACEOUS MAT; SILICEOUS/CALC CEMENT WITH SME SILICEOUS











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