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Houston, TX
(281) 784-5500
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(337) 364-2322
Anchorage, AK
(907) 561-2465

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

CASING DATA

DEPTHS: 144' TO 14,015'
DATES: 12-19-2010 TO 01-16-2011
SCALE: 5" = 100'

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

MUD TYPES

HOLE SIZE

LSND TO 14,015'
TO
TO
TO

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	SERICIZATION
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	

<300 ROP 0>
ft/hr

<50 Avg WOB 0>
klbs

<0 Gamma 200>
API Units

TVD Depth

Lithology

MGS

<0 Ttl Gas 500>
units

<0 CO2 10K>
ppm

<0 Flare Ht. 100>
ft

<10 Meth C-1 100K>
ppm

<10 Ethn C-2 100K>

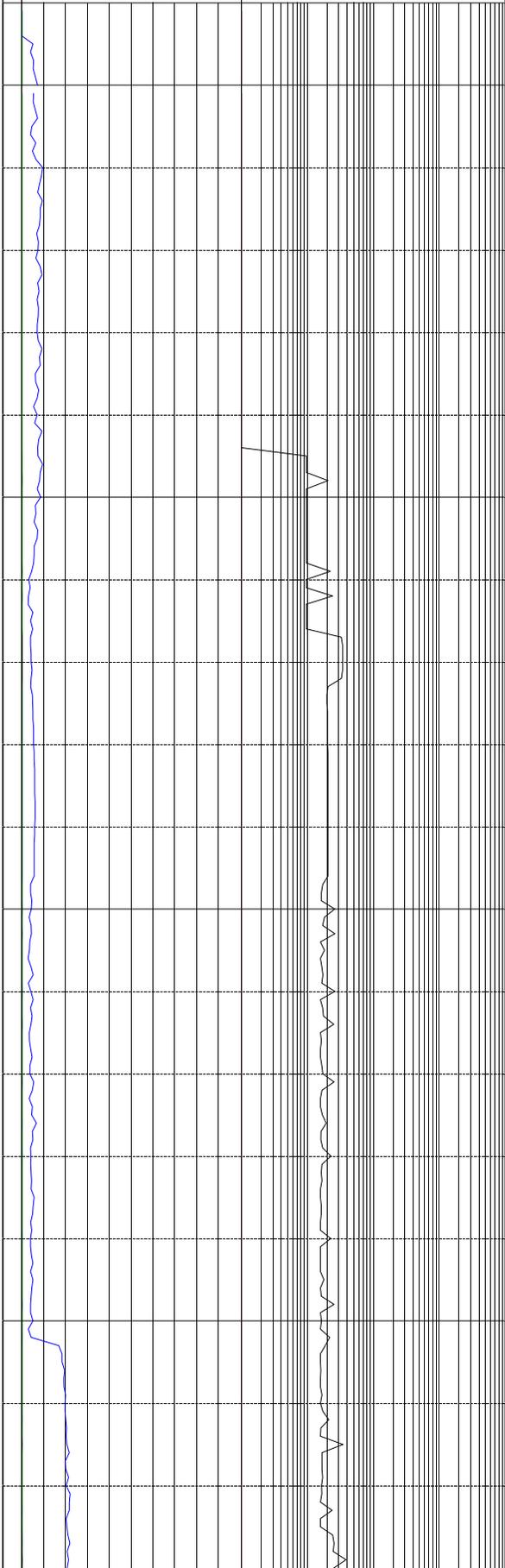
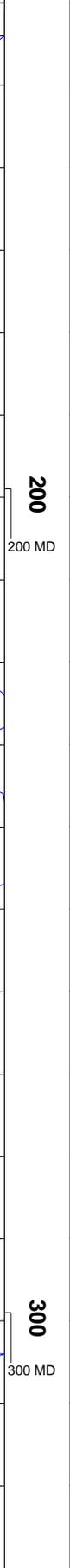
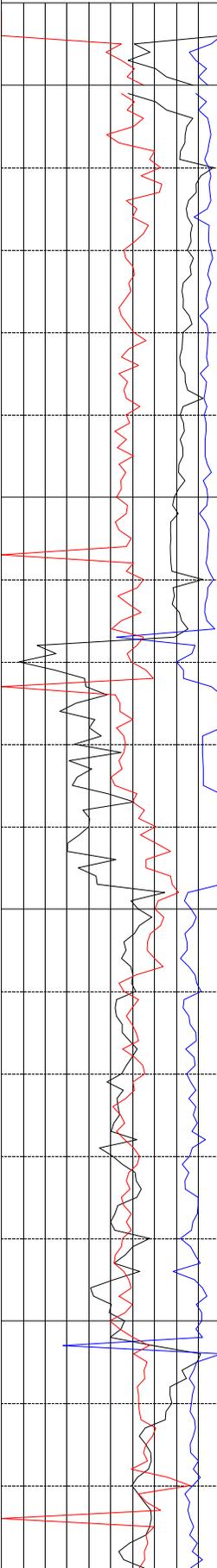
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<10 Butn C-4 100K>

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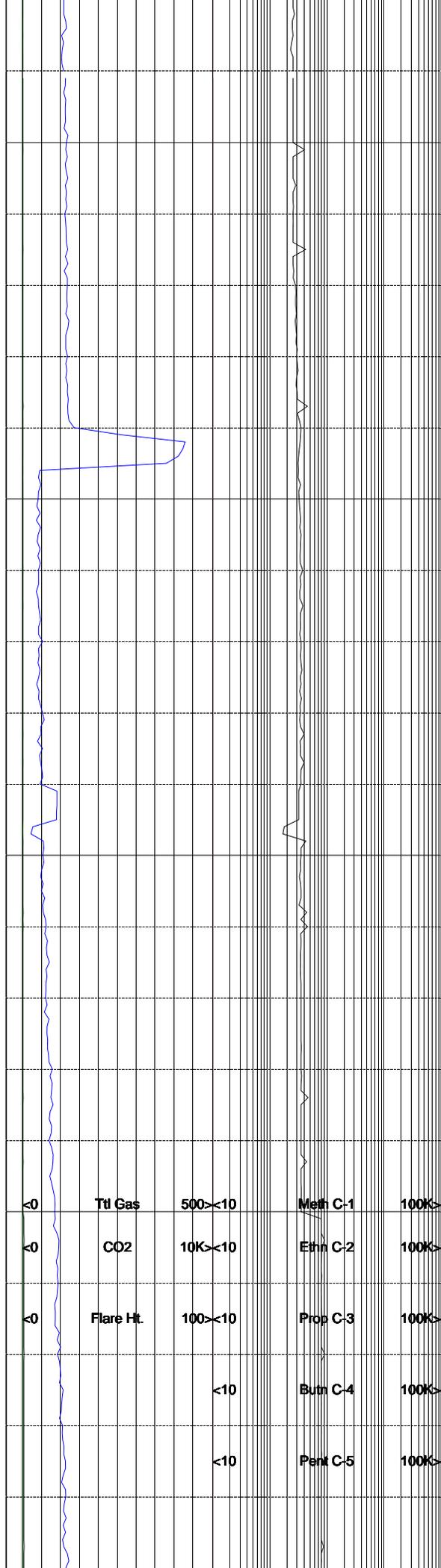
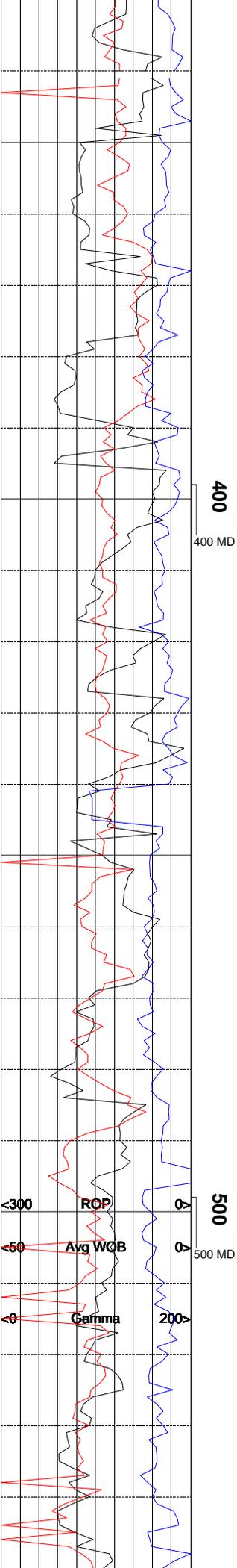
Interp. Lith

Remarks
Survey Data, Mud Reports, Other Info.



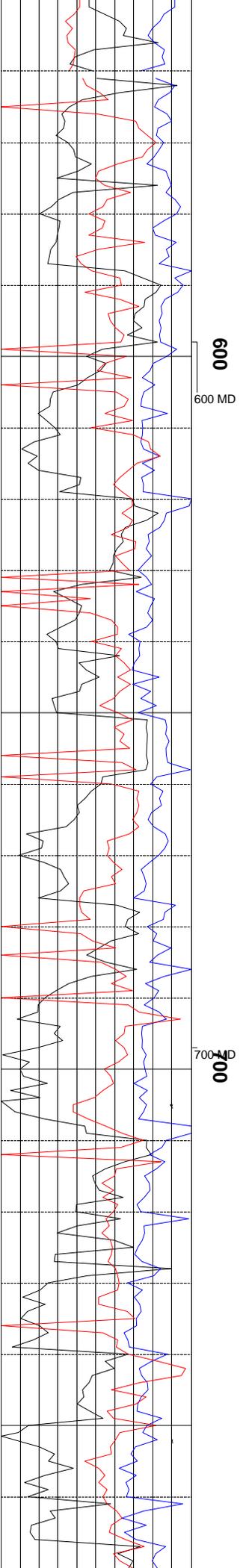
RECORDING FOR THE PCU 296-6B5 SURFACE

SECTION ON 12/19/2010 AT 03:52 HRS.



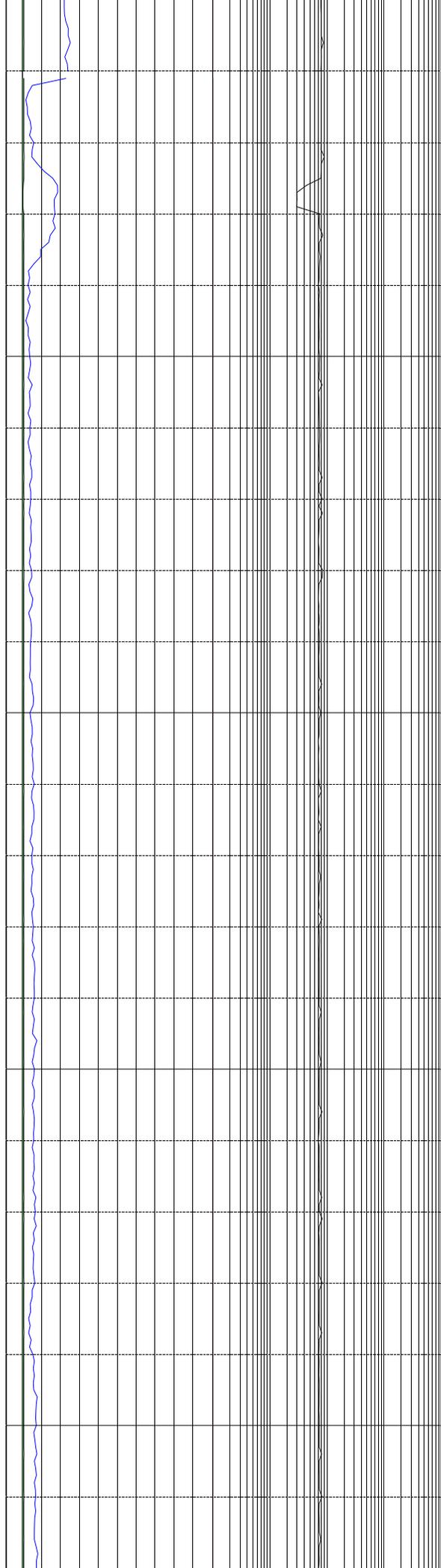
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50 Avg WOB
0 Gamma 200

<0	Ttl Gas	500	<10	Meth C-1	100K
<0	CO2	10K	<10	Ethn C-2	100K
<0	Flare Ht.	100	<10	Prop C-3	100K
			<10	Butn C-4	100K
			<10	Pent C-5	100K

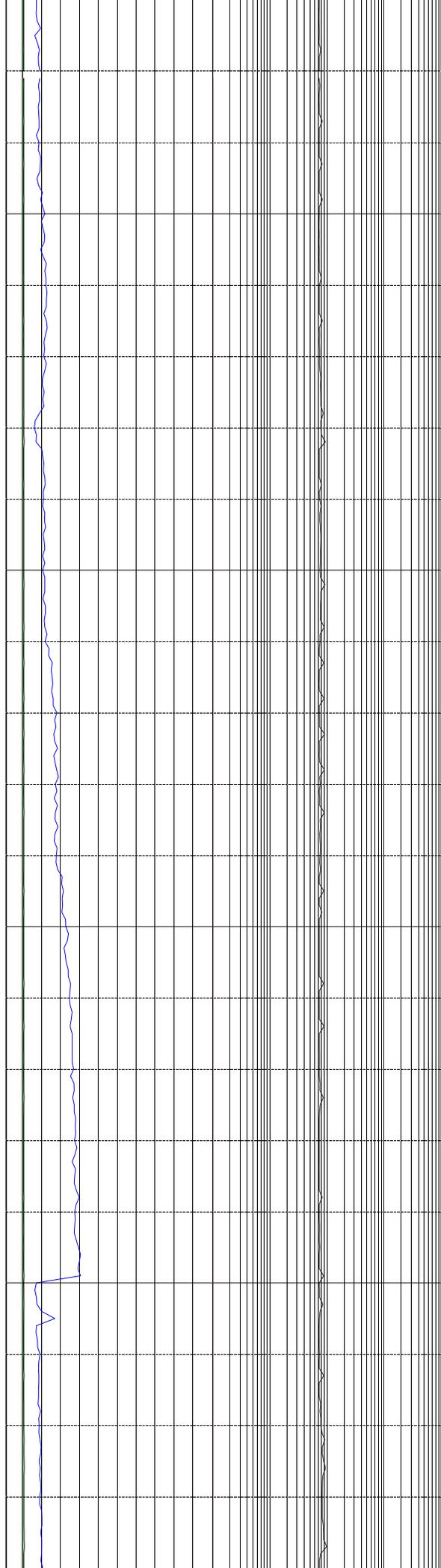
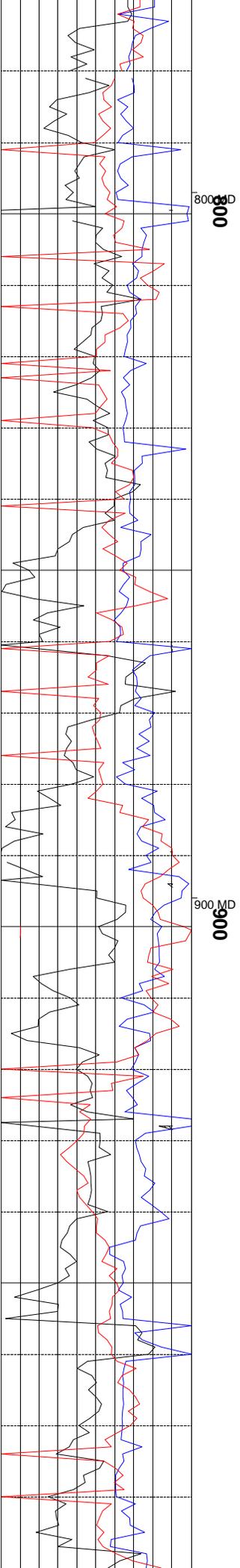


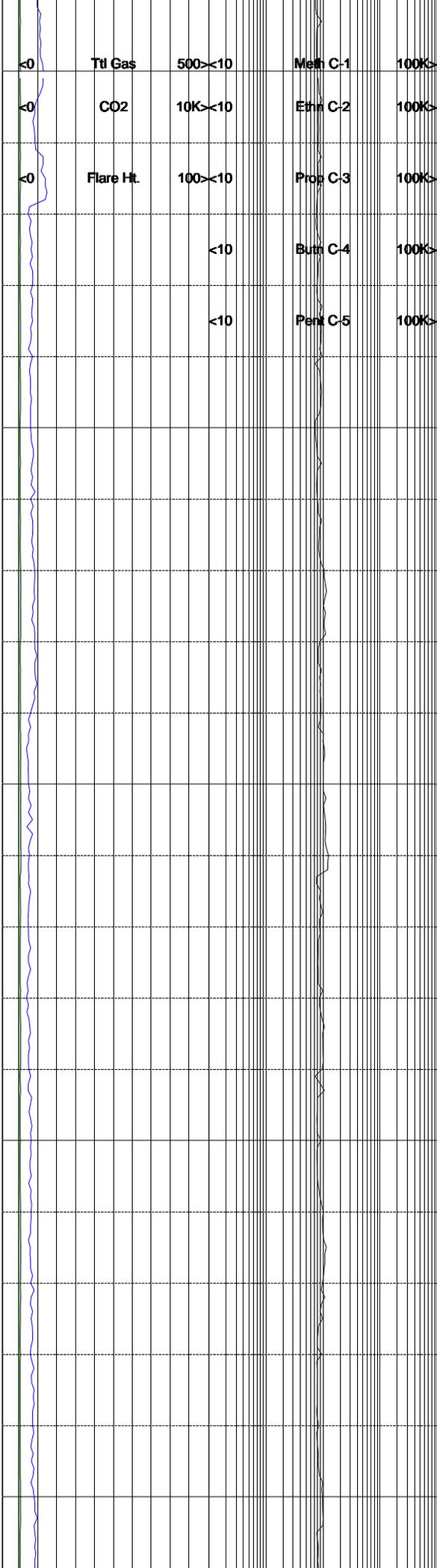
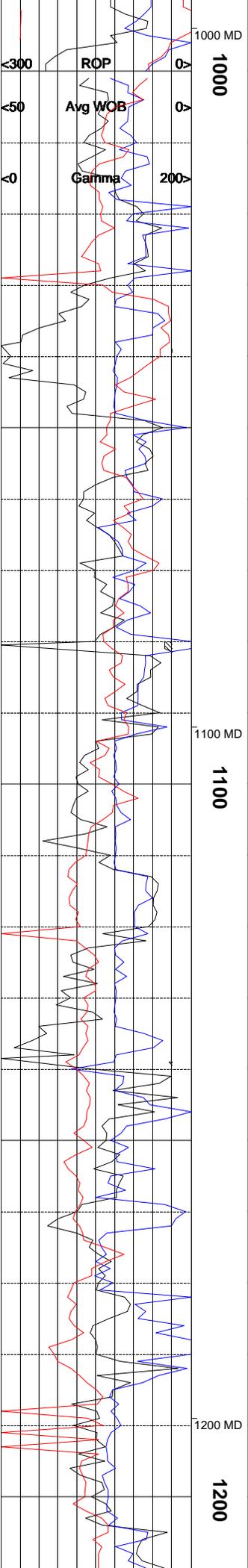
600
600 MD

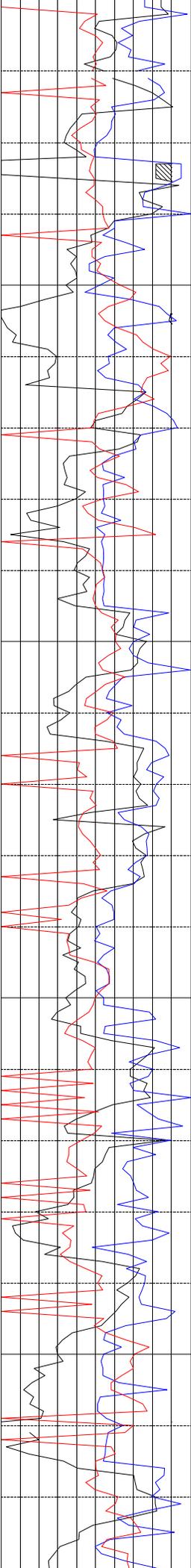
700



700





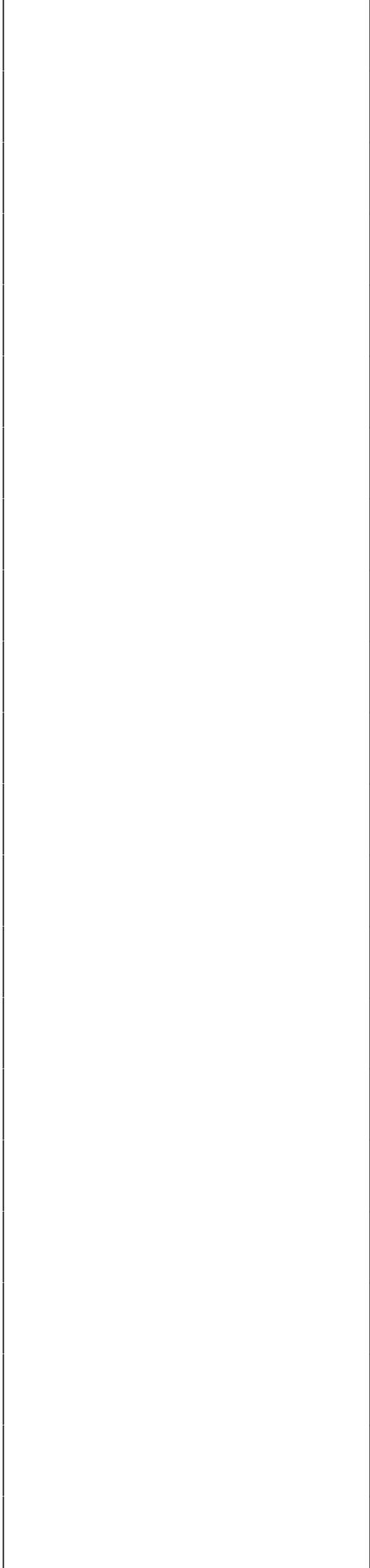
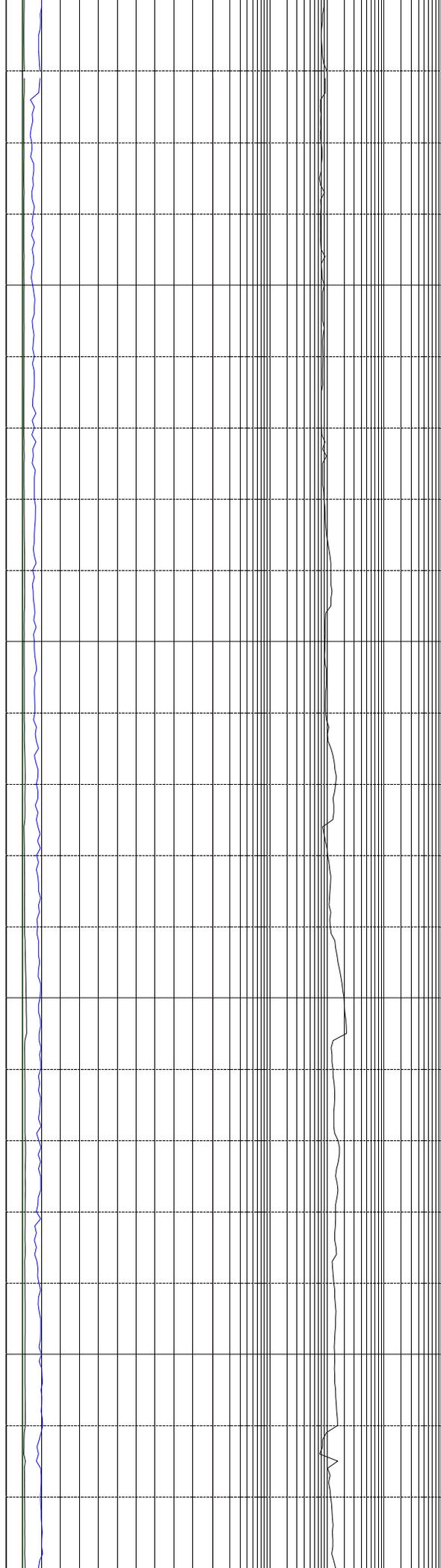


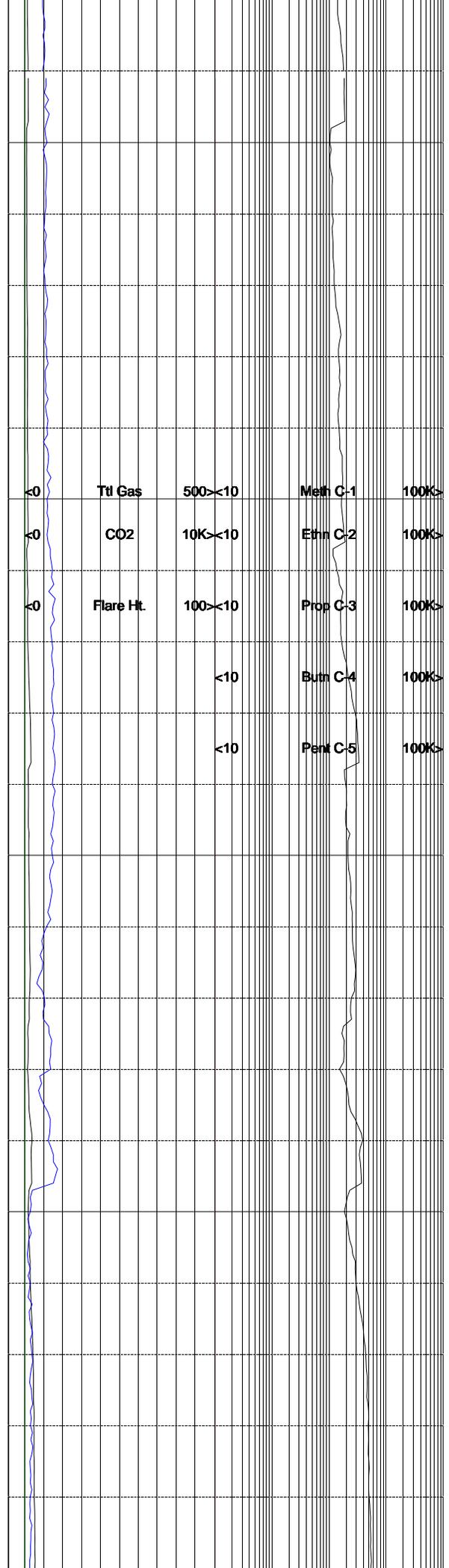
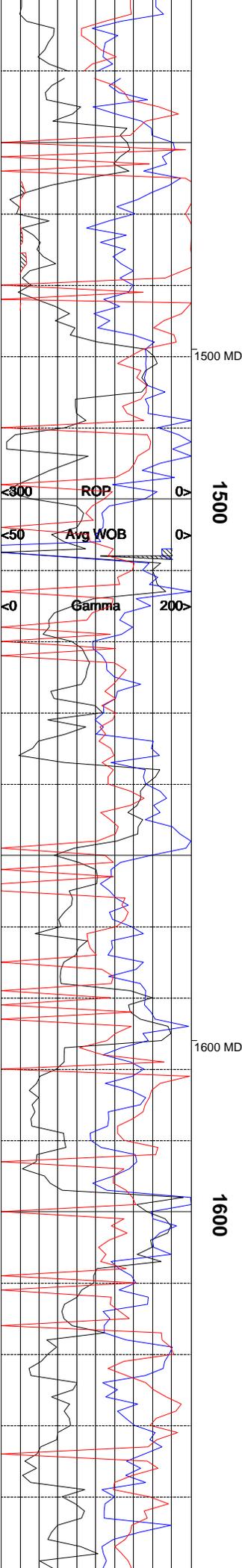
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1300

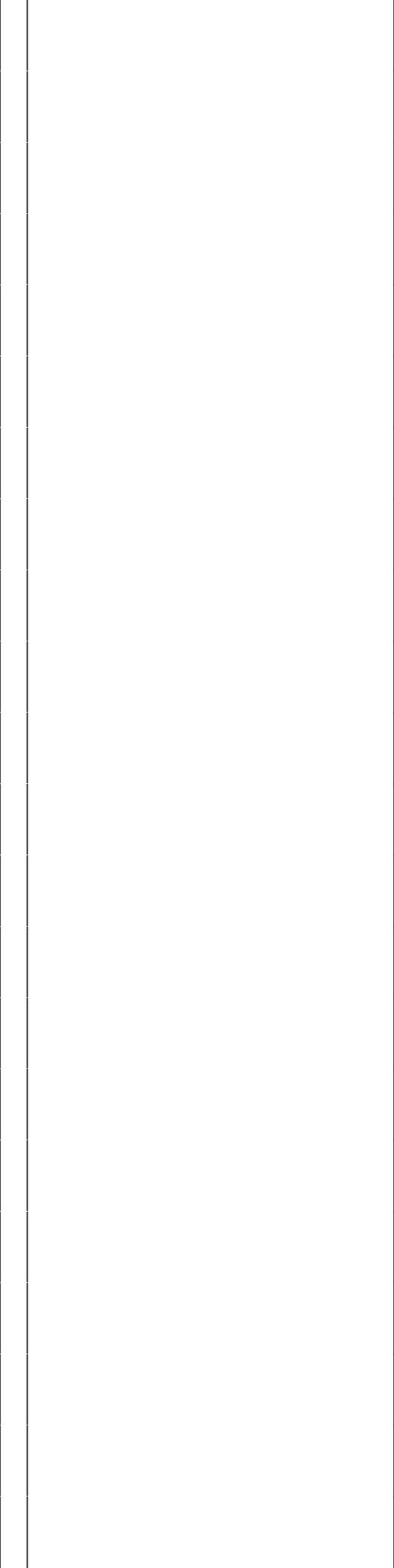
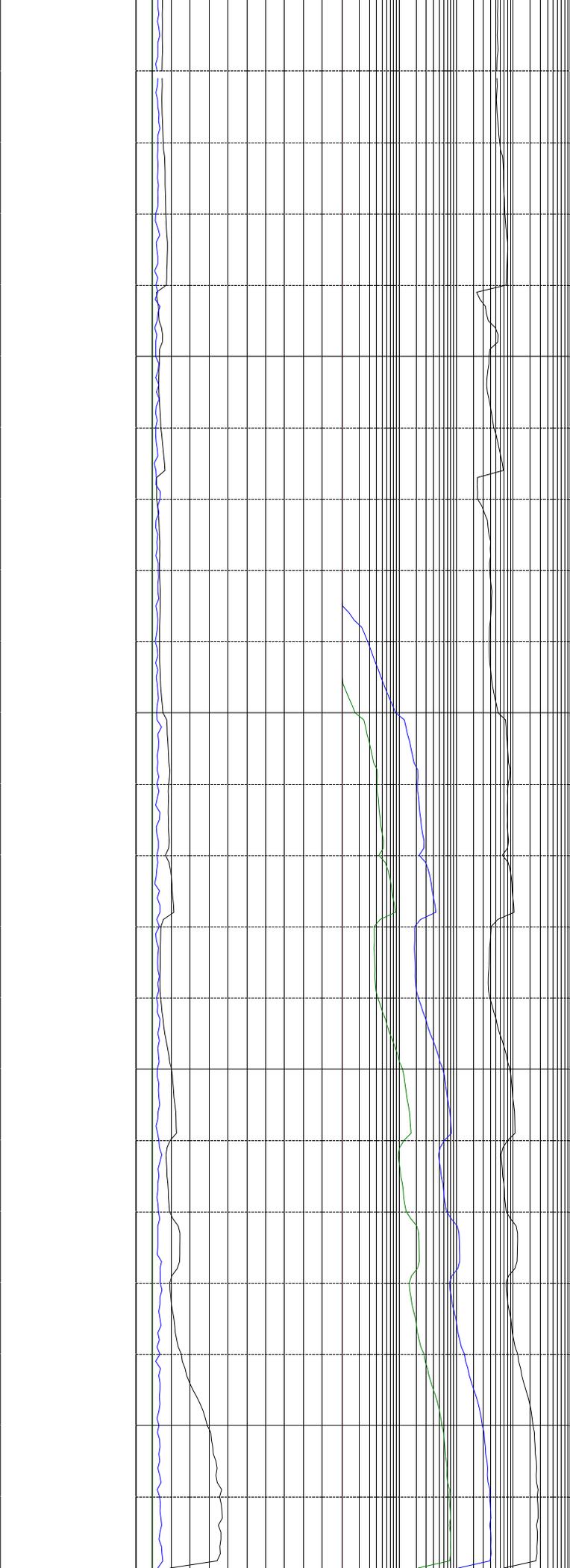
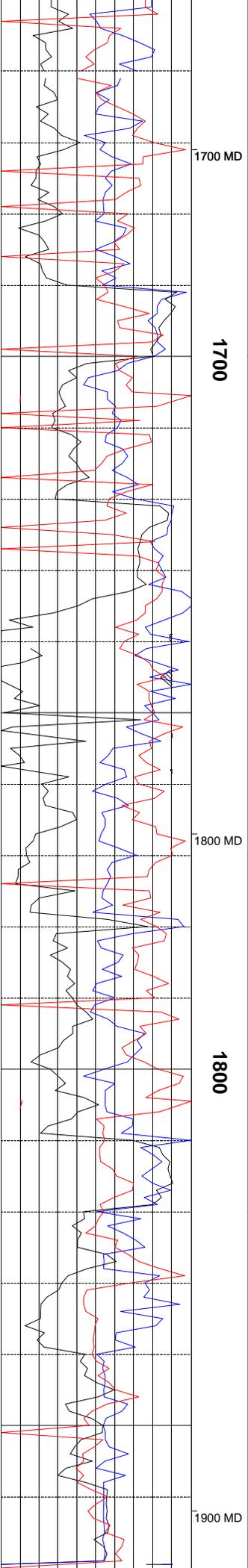
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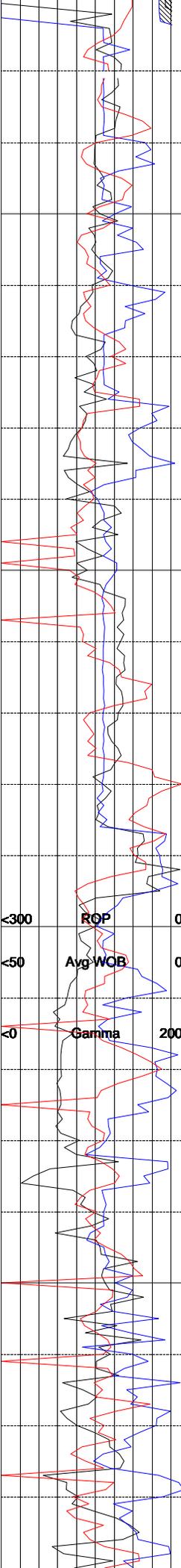
1400





<0	Ttl Gas	500	<10	Meth C-1	100K
<0	CO2	10K	<10	Ethn C-2	100K
<0	Flare Ht.	100	<10	Prop C-3	100K
			<10	Butn C-4	100K
			<10	Pent C-5	100K





1900

2000 MD

2000

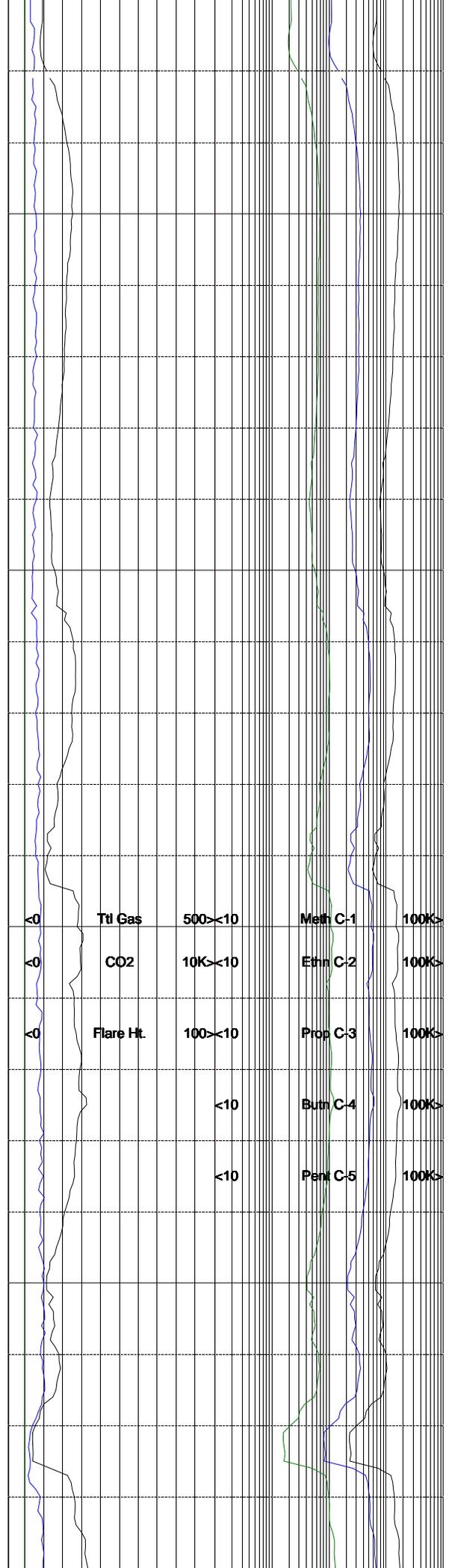
2100 MD

300
200
100
0

ROP

Avg WOB

Gamma



500
400
300
200
100
0

Ttl Gas

CO2

Flare Ht.

500 < 10

10K < 10

< 10

< 10

Meth C-1

Ethn C-2

Prop C-3

Butn C-4

Pent C-5

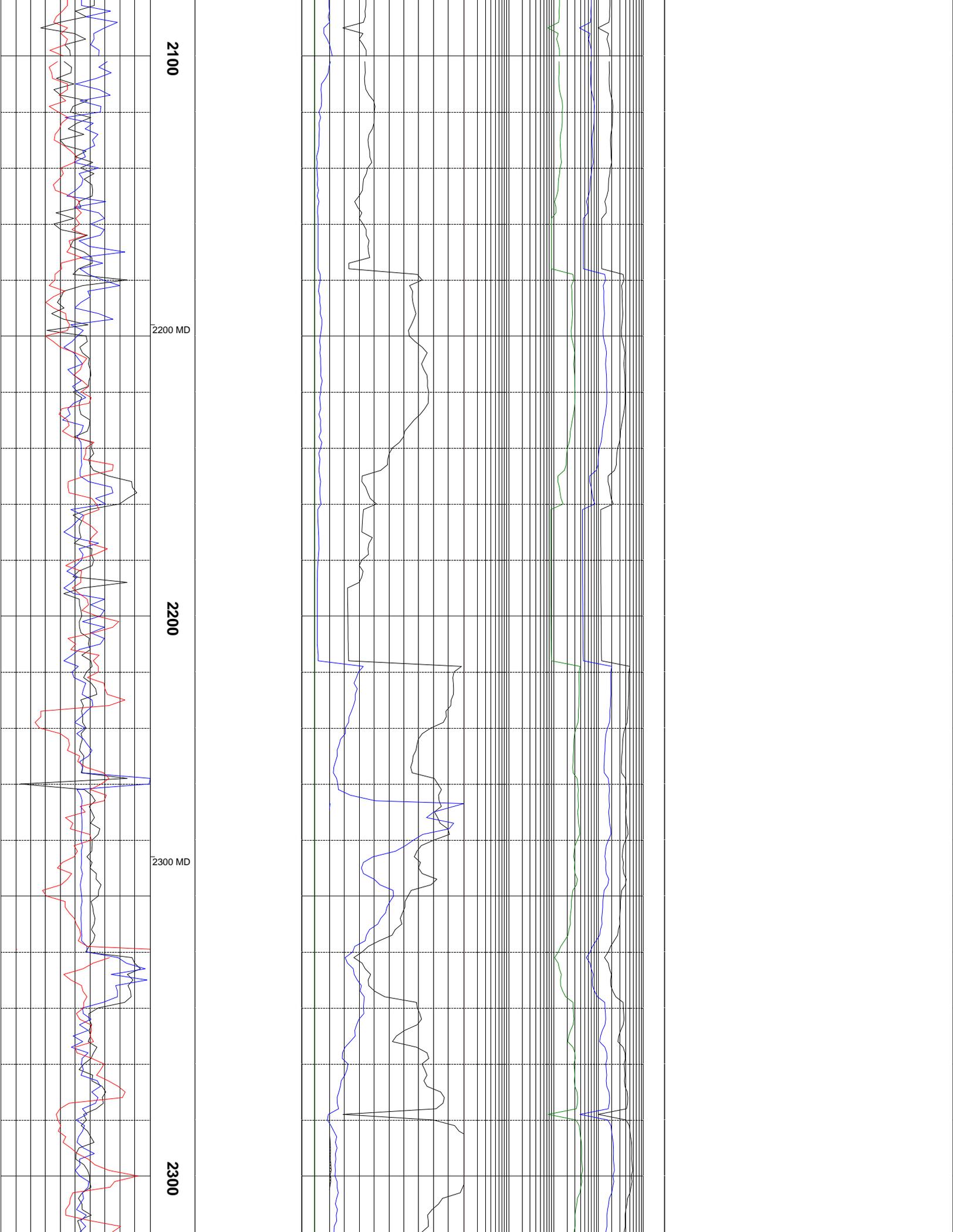
100K >

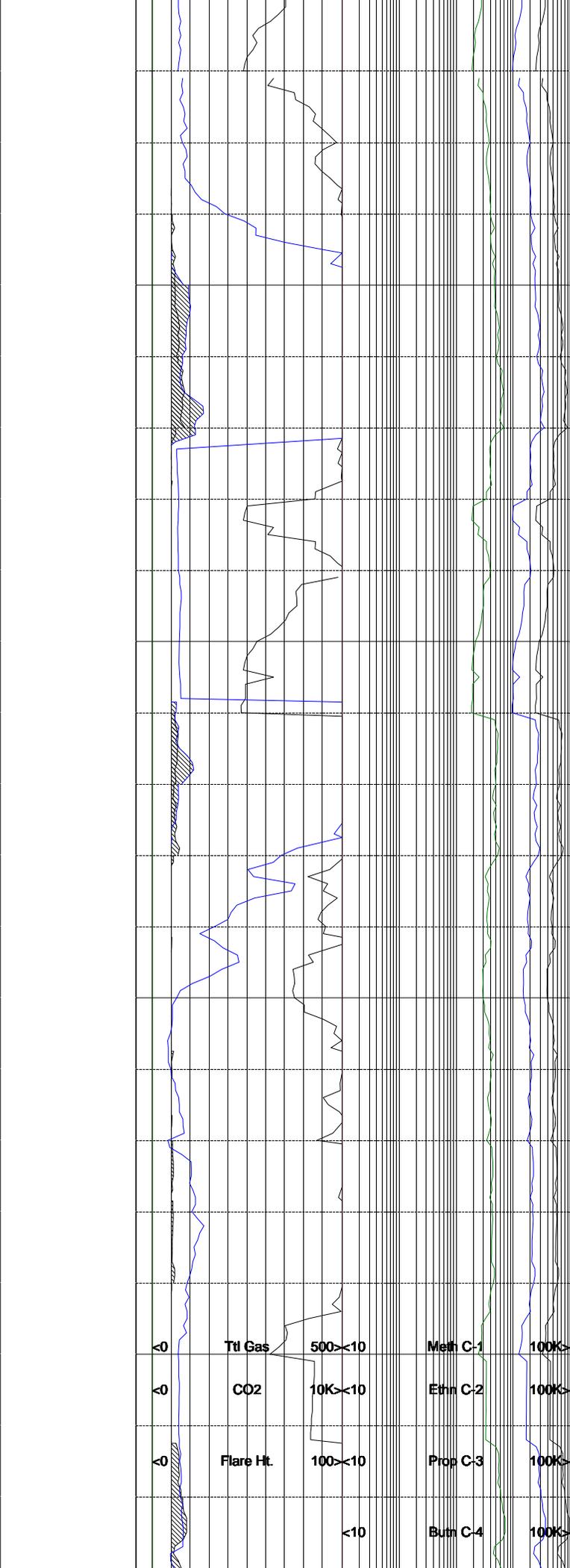
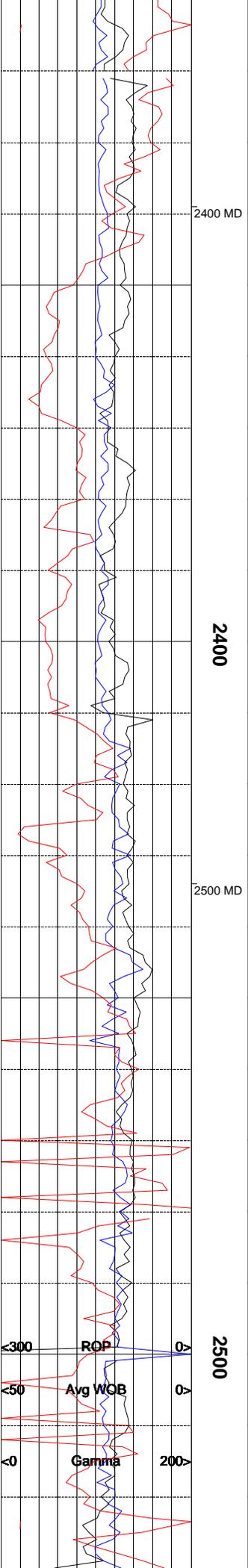
100K >

100K >

100K >

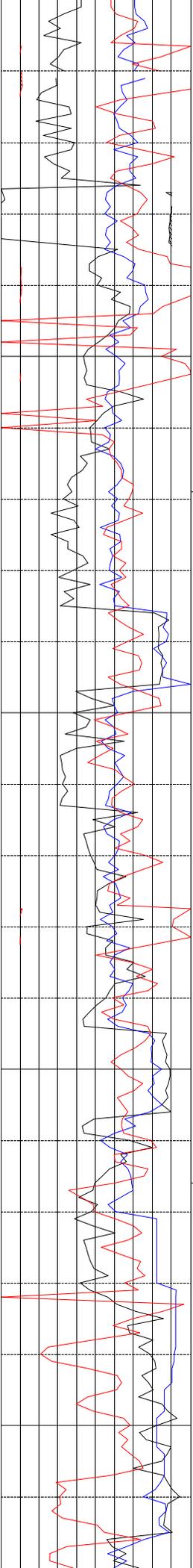
100K >





300	ROP	0
50	Avg WOB	0
0	Gamma	200

0	Ttl Gas	500	<10	Meth C-1	100K
0	CO2	10K	<10	Ethn C-2	100K
0	Flare Ht.	100	<10	Prop C-3	100K
			<10	Butn C-4	100K

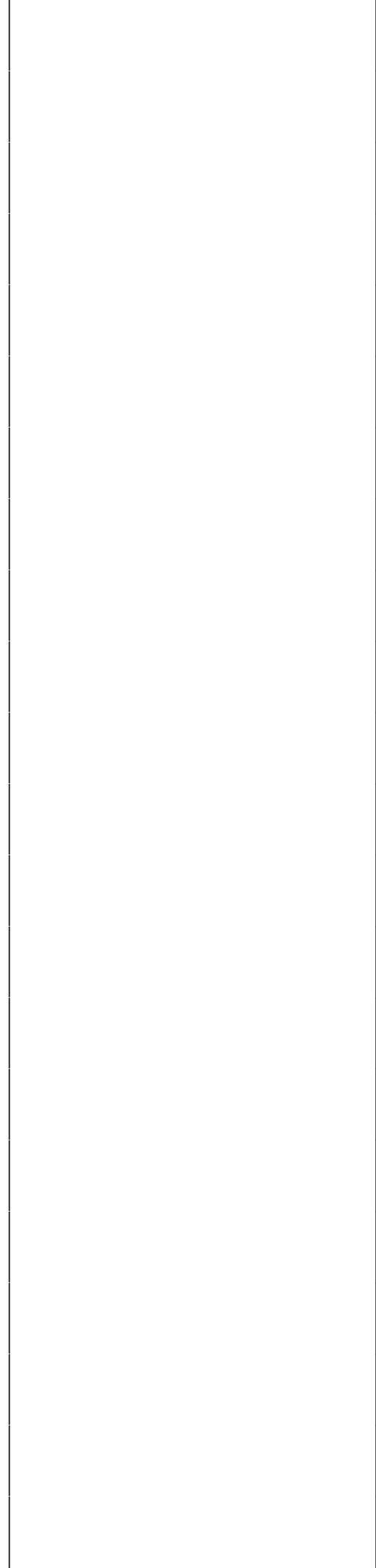
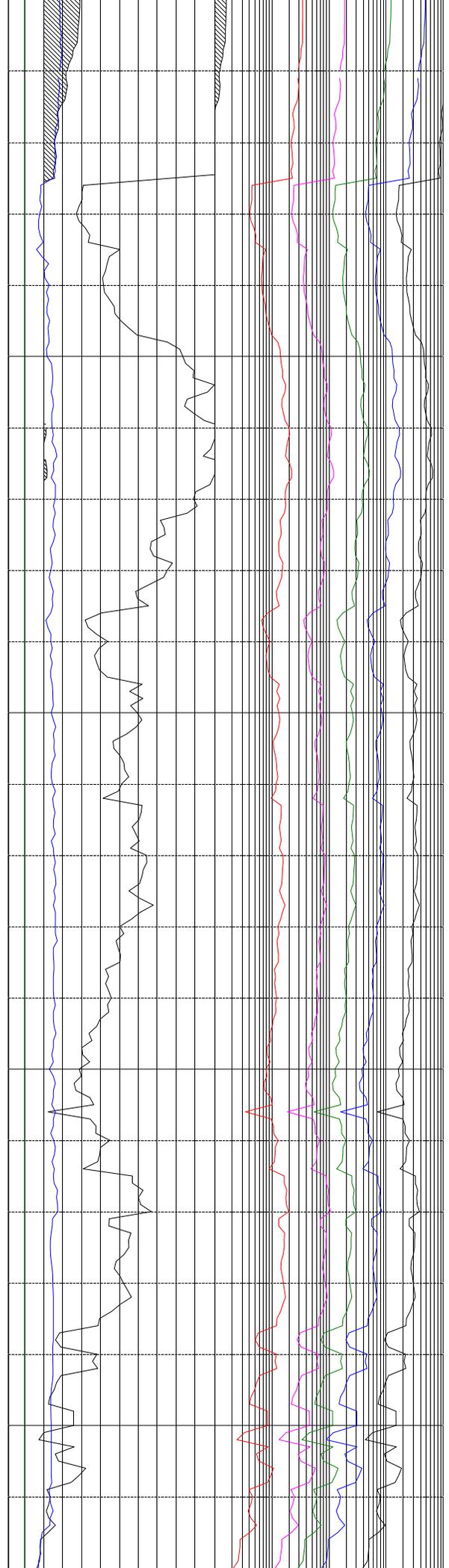


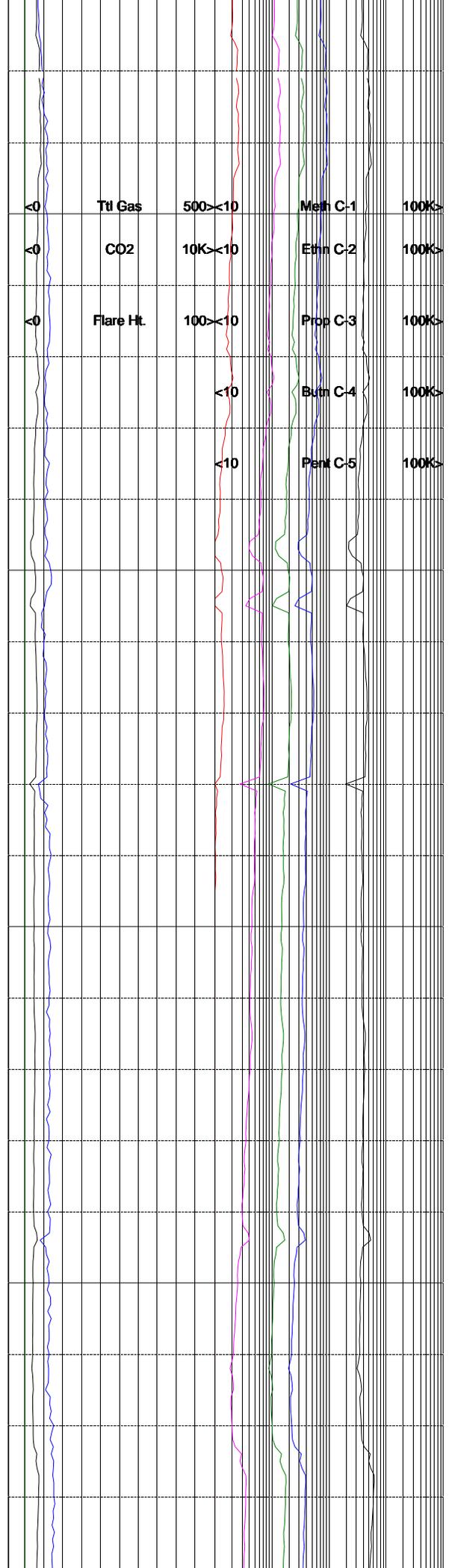
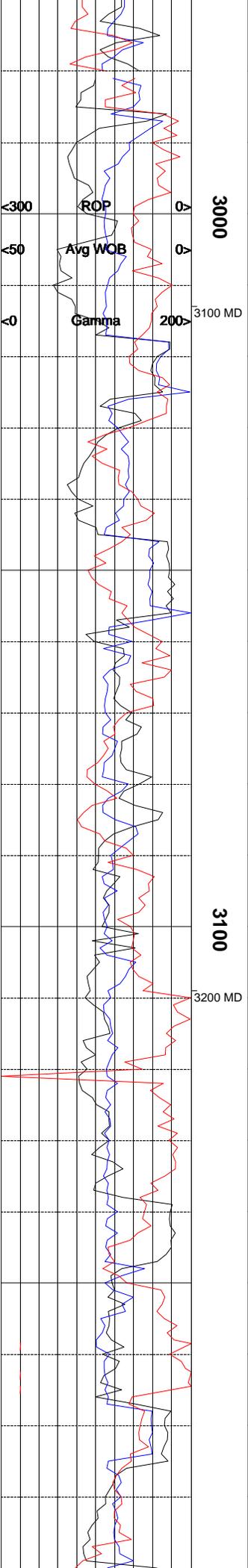
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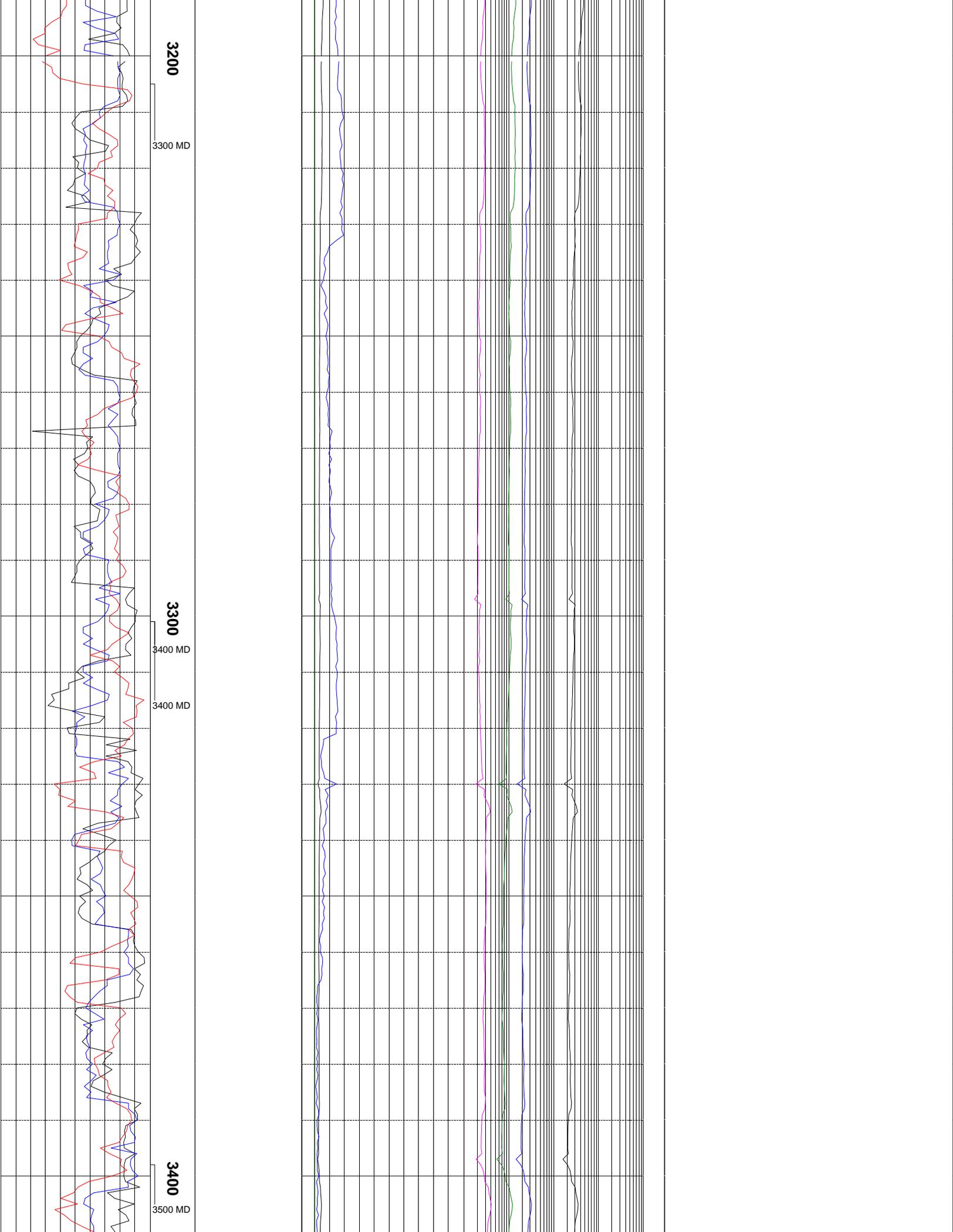
2900 MD

2900

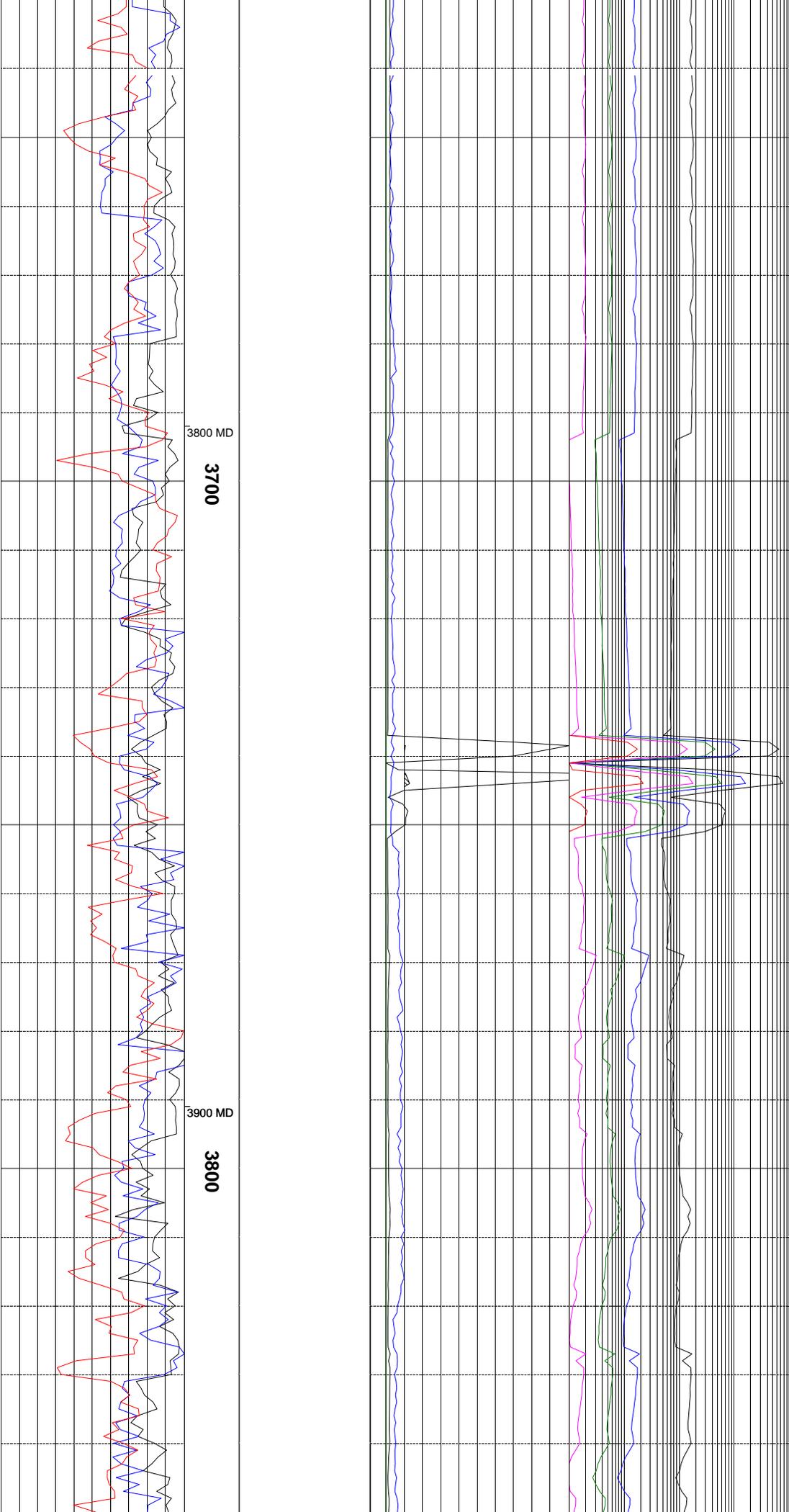
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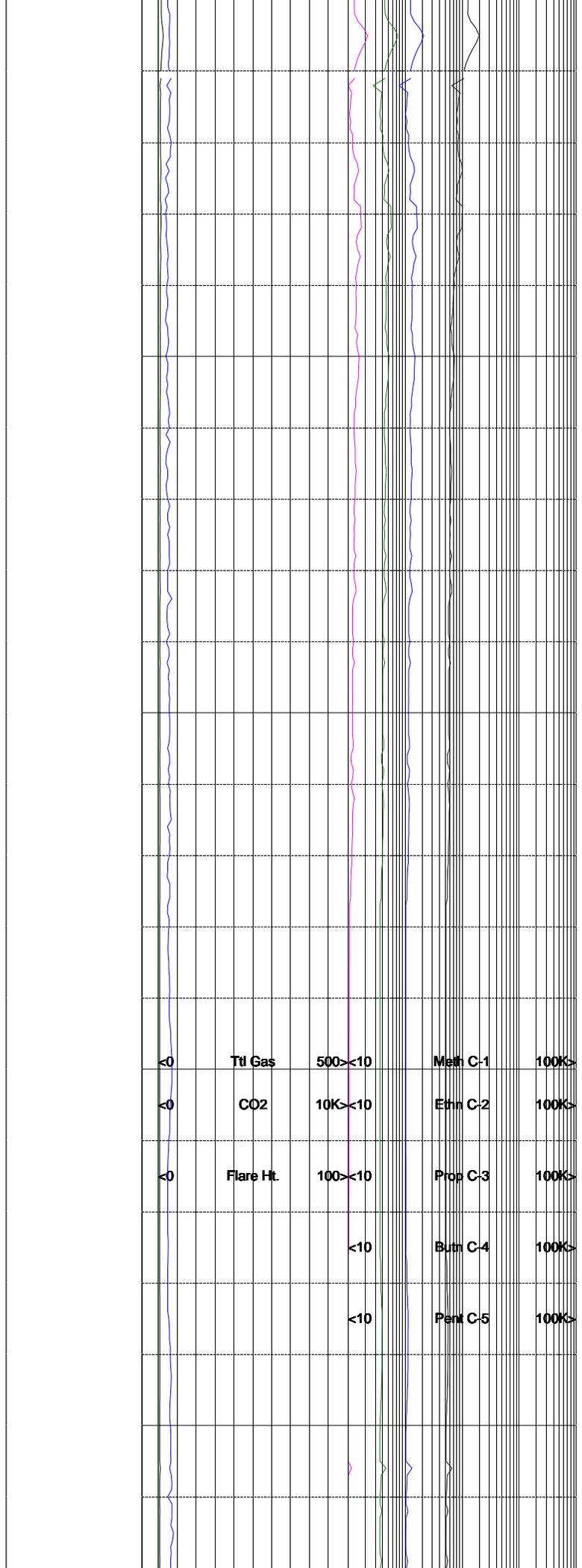
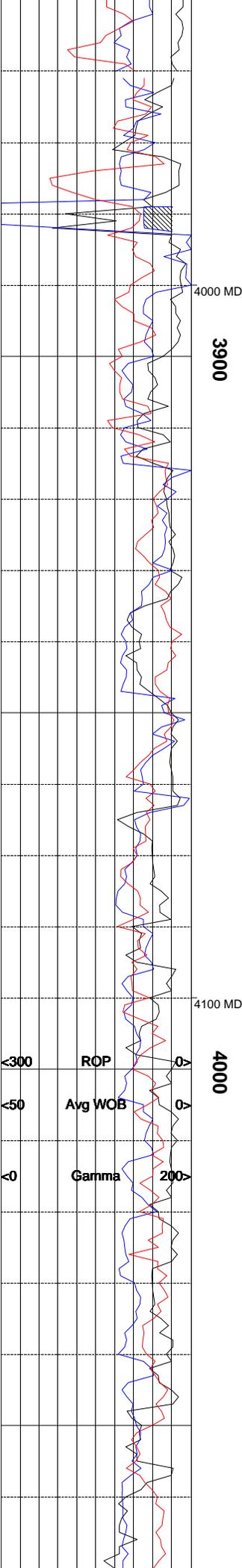




SHOOTING DRAWWORKS MOTOR AND SENSORS.

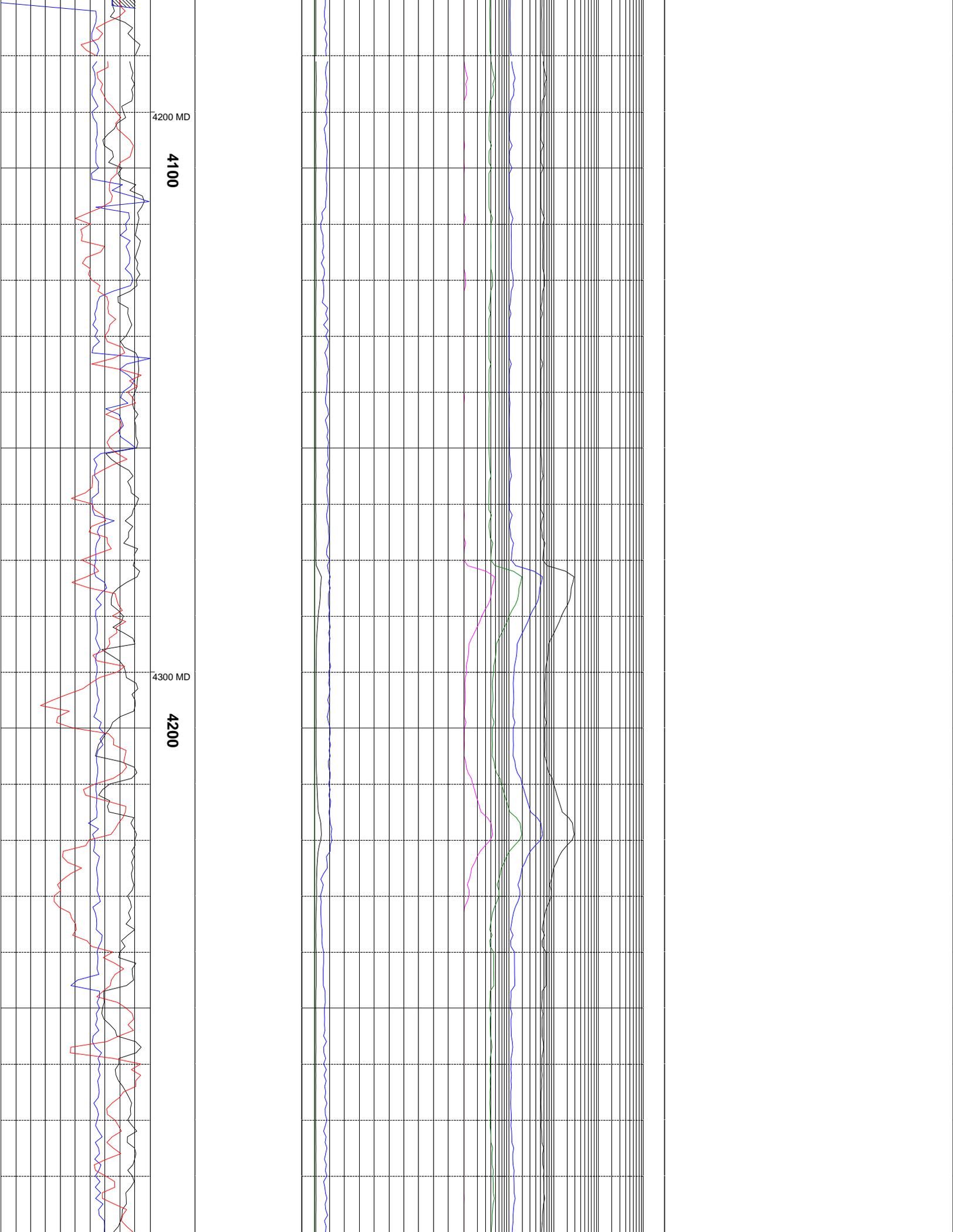


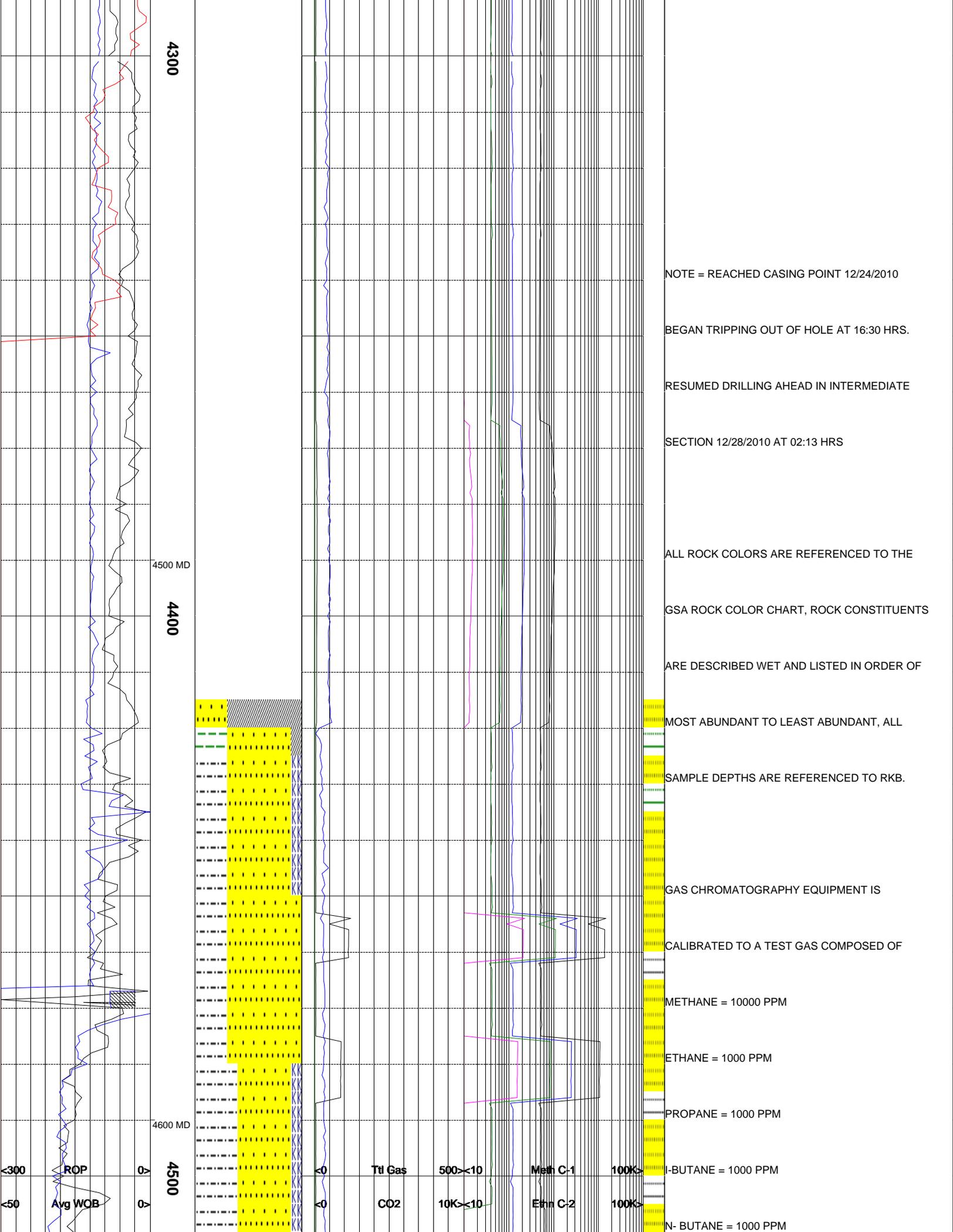
AHEAD 12/23/2010 05:00 HRS.



ROP
Avg WOB
Gamma

Ttl Gas
CO2
Flare Ht.
Meth C-1
Ethn C-2
Prop C-3
Butn C-4
Pent C-5





4300

4500 MD

4400

4600 MD

4500

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

SAMPLE DEPTHS ARE REFERENCED TO RKB.

GAS CHROMATOGRAPHY EQUIPMENT IS

CALIBRATED TO A TEST GAS COMPOSED OF

METHANE = 10000 PPM

ETHANE = 1000 PPM

PROPANE = 1000 PPM

I-BUTANE = 1000 PPM

N-BUTANE = 1000 PPM

ROP

Avg WOB

Ttl Gas

CO2

500<10

10K<10

Meth C-1

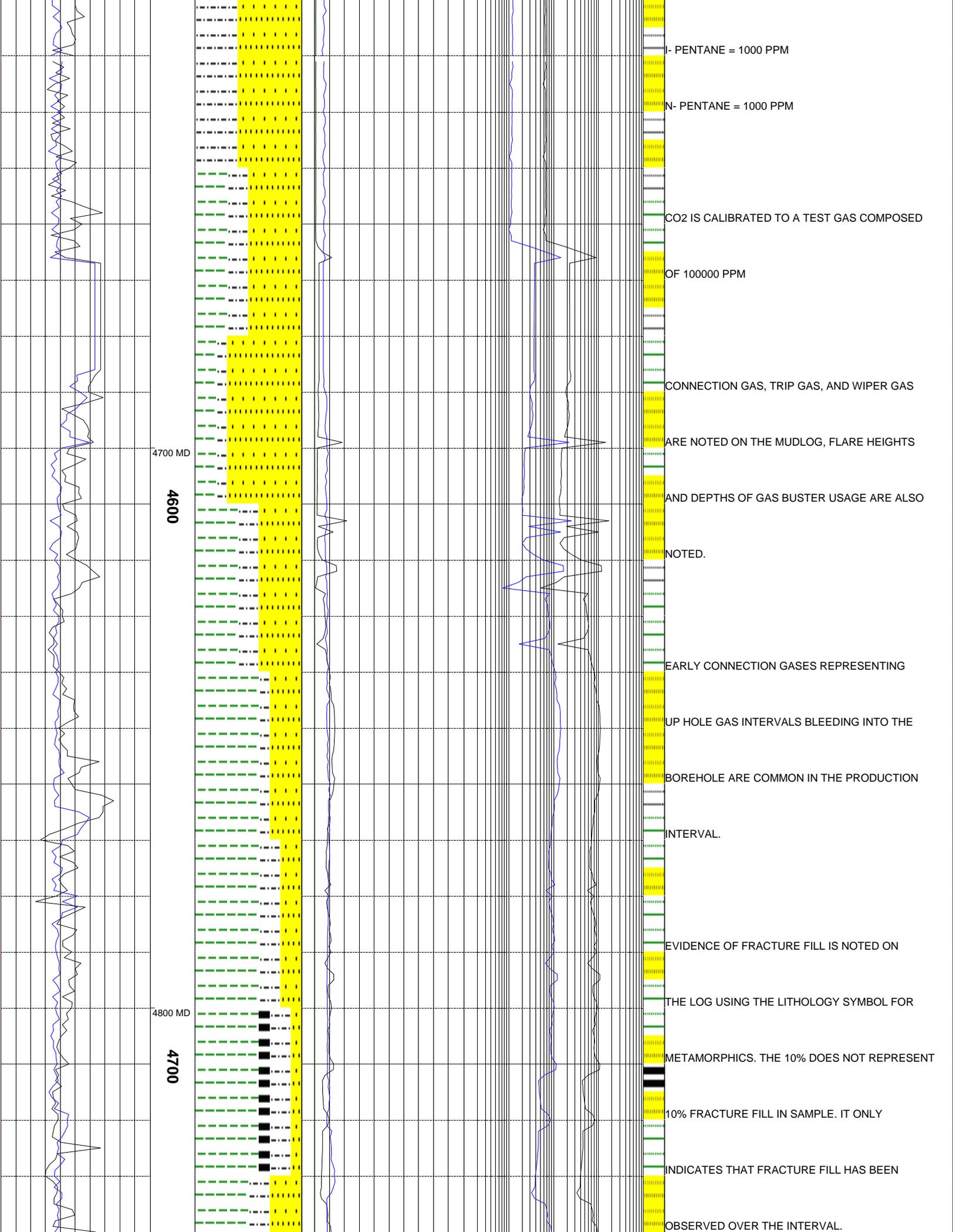
Ethn C-2

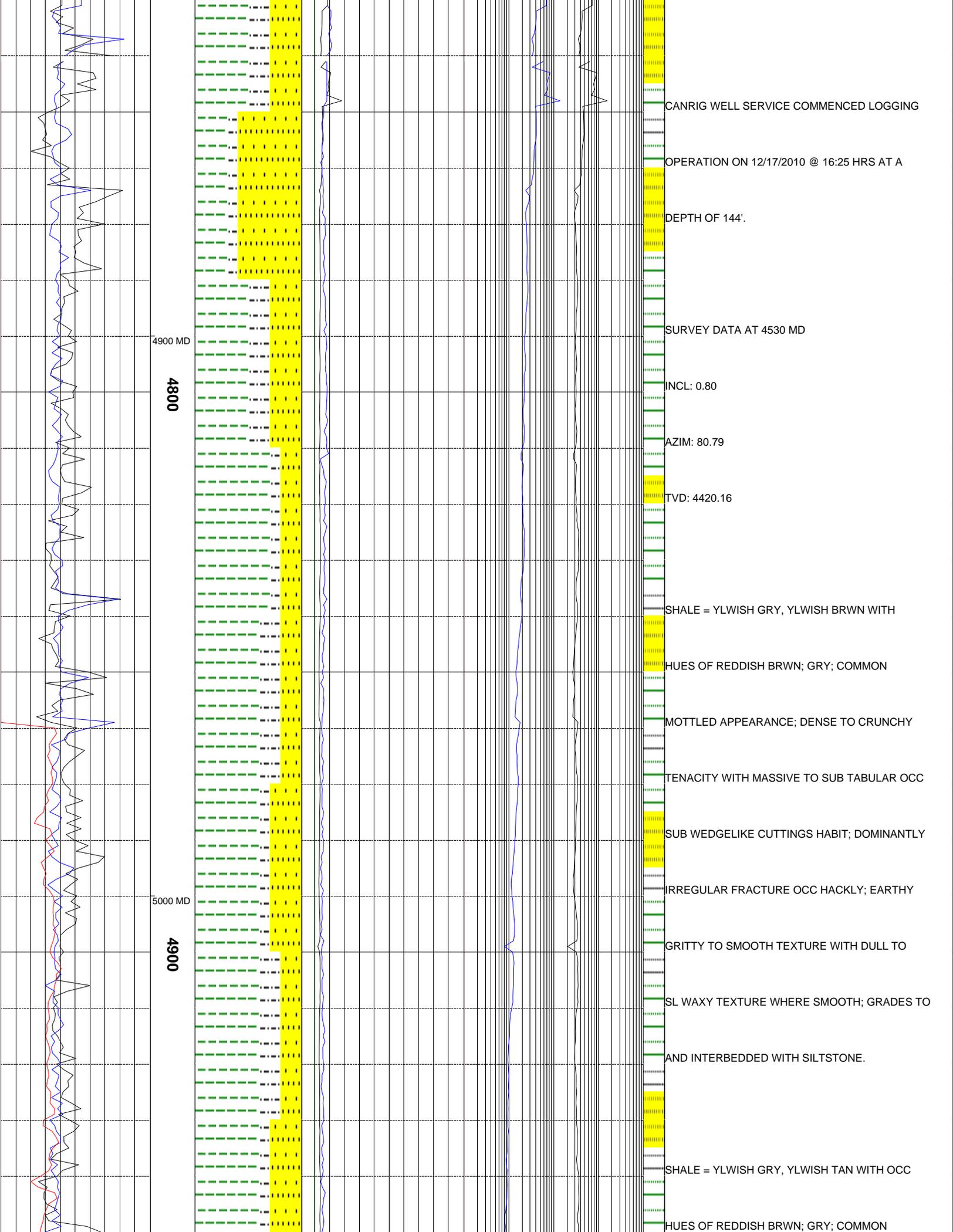
100K>

100K>

>300

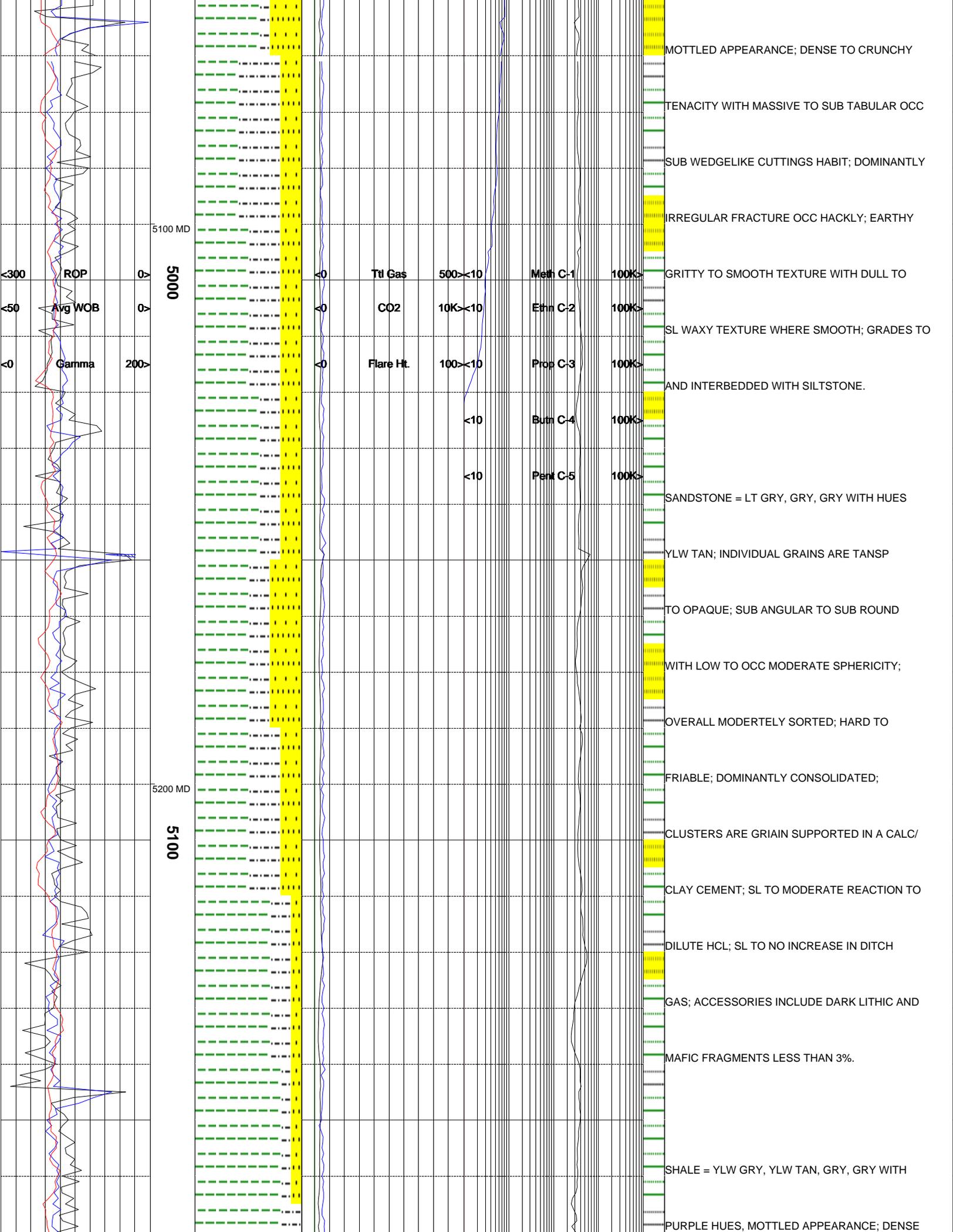
>50





4900 MD
4800

5000 MD
4900



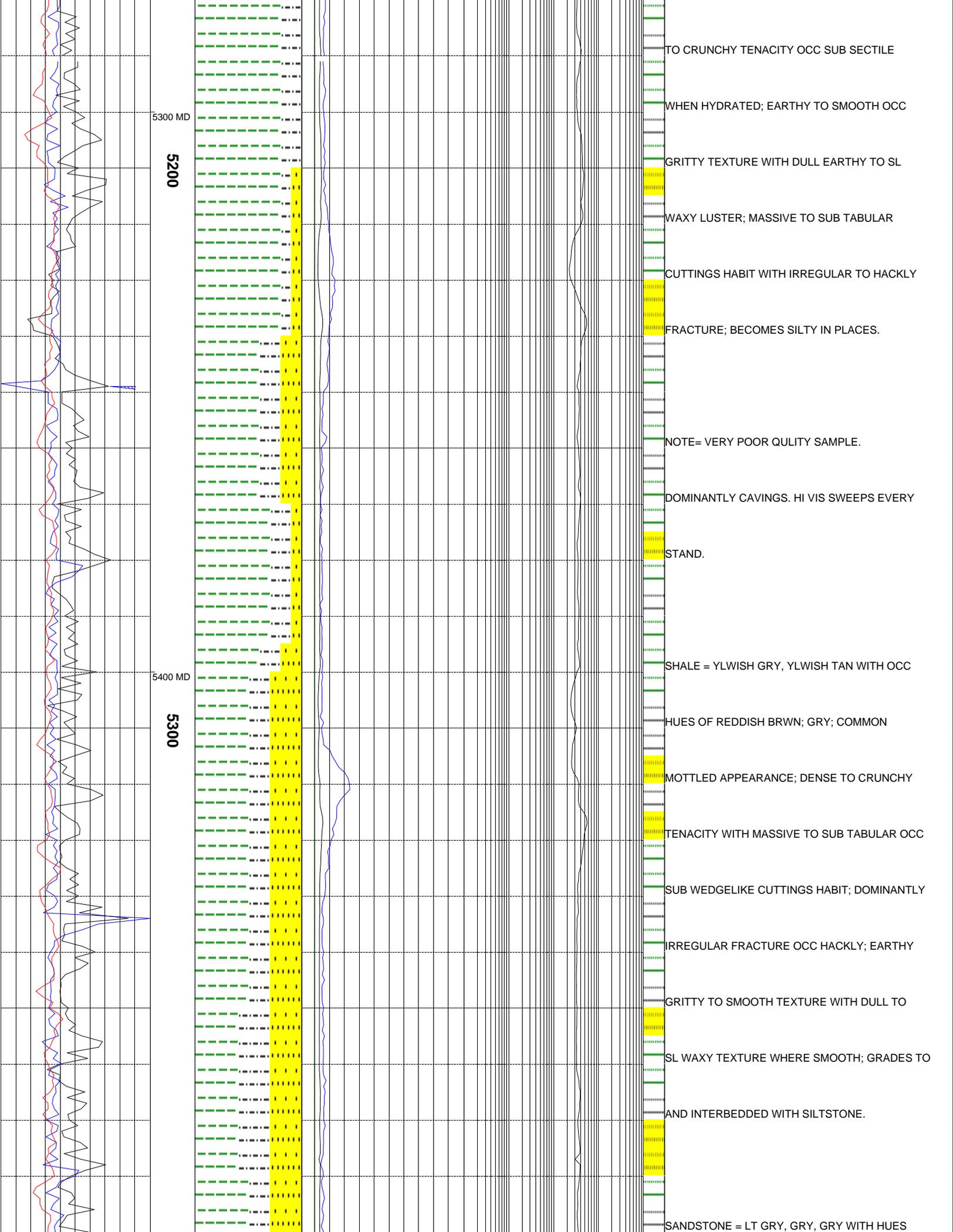
5100 MD
5000

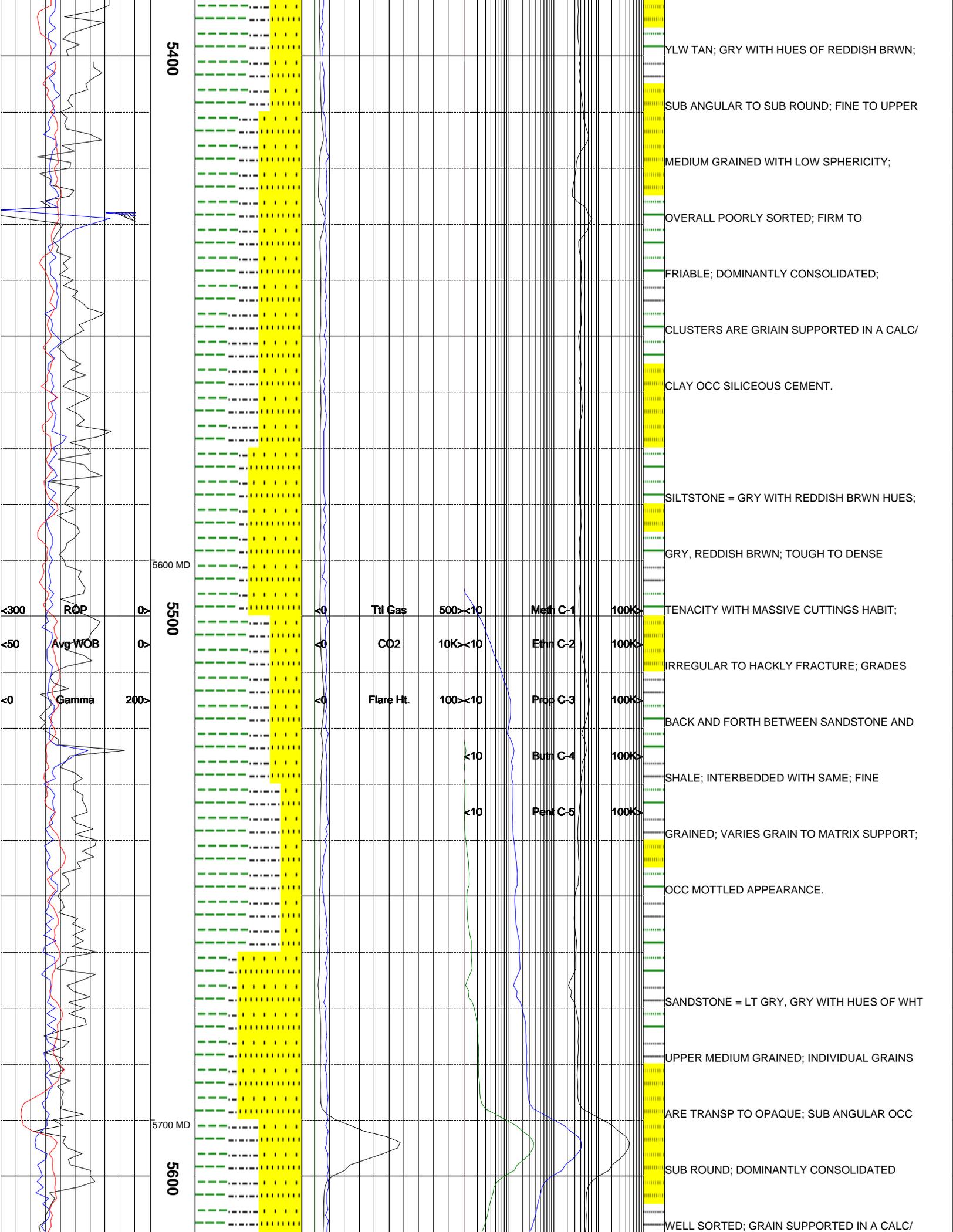
5200 MD
5100

<math><300</math> ROP
<math><50</math> Avg WOB
<math><0</math> Gamma 200>

<math><0</math> Ttl Gas 500><math><10</math>
<math><0</math> CO2 10K><math><10</math>
<math><0</math> Flare Ht. 100><math><10</math>
<math><10</math> Meth C-1 100K>
<math><10</math> Ethn C-2 100K>
<math><10</math> Prop C-3 100K>
<math><10</math> Butn C-4 100K>
<math><10</math> Pent C-5 100K>

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; GRADES TO
AND INTERBEDDED WITH SILTSTONE.
SANDSTONE = LT GRY, GRY, GRY WITH HUES
YLW TAN; INDIVIDUAL GRAINS ARE TANSP
TO OPAQUE; SUB ANGULAR TO SUB ROUND
WITH LOW TO OCC MODERATE SPHERICITY;
OVERALL MODERTELY SORTED; HARD TO
FRIABLE; DOMINANTLY CONSOLIDATED;
CLUSTERS ARE GRIAIN SUPPORTED IN A CALC/
CLAY CEMENT; SL TO MODERATE REACTION TO
DILUTE HCL; SL TO NO INCREASE IN DITCH
GAS; ACCESSORIES INCLUDE DARK LITHIC AND
MAFIC FRAGMENTS LESS THAN 3%.
SHALE = YLW GRY, YLW TAN, GRY, GRY WITH
PURPLE HUES, MOTTLED APPEARANCE; DENSE





5400

YLW TAN; GRY WITH HUES OF REDDISH BRWN;

SUB ANGULAR TO SUB ROUND; FINE TO UPPER

MEDIUM GRAINED WITH LOW SPHERICITY;

OVERALL POORLY SORTED; FIRM TO

FRIABLE; DOMINANTLY CONSOLIDATED;

CLUSTERS ARE GRAIN SUPPORTED IN A CALC/

CLAY OCC SILICEOUS CEMENT.

SILTSTONE = GRY WITH REDDISH BRWN HUES;

GRY, REDDISH BRWN; TOUGH TO DENSE

5600 MD

TENACITY WITH MASSIVE CUTTINGS HABIT;

5500

IRREGULAR TO HACKLY FRACTURE; GRADES

BACK AND FORTH BETWEEN SANDSTONE AND

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

5700 MD

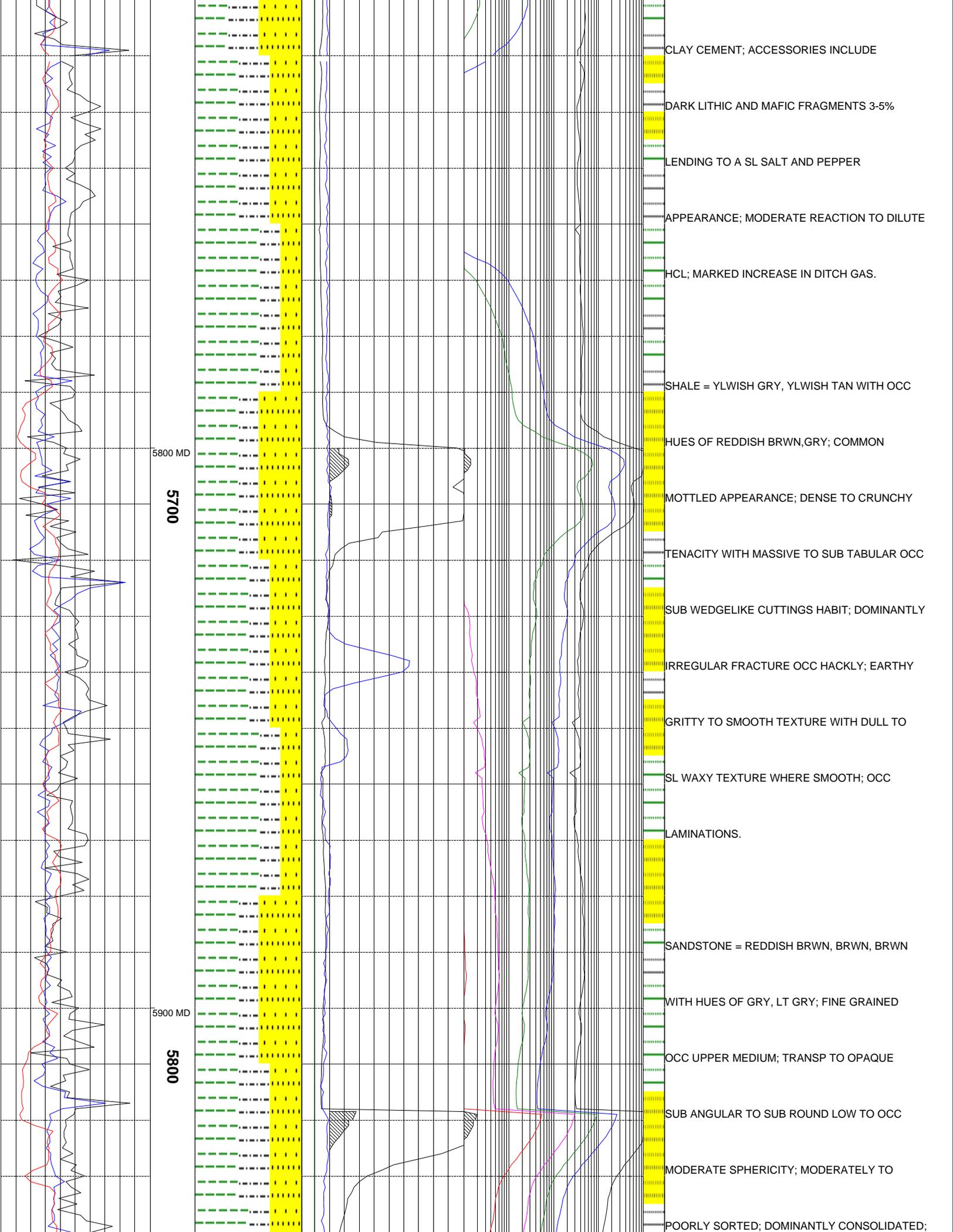
SUB ROUND; DOMINANTLY CONSOLIDATED

5600

WELL SORTED; GRAIN SUPPORTED IN A CALC/

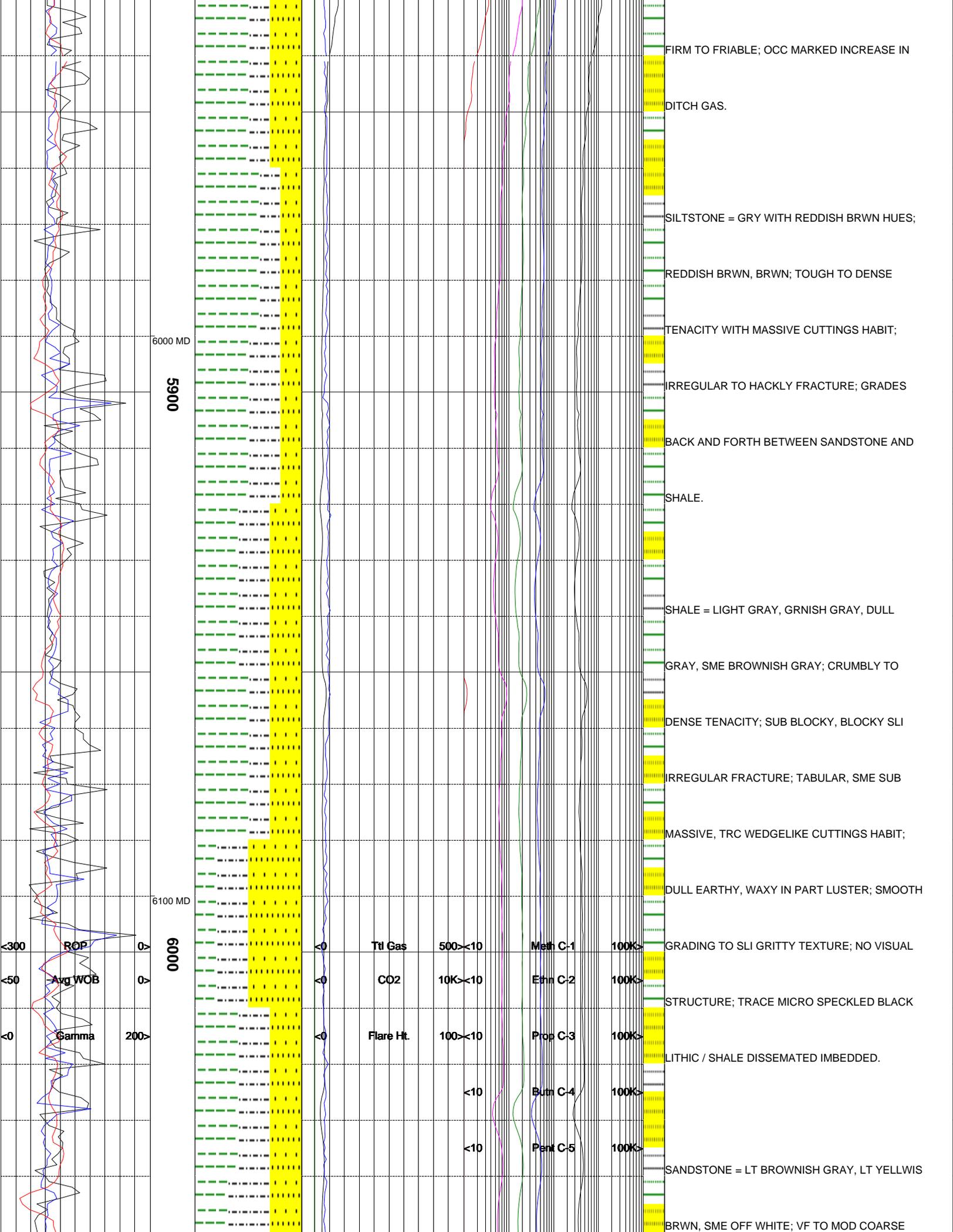
ROP
Avg WOB
Gamma

Ttl Gas
CO2
Flare Ht.
Meth C-1
Ethn C-2
Prop C-3
Butn C-4
Pent C-5



5800 MD
5700

5900 MD
5800



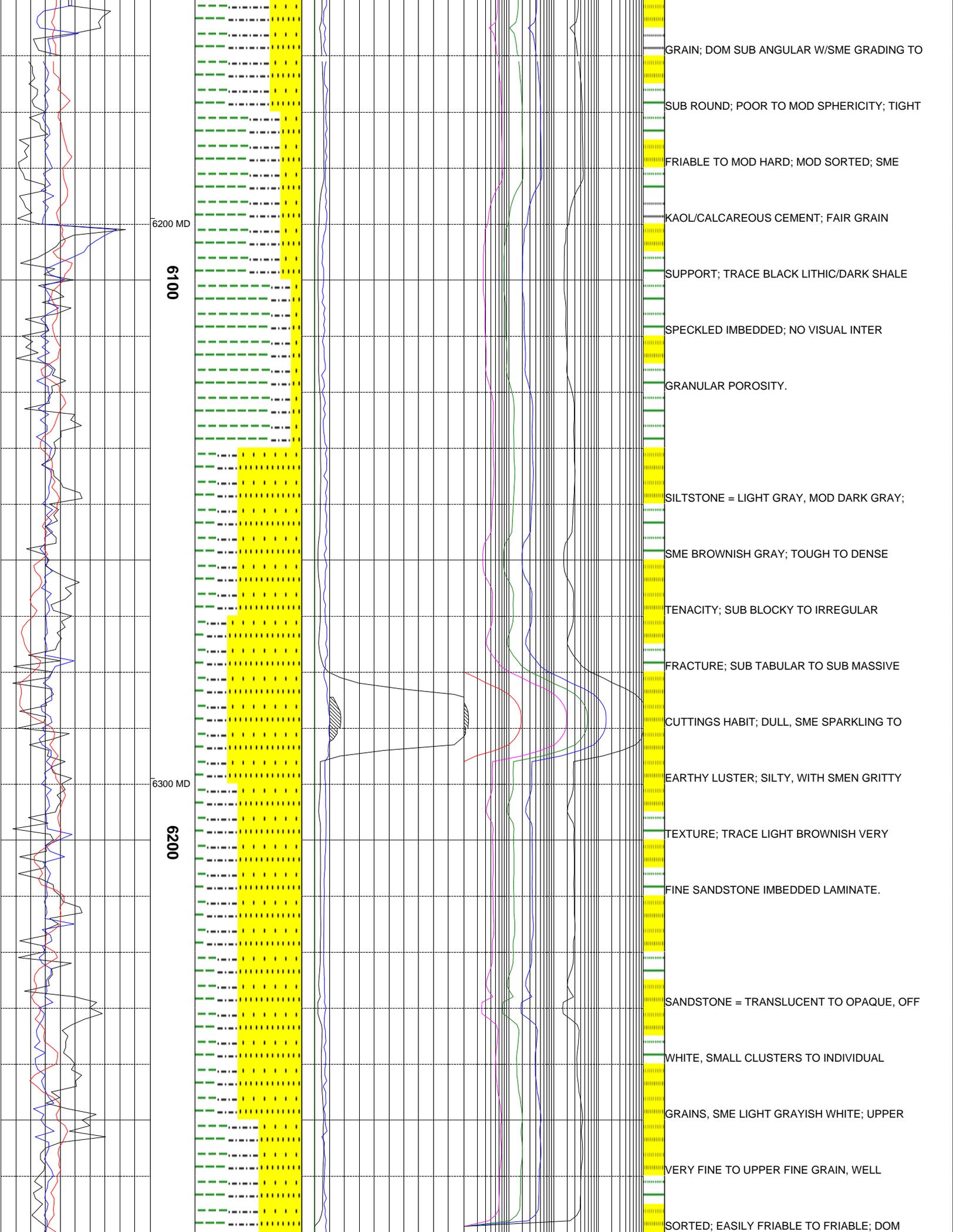
6000 MD
5900

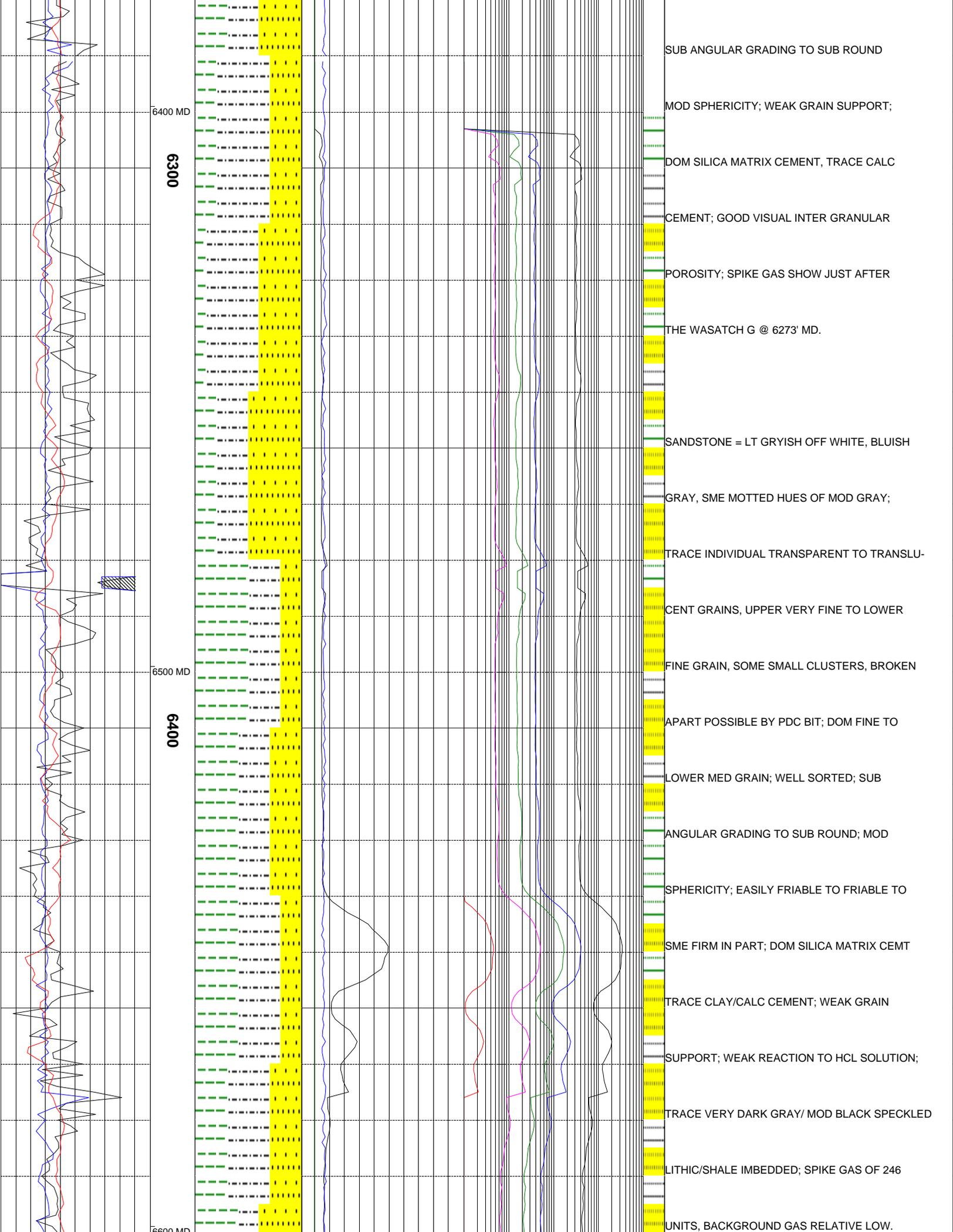
6100 MD
6000

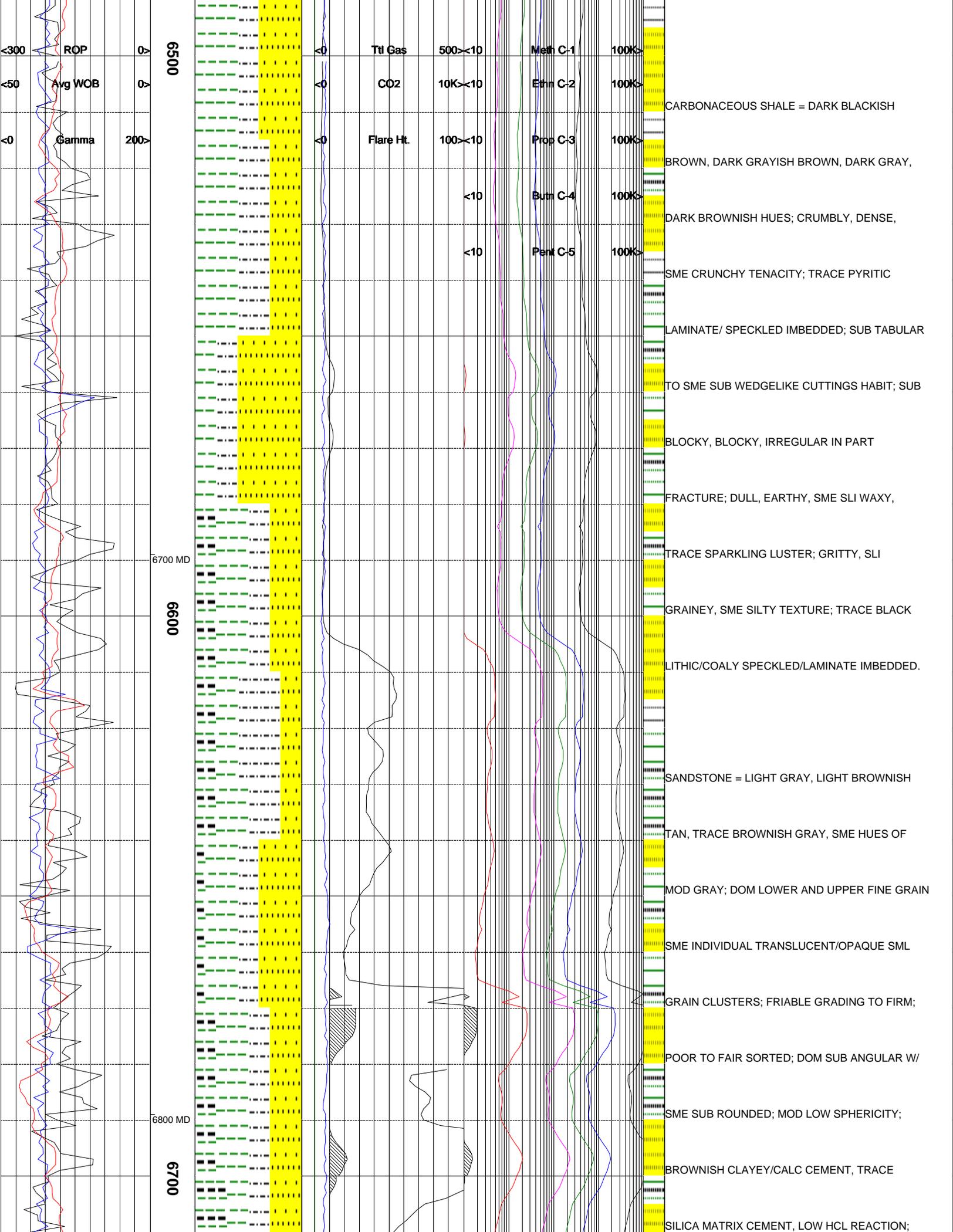
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<50 Avg WOB
<0 Gamma 200>

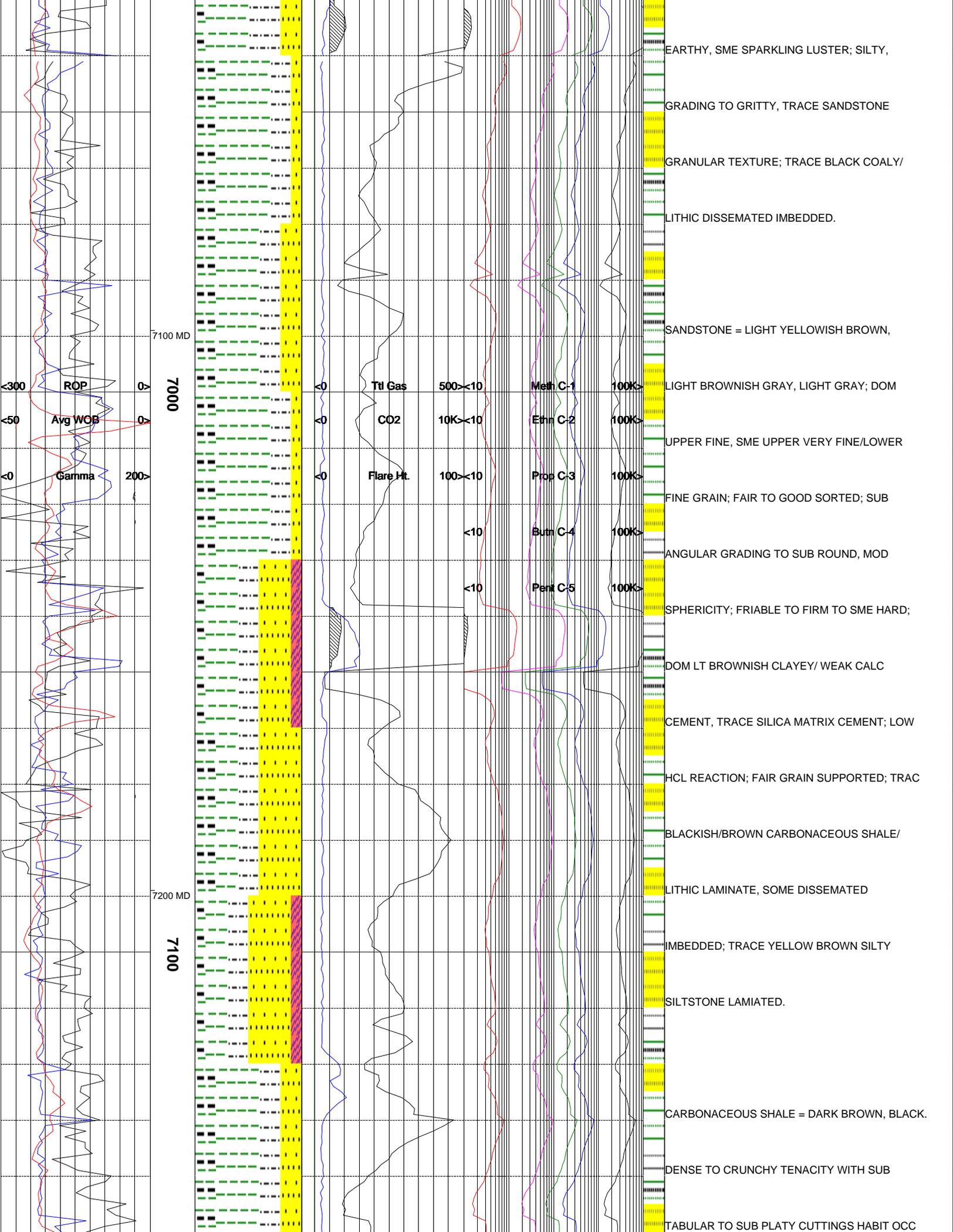
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<0	CO2	10K	<10	Ethn C-2	100K	>
<0	Flare Ht.	100	<10	Prop C-3	100K	>
			<10	Butn C-4	100K	>
			<10	Pent C-5	100K	>

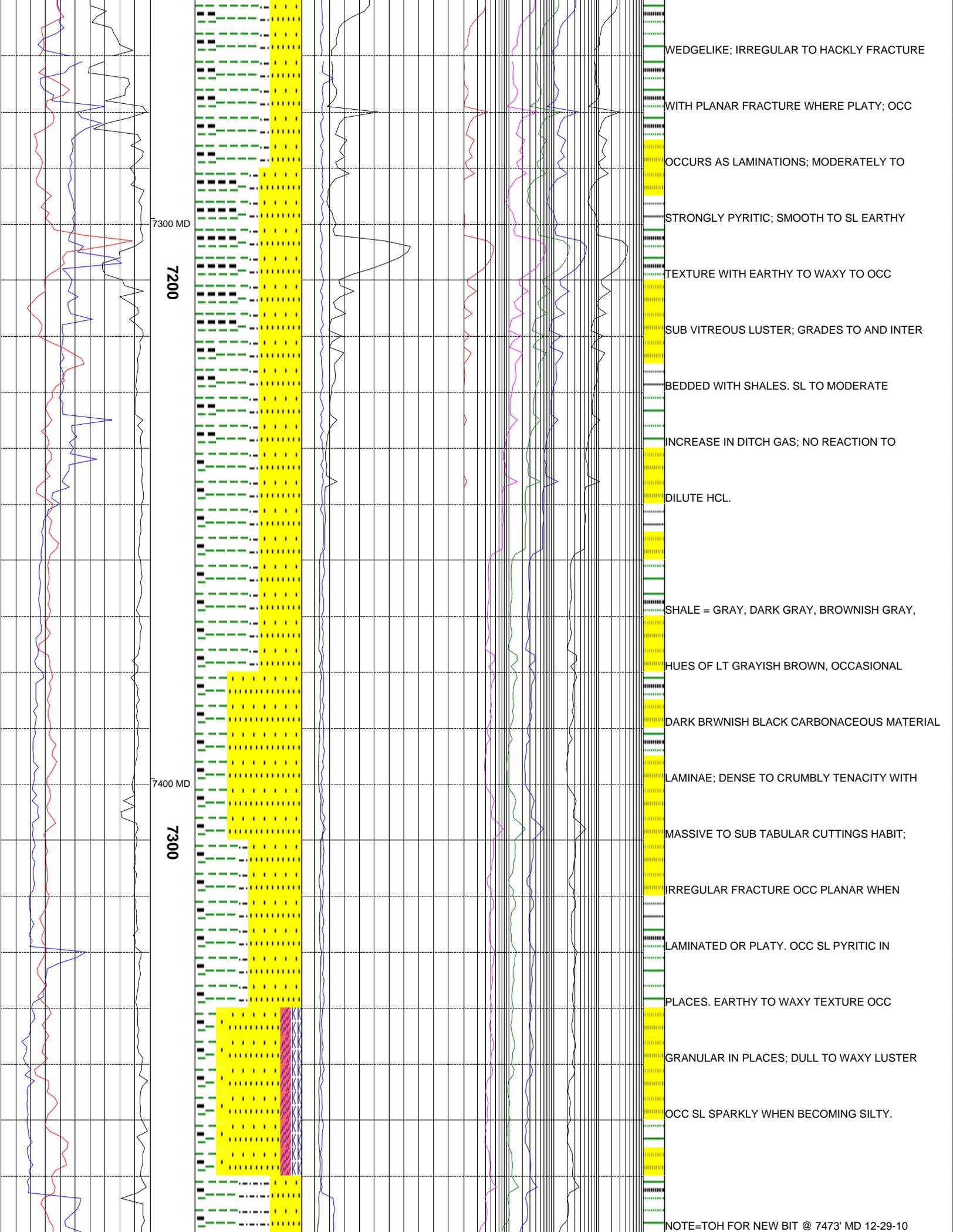
FIRM TO FRIABLE; OCC MARKED INCREASE IN
DITCH GAS.
SILTSTONE = GRY WITH REDDISH BRWN HUES;
REDDISH BRWN, BRWN; TOUGH TO DENSE
TENACITY WITH MASSIVE CUTTINGS HABIT;
IRREGULAR TO HACKLY FRACTURE; GRADES
BACK AND FORTH BETWEEN SANDSTONE AND
SHALE.
SHALE = LIGHT GRAY, GRNISH GRAY, DULL
GRAY, SME BROWNISH 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 DISSEMATED IMBEDDED.
SANDSTONE = LT BROWNISH GRAY, LT YELLWIS
BRWN, SME OFF WHITE; VF TO MOD COARSE





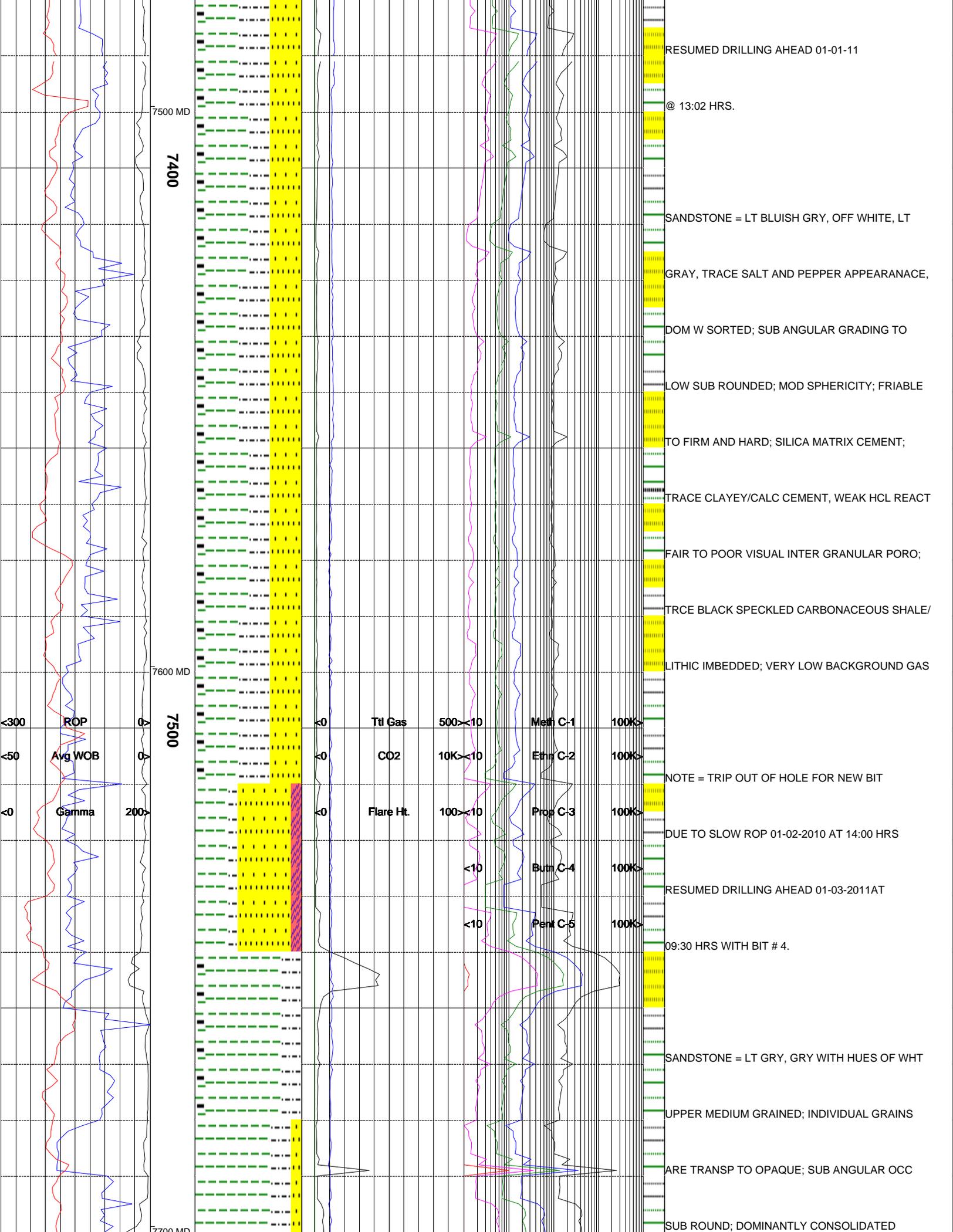






7300 MD
7200

7400 MD
7300



7500 MD

7400

7600 MD

7500

7700 MD

RESUMED DRILLING AHEAD 01-01-11

@ 13:02 HRS.

SANDSTONE = LT BLUISH GRY, OFF WHITE, LT GRAY, TRACE SALT AND PEPPER APPEARANCE, DOM W SORTED; SUB ANGULAR GRADING TO LOW SUB ROUNDED; MOD SPHERICITY; FRIABLE TO FIRM AND HARD; SILICA MATRIX CEMENT; TRACE CLAYEY/CALC CEMENT, WEAK HCL REACT FAIR TO POOR VISUAL INTER GRANULAR PORO; TRCE BLACK SPECKLED CARBONACEOUS SHALE/ LITHIC IMBEDDED; VERY LOW BACKGROUND GAS

NOTE = TRIP OUT OF HOLE FOR NEW BIT DUE TO SLOW ROP 01-02-2010 AT 14:00 HRS

RESUMED DRILLING AHEAD 01-03-2011 AT

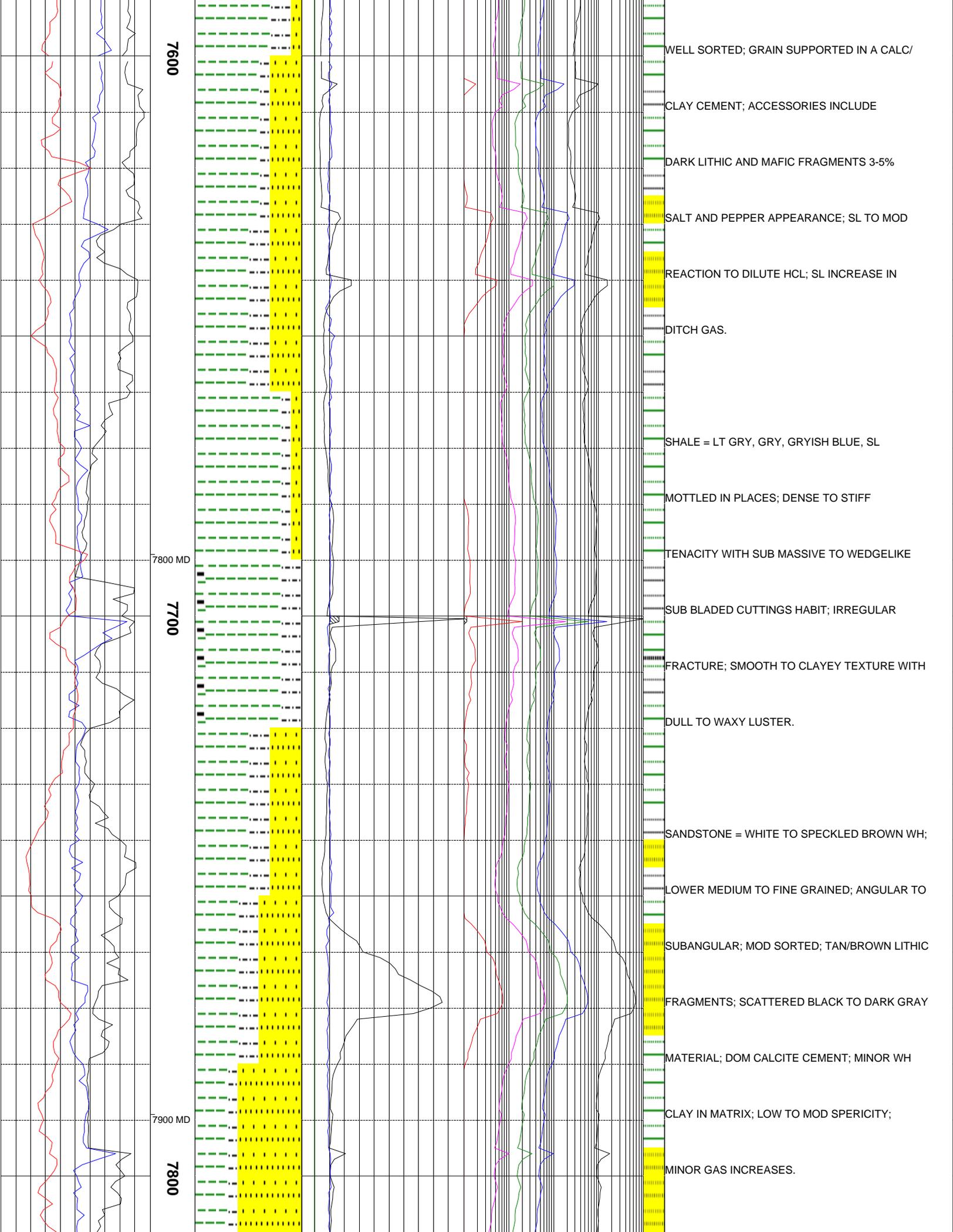
09:30 HRS WITH BIT # 4.

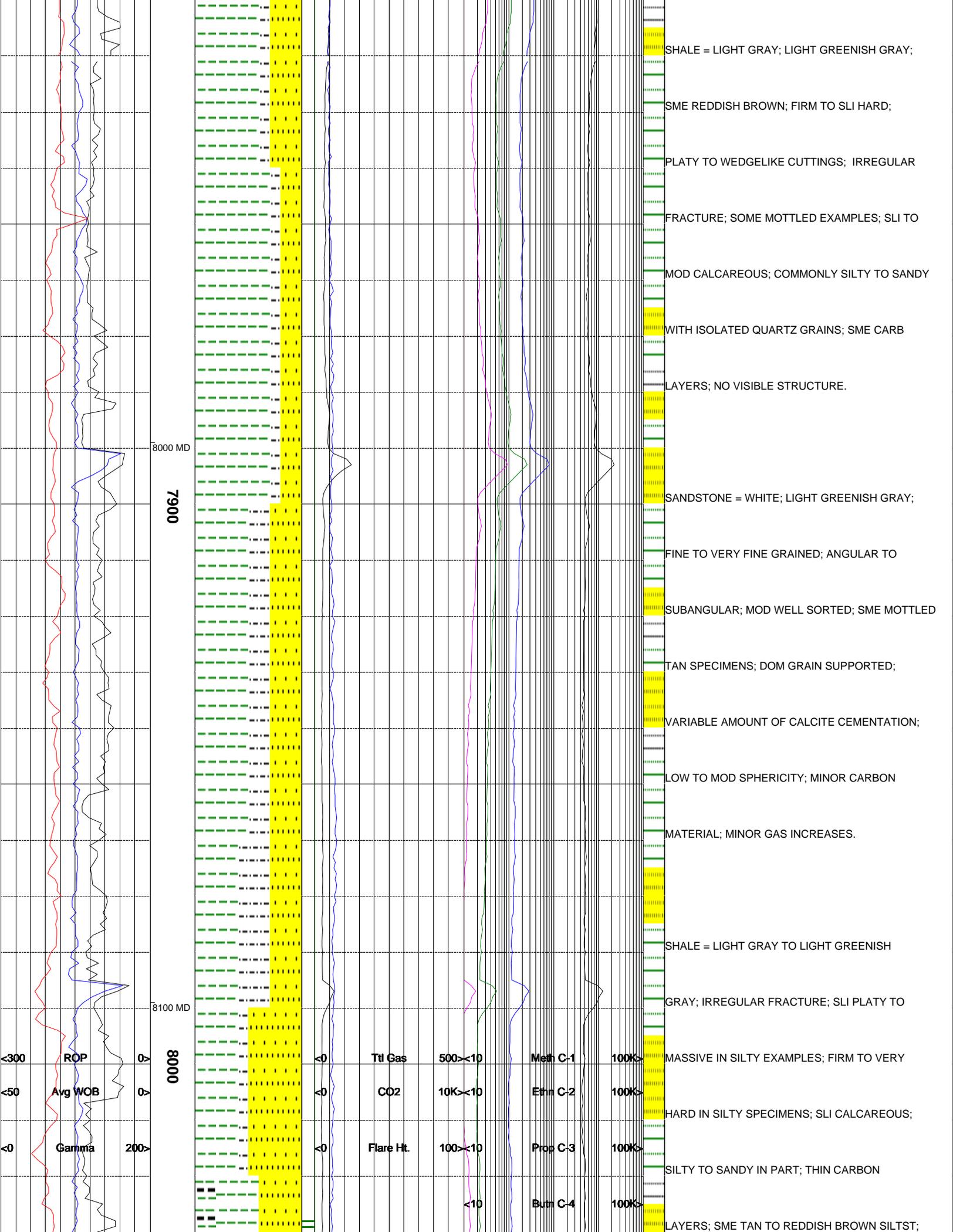
SANDSTONE = LT GRY, GRY WITH HUES OF WHT UPPER MEDIUM GRAINED; INDIVIDUAL GRAINS ARE TRANSP TO OPAQUE; SUB ANGULAR OCC

SUB ROUND; DOMINANTLY CONSOLIDATED

ROP
Avg WOB
Gamma

Ttl Gas	500	<10	Meth C-1	100K
CO2	10K	<10	Ethn C-2	100K
Flare Ht.	100	<10	Prop C-3	100K
		<10	Butn C-4	100K
		<10	Pent C-5	100K





8000 MD
7900

8100 MD
8000

<300
<50
<0

ROP
Avg WOB
Gamma

<0
<0
<0

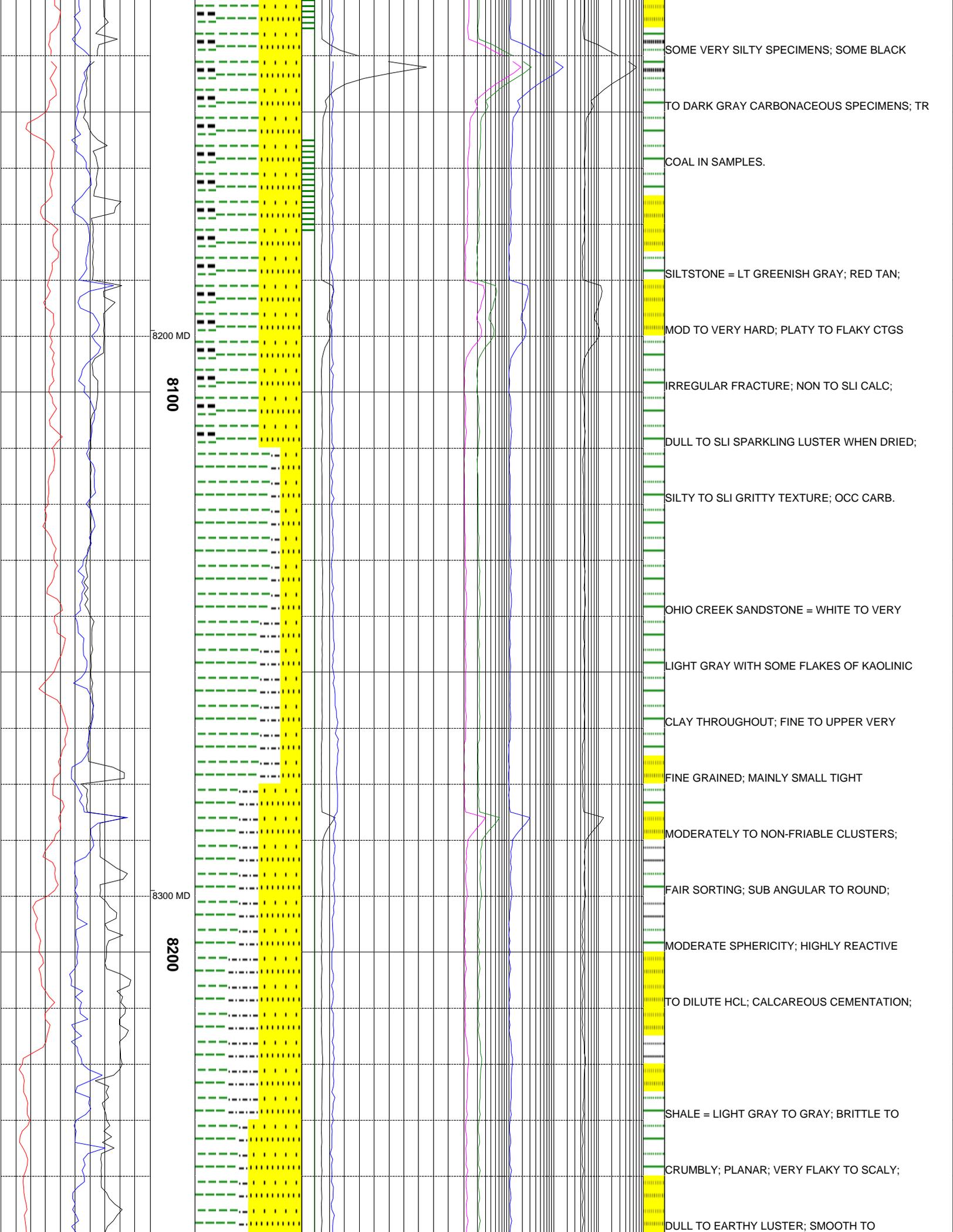
Ttl Gas
CO2
Flare Ht.

500<10
10K<10
100<10
<10

Meth C-1
Ethn C-2
Prop C-3
Burn C-4

100K>
100K>
100K>
100K>

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;



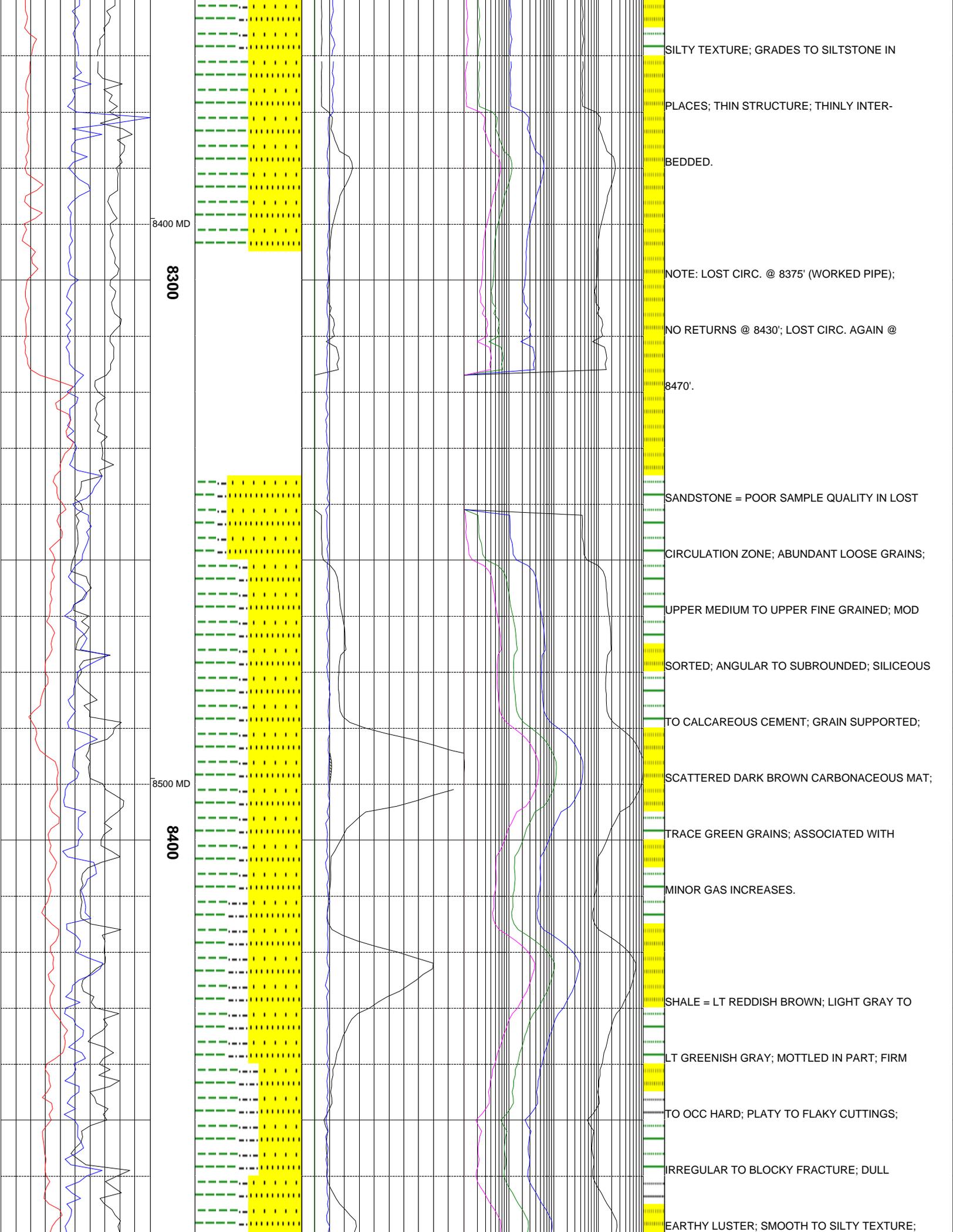
8200 MD

8100

8300 MD

8200

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 EARTHLY LUSTER; SMOOTH TO



8400 MD

8300

8500 MD

8400

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'.

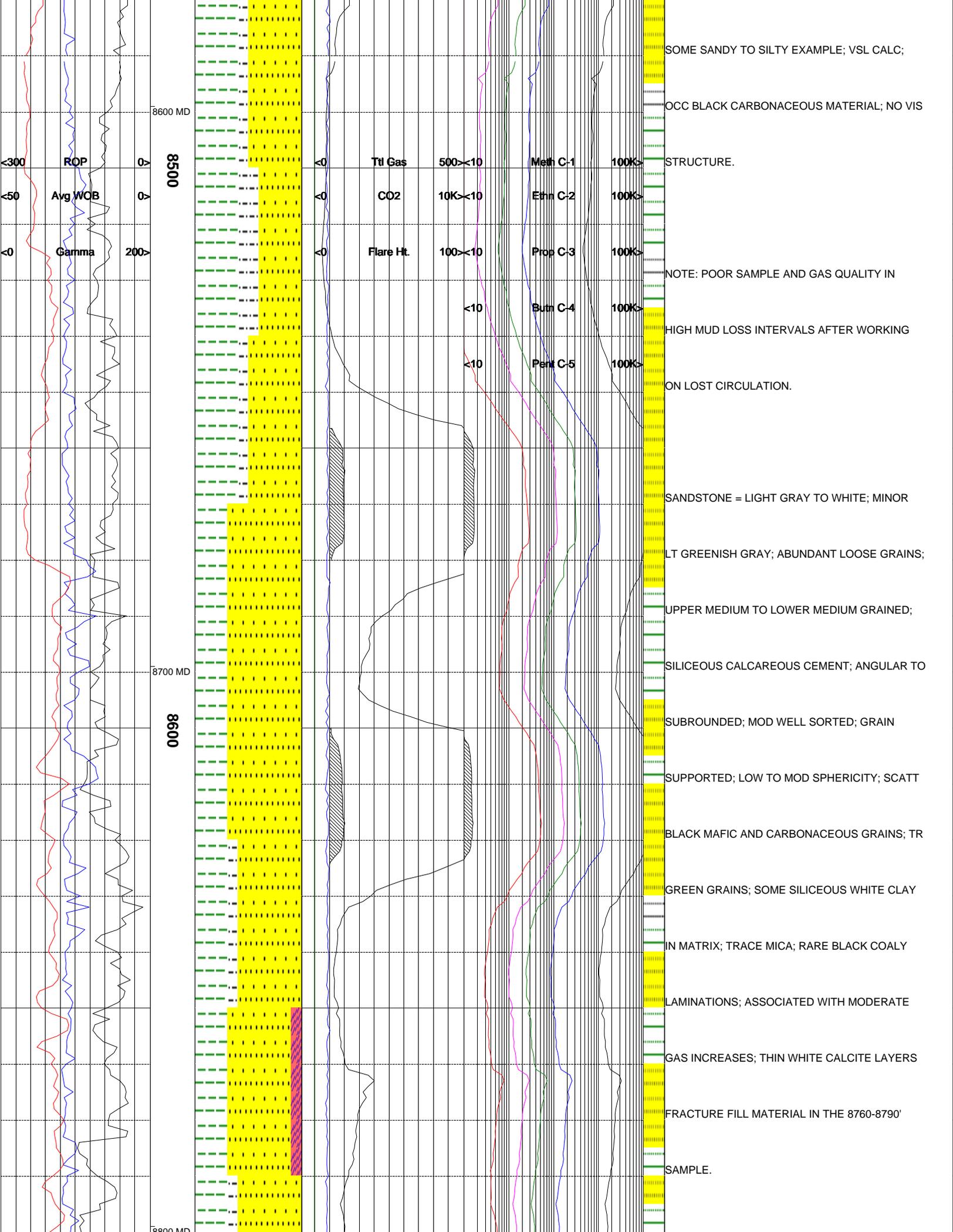
SANDSTONE = POOR SAMPLE QUALITY IN LOST
CIRCULATION ZONE; ABUNDANT LOOSE GRAINS;
UPPER MEDIUM TO UPPER FINE GRAINED; MOD

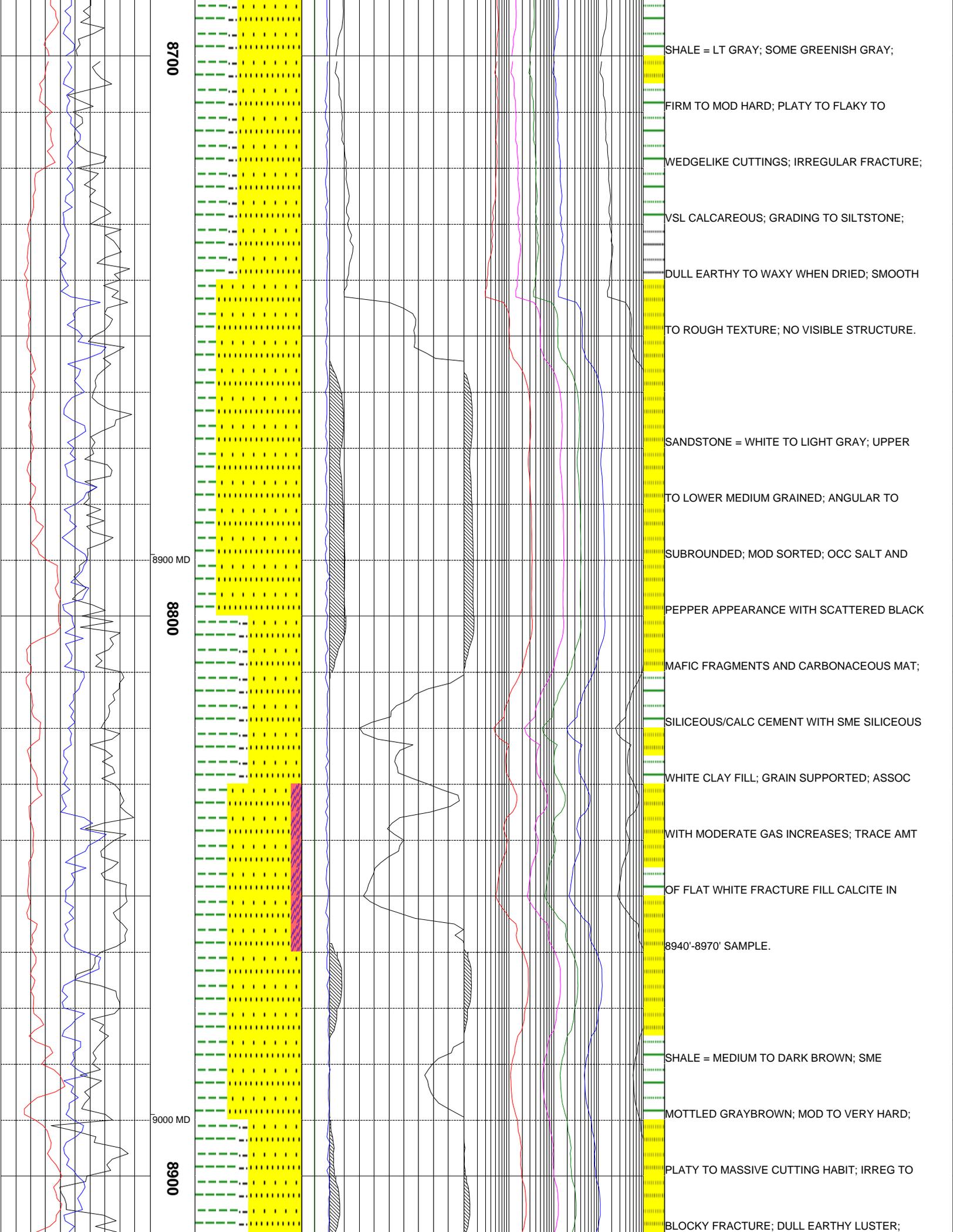
SORTED; ANGULAR TO SUBROUNDED; SILICEOUS
TO CALCAREOUS CEMENT; GRAIN SUPPORTED;
SCATTERED DARK BROWN CARBONACEOUS MAT;

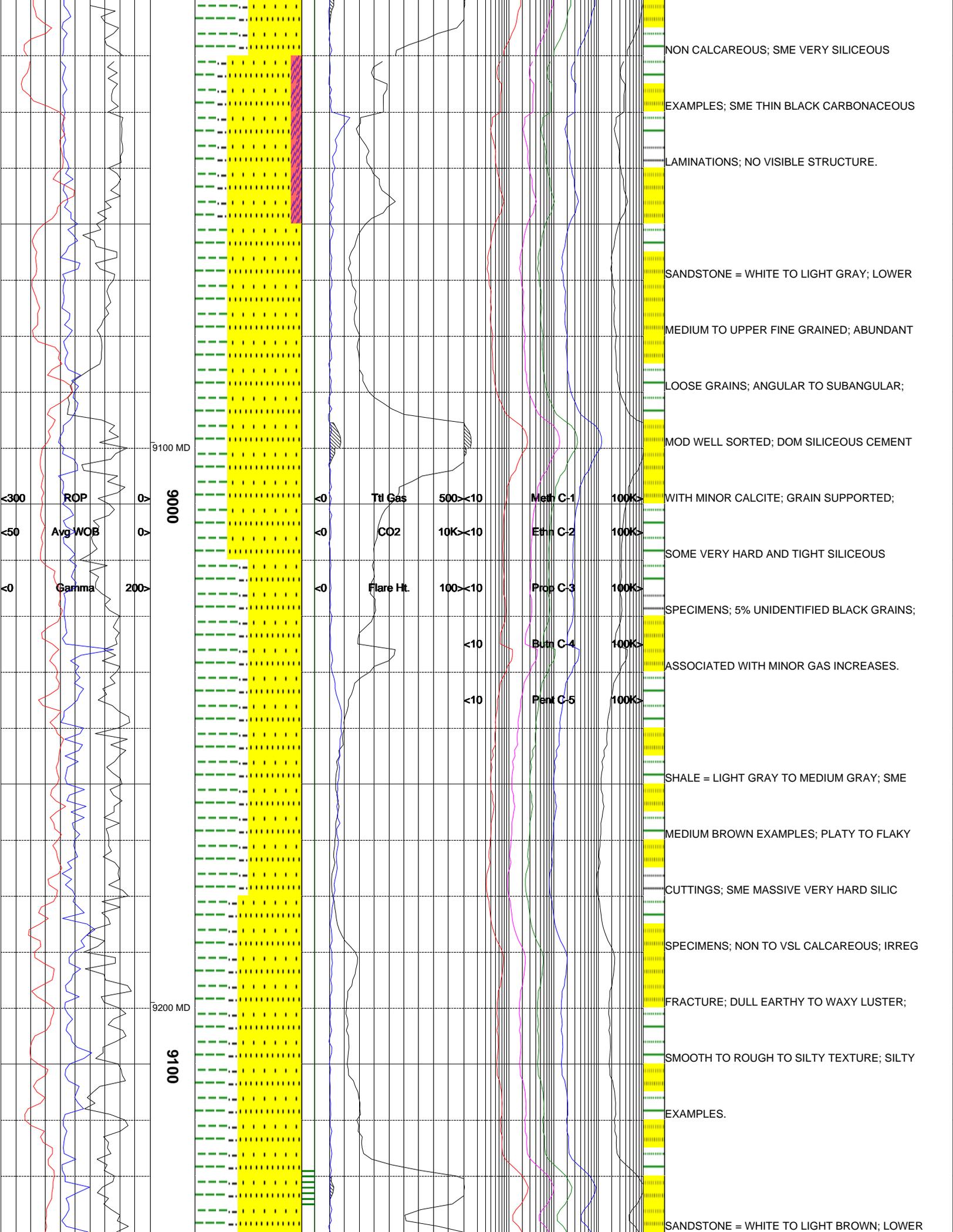
TRACE GREEN GRAINS; ASSOCIATED WITH
MINOR GAS INCREASES.

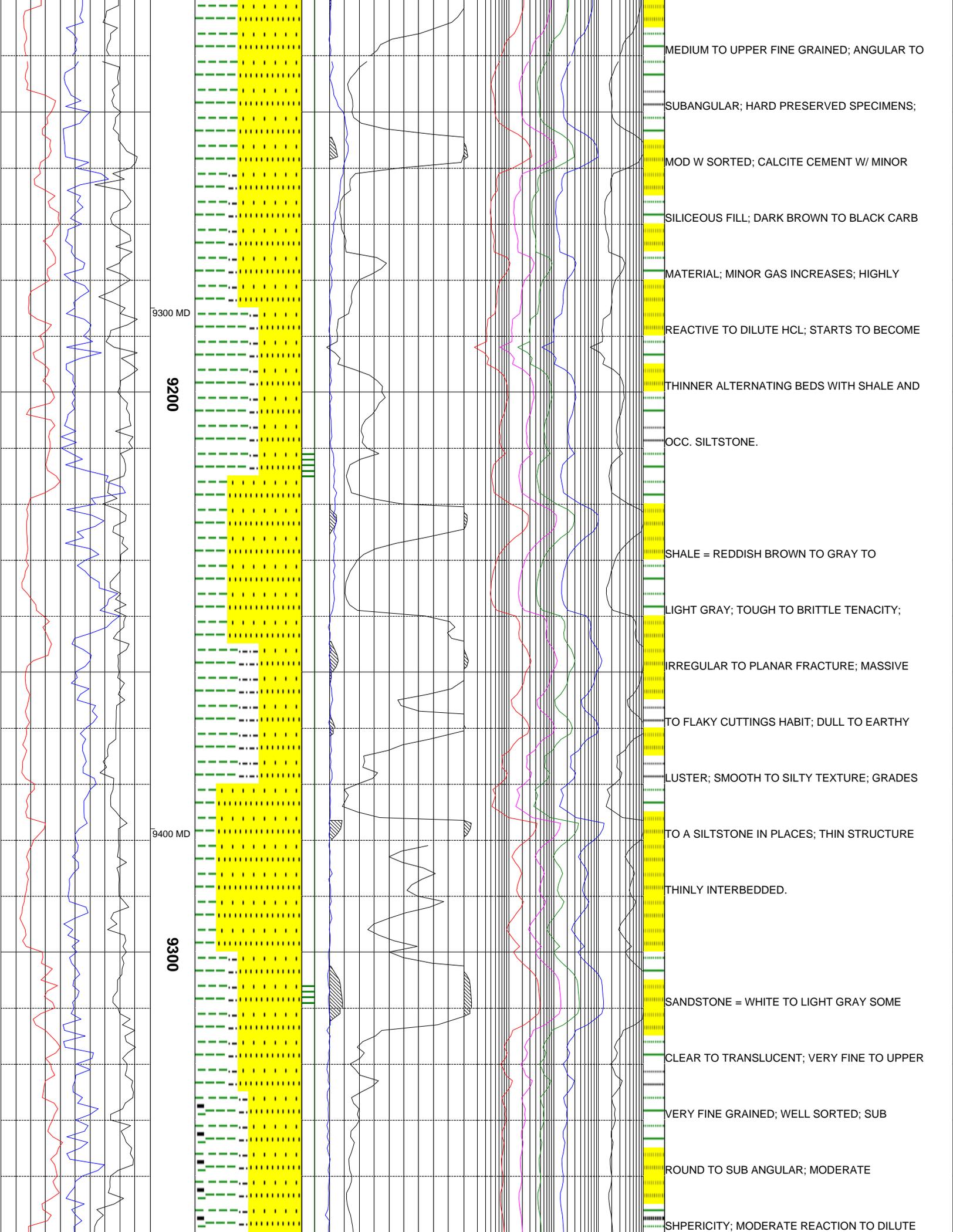
SHALE = LT REDDISH BROWN; LIGHT GRAY TO
LT GREENISH GRAY; MOTTLED IN PART; FIRM
TO OCC HARD; PLATY TO FLAKY CUTTINGS;

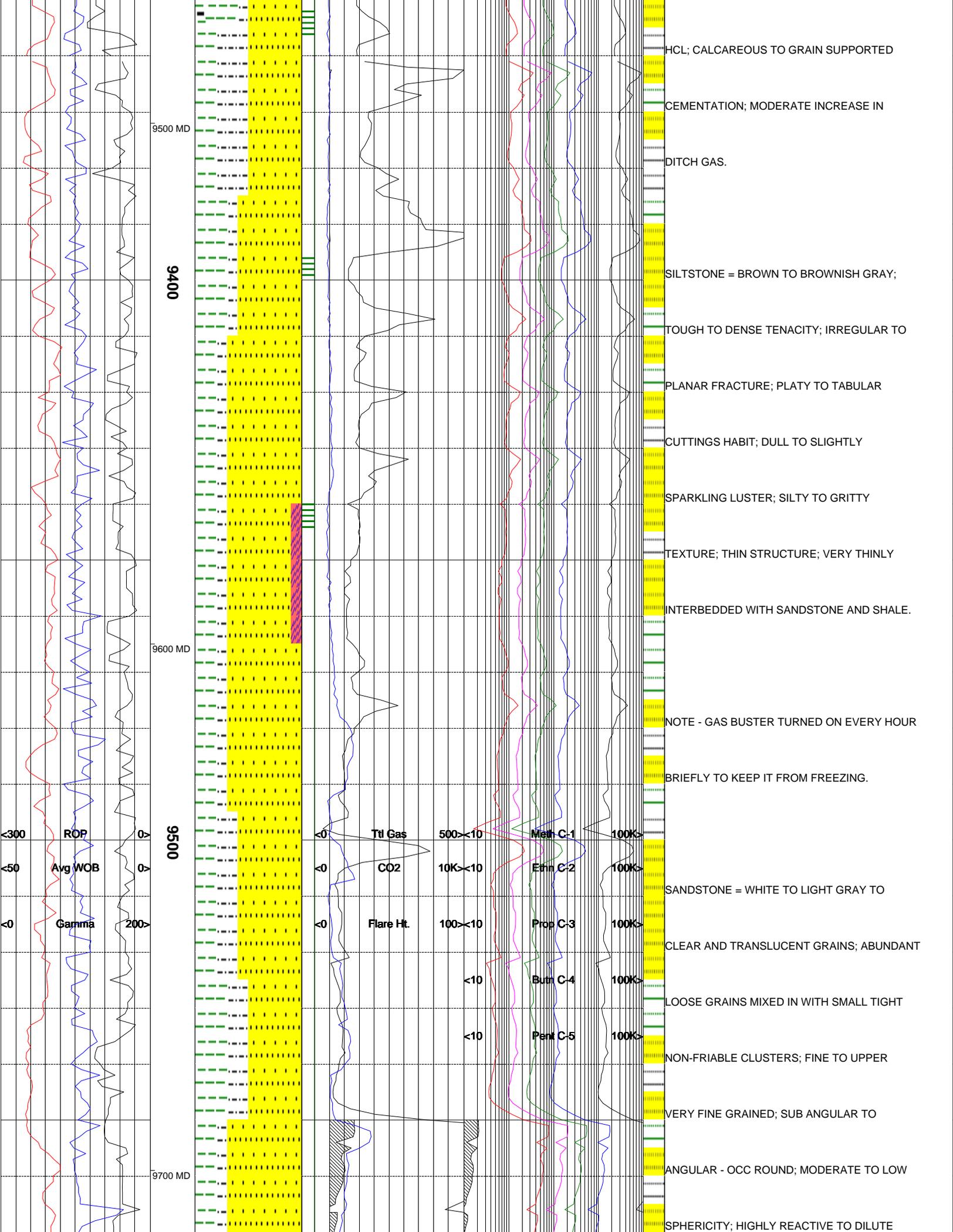
IRREGULAR TO BLOCKY FRACTURE; DULL
EARTHY LUSTER; SMOOTH TO SILTY TEXTURE;

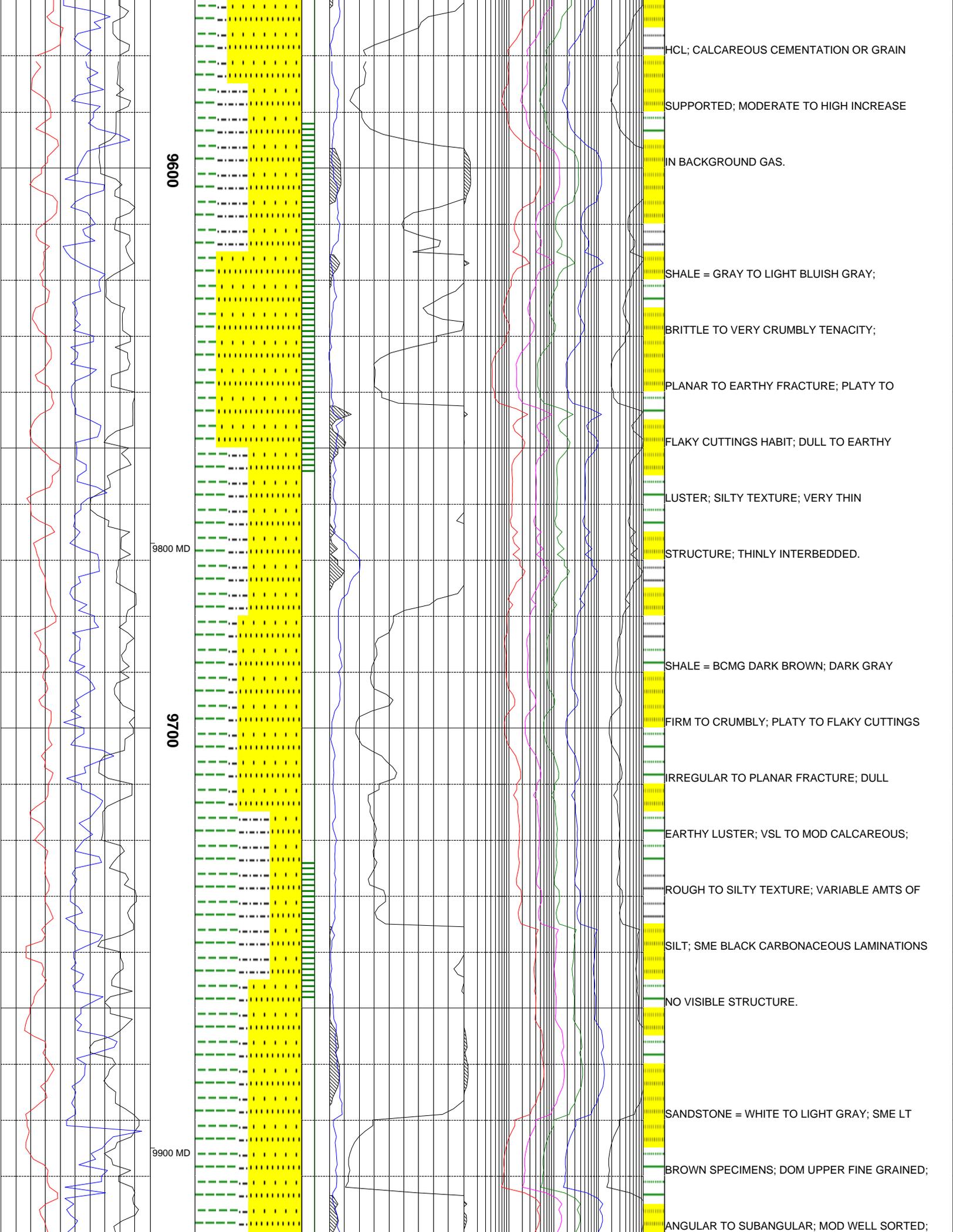










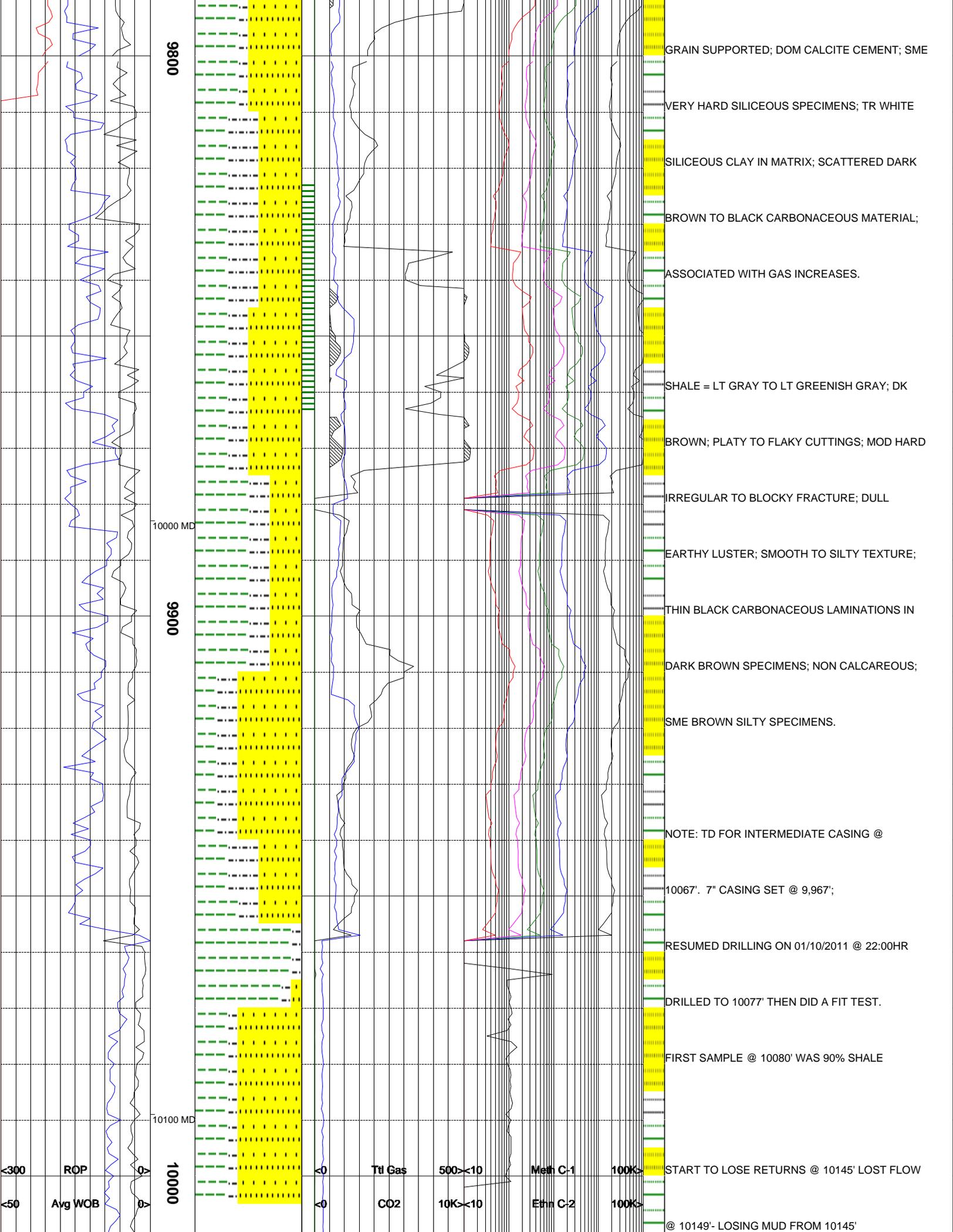


9600

9800 MD

9700

9900 MD



9800

10000 MD

9900

10100 MD

10000

GRAIN SUPPORTED; DOM CALCITE CEMENT; SME

VERY HARD SILICEOUS SPECIMENS; TR WHITE

SILICEOUS CLAY IN MATRIX; SCATTERED DARK

BROWN TO BLACK CARBONACEOUS MATERIAL;

ASSOCIATED WITH GAS INCREASES.

SHALE = LT GRAY TO LT GREENISH GRAY; DK

BROWN; PLATY TO FLAKY CUTTINGS; MOD HARD

IRREGULAR TO BLOCKY FRACTURE; DULL

EARTHY LUSTER; SMOOTH TO SILTY TEXTURE;

THIN BLACK CARBONACEOUS LAMINATIONS IN

DARK BROWN SPECIMENS; NON CALCAREOUS;

SME BROWN SILTY SPECIMENS.

NOTE: TD FOR INTERMEDIATE CASING @

10067'. 7" CASING SET @ 9,967';

RESUMED DRILLING ON 01/10/2011 @ 22:00HR

DRILLED TO 10077' THEN DID A FIT TEST.

FIRST SAMPLE @ 10080' WAS 90% SHALE

START TO LOSE RETURNS @ 10145' LOST FLOW

@ 10149'- LOSING MUD FROM 10145'

<300 ROP

<50 Avg WOB

<0 Ttl Gas

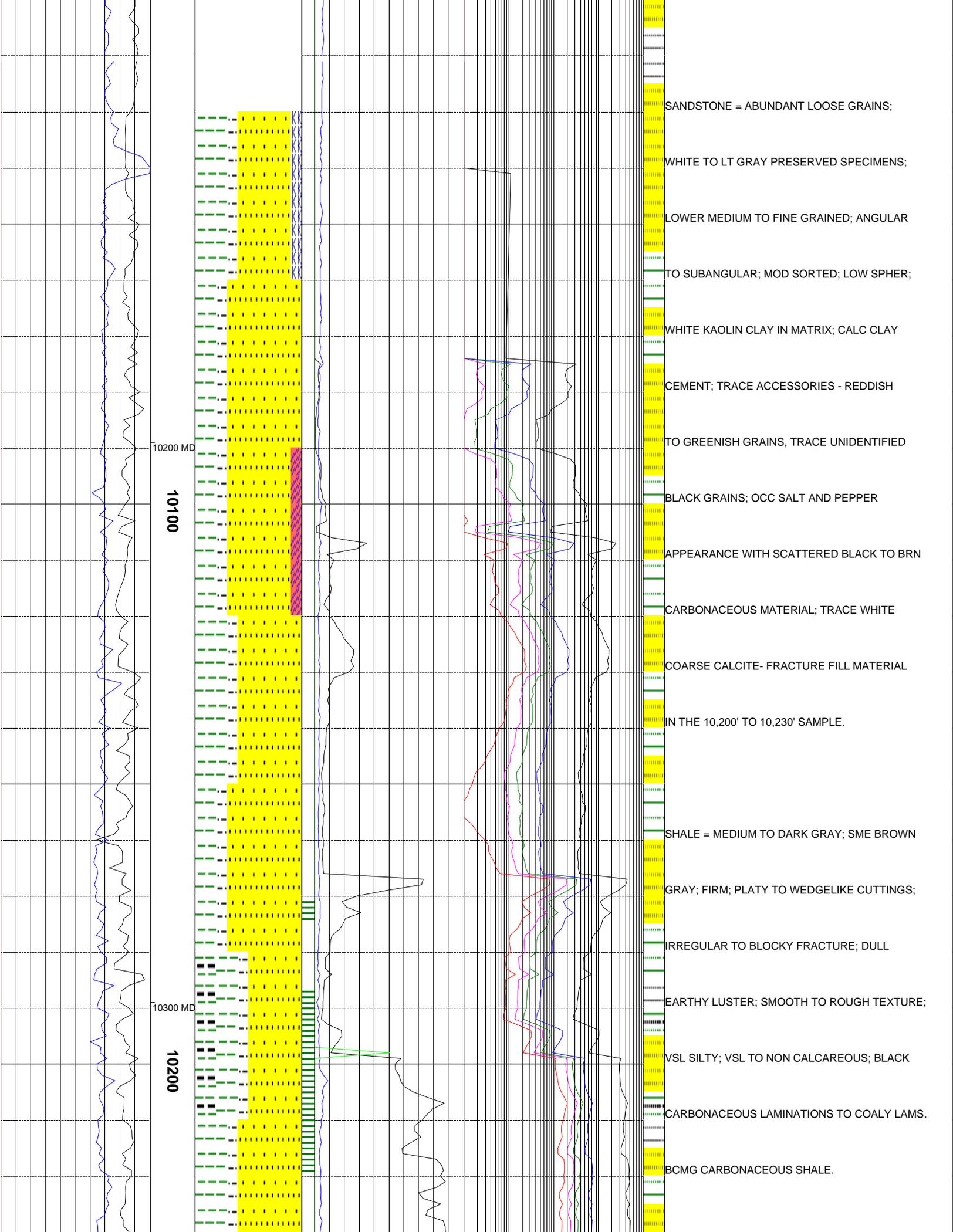
<0 CO2

500<10 Meth C-1

10K<10 Ethn C-2

100K>

100K>

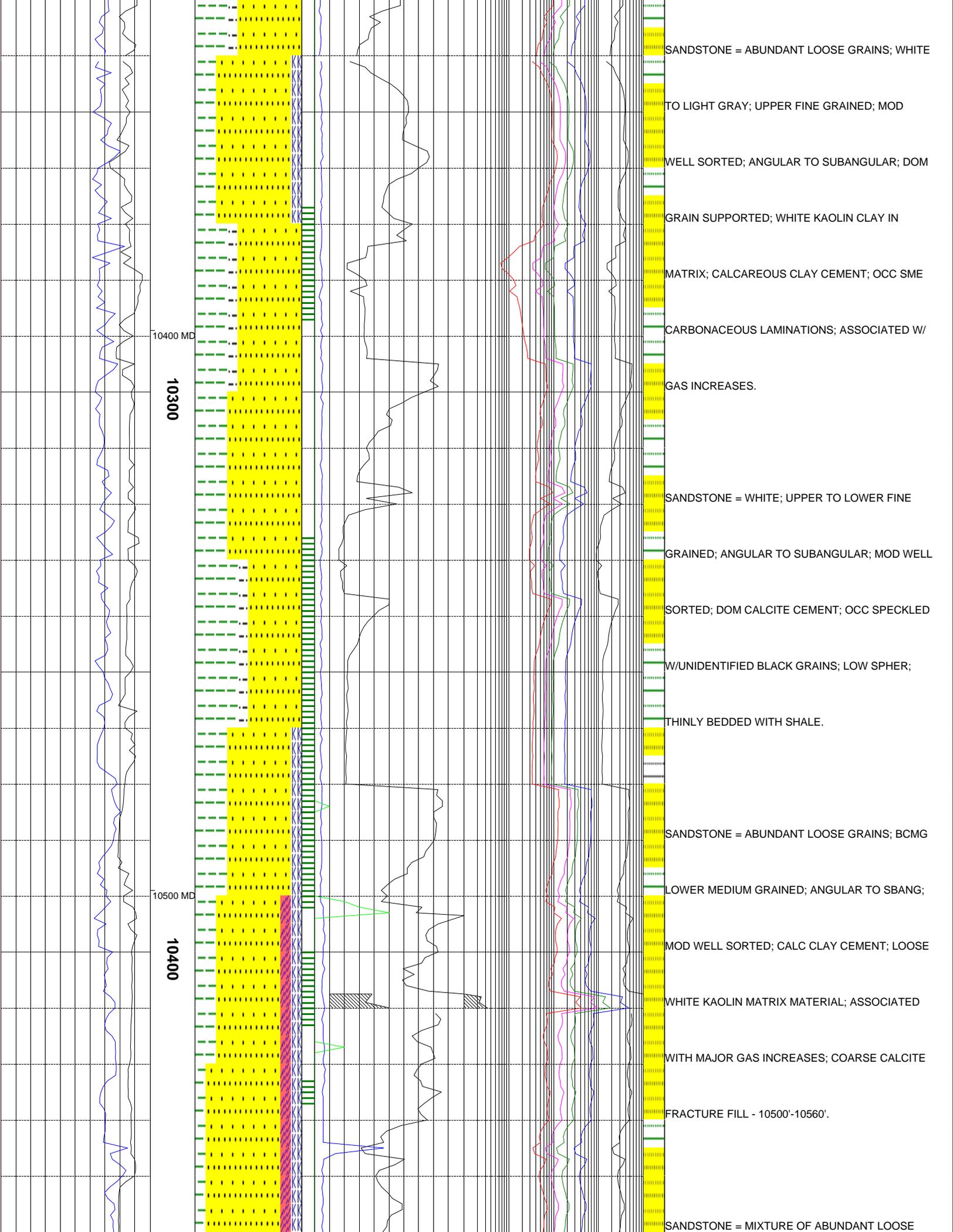


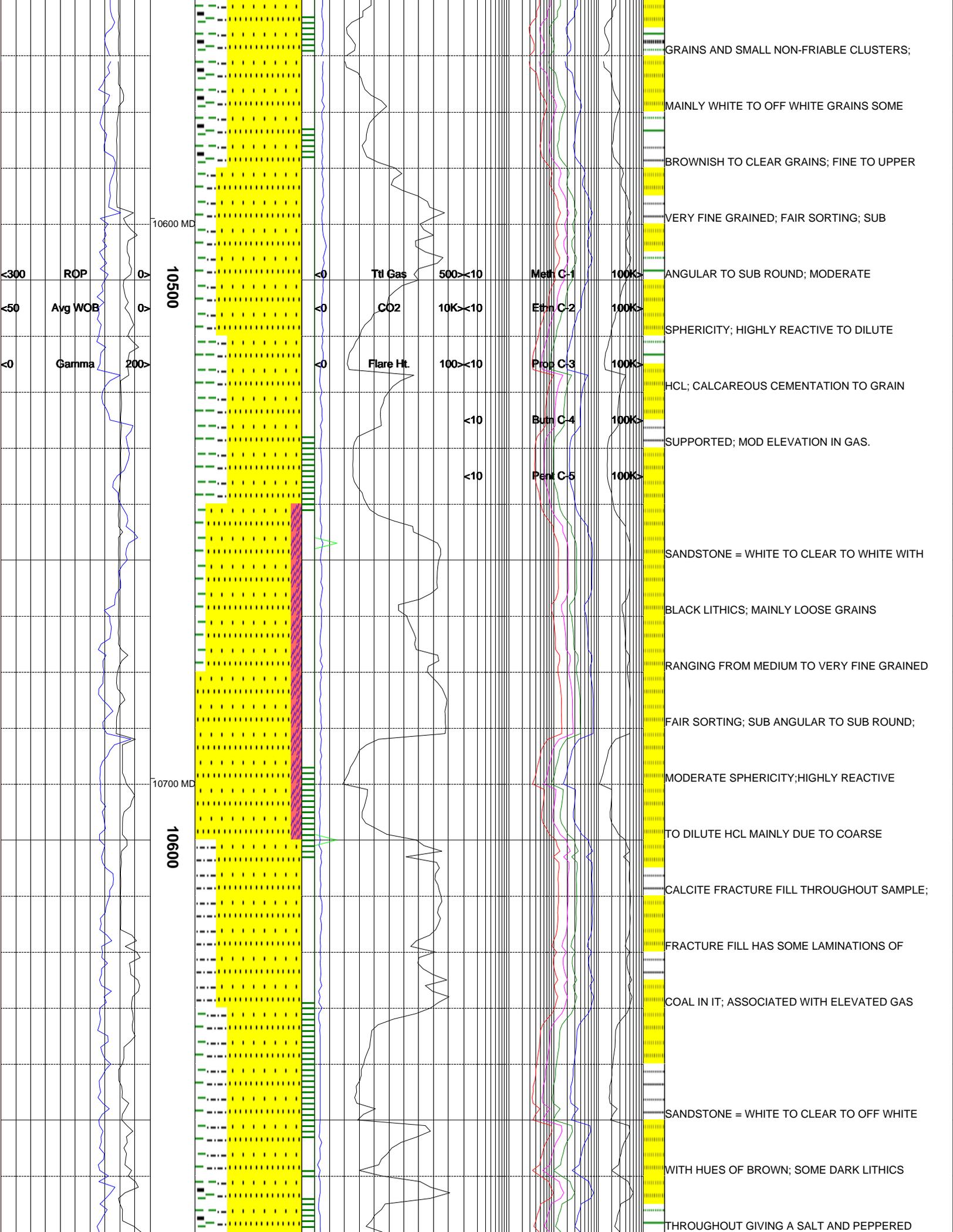
10200 MD

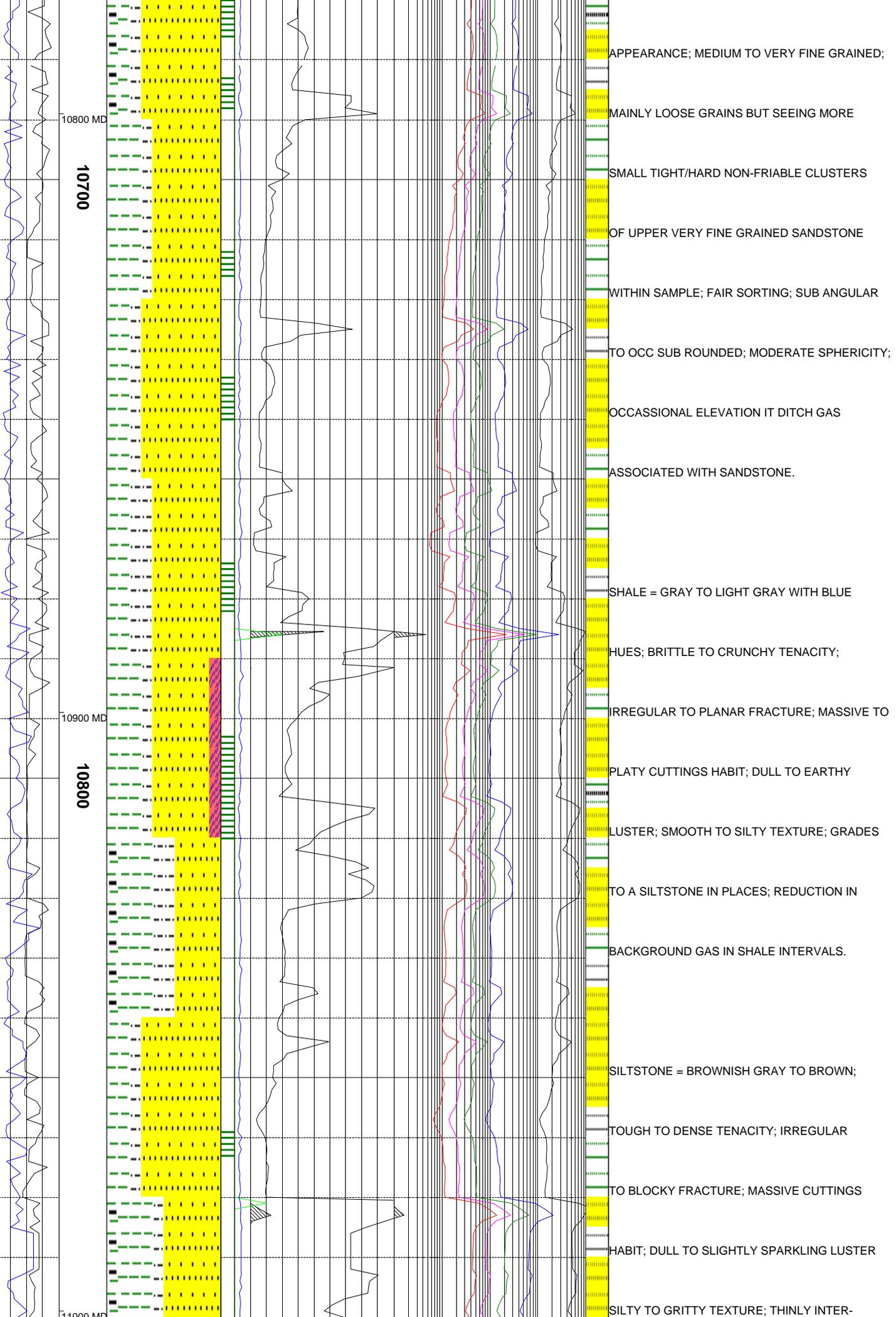
10100

10300 MD

10200

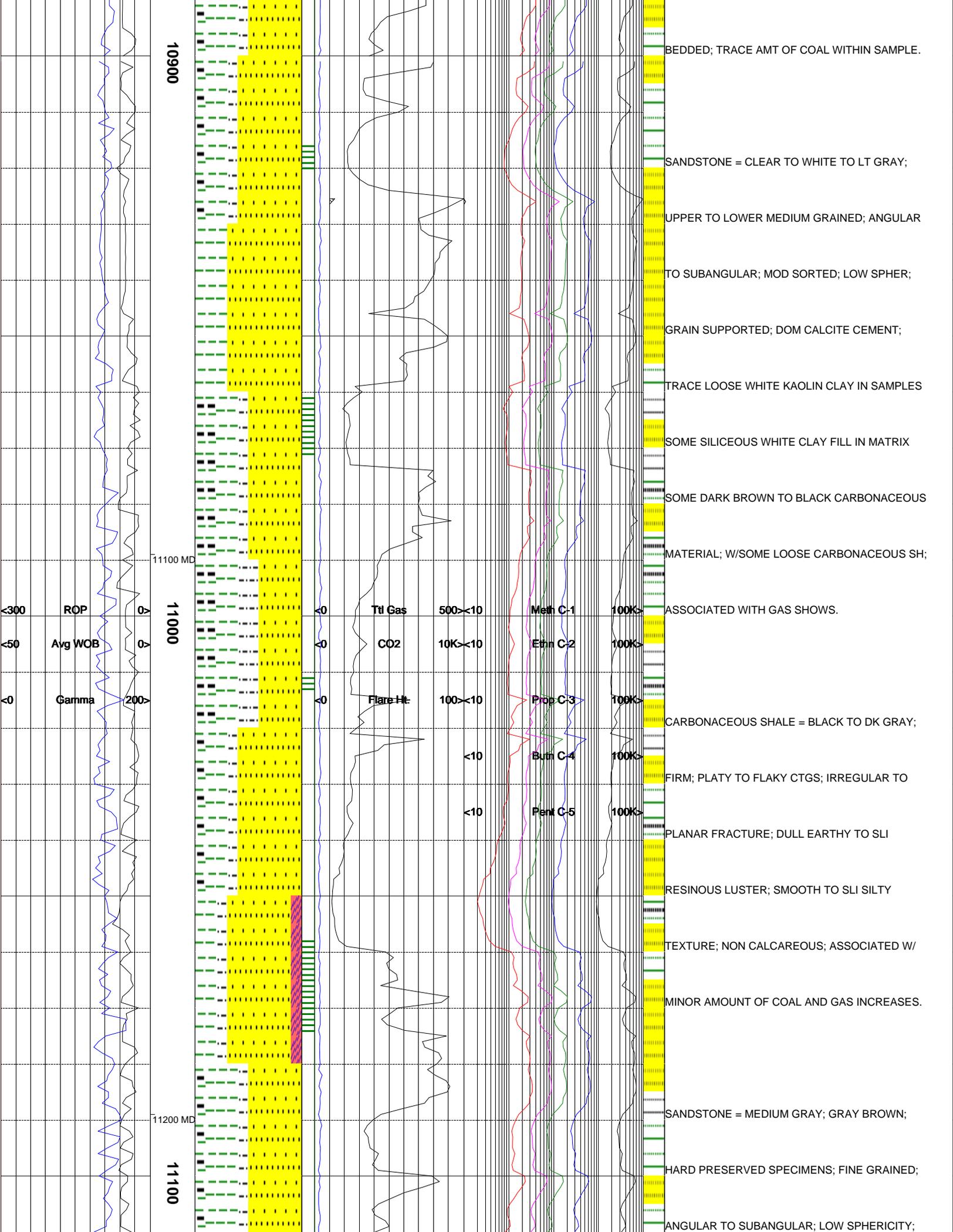


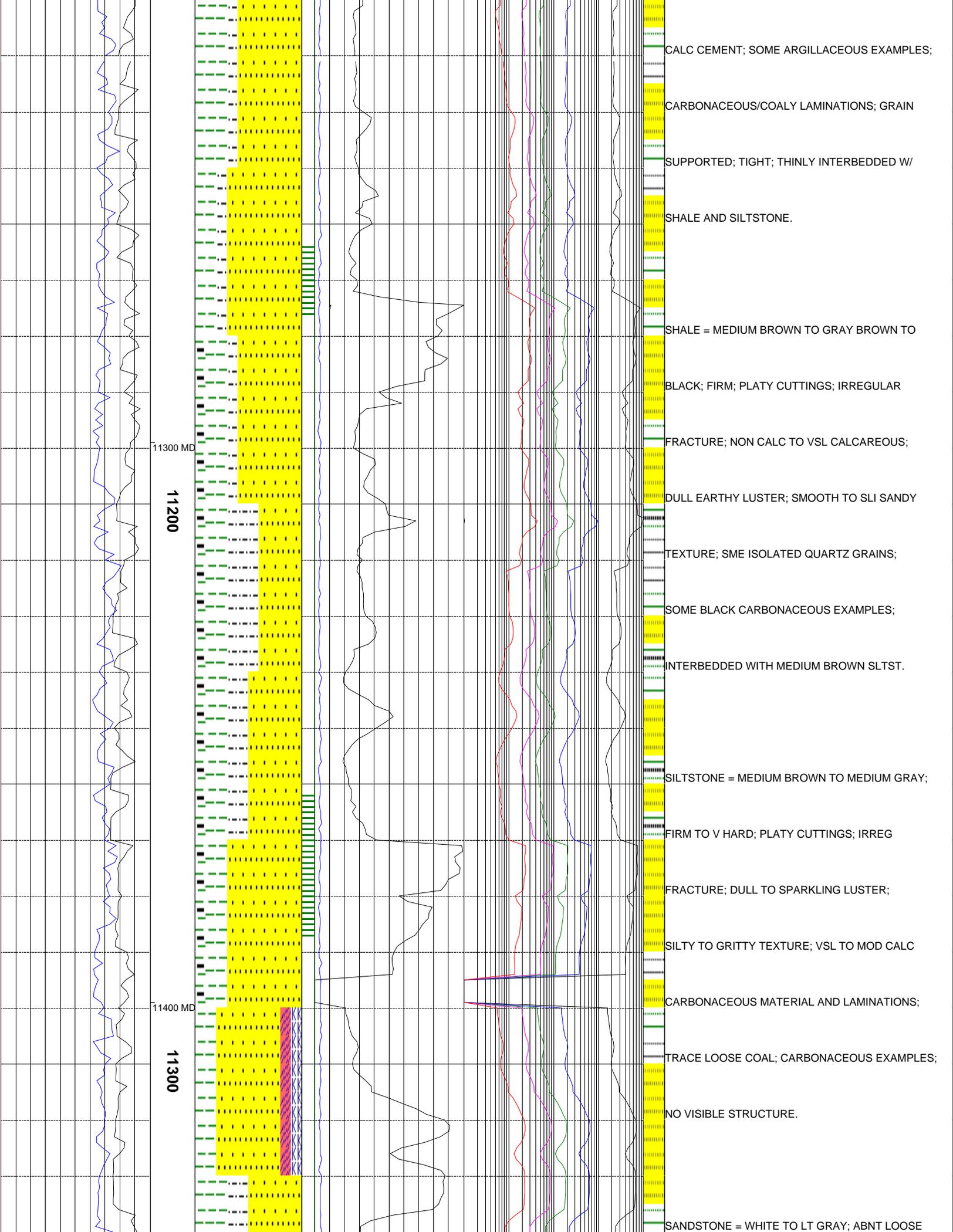




APPEARANCE; MEDIUM TO VERY FINE GRAINED;
 MAINLY LOOSE GRAINS BUT SEEING MORE
 SMALL TIGHT/HARD NON-FRIABLE CLUSTERS
 OF UPPER VERY FINE GRAINED SANDSTONE
 WITHIN SAMPLE; FAIR SORTING; SUB ANGULAR
 TO OCC SUB ROUNDED; MODERATE SPHERICITY;
 OCCASSIONAL ELEVATION IT DITCH GAS
 ASSOCIATED WITH SANDSTONE.
 SHALE = GRAY TO LIGHT GRAY WITH BLUE
 HUES; BRITTLE TO CRUNCHY TENACITY;
 IRREGULAR TO PLANAR FRACTURE; MASSIVE TO
 PLATY CUTTINGS HABIT; DULL TO EARTHY
 LUSTER; SMOOTH TO SILTY TEXTURE; GRADES
 TO A SILTSTONE IN PLACES; REDUCTION IN
 BACKGROUND GAS IN SHALE INTERVALS.
 SILTSTONE = BROWNISH GRAY TO BROWN;
 TOUGH TO DENSE TENACITY; IRREGULAR
 TO BLOCKY FRACTURE; MASSIVE CUTTINGS
 HABIT; DULL TO SLIGHTLY SPARKLING LUSTER
 SILTY TO GRITTY TEXTURE; THINLY INTER-

10800 MD
 10700
 10900 MD
 10800
 11000 MD

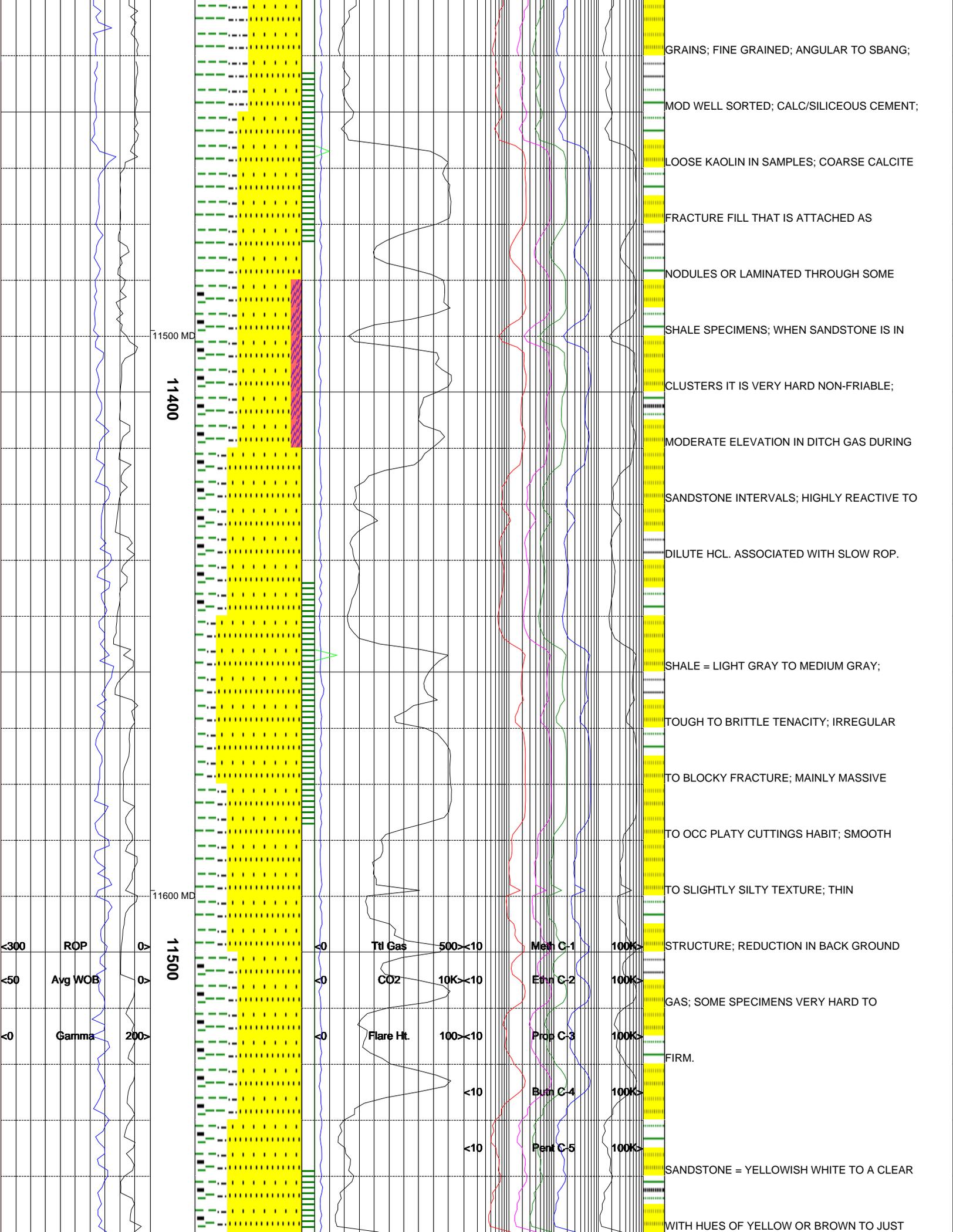




11300 MD
11200

11400 MD
11300

CALC CEMENT; SOME ARGILLACEOUS EXAMPLES;
 CARBONACEOUS/COALY LAMINATIONS; GRAIN
 SUPPORTED; TIGHT; THINLY INTERBEDDED W/
 SHALE AND SILTSTONE.
 SHALE = MEDIUM BROWN TO GRAY BROWN TO
 BLACK; FIRM; PLATY CUTTINGS; IRREGULAR
 FRACTURE; NON CALC TO VSL CALCAREOUS;
 DULL EARTHY LUSTER; SMOOTH TO SLI SANDY
 TEXTURE; SME ISOLATED QUARTZ GRAINS;
 SOME BLACK CARBONACEOUS EXAMPLES;
 INTERBEDDED WITH MEDIUM BROWN SLTST.
 SILTSTONE = MEDIUM BROWN TO MEDIUM GRAY;
 FIRM TO V HARD; PLATY CUTTINGS; IRREG
 FRACTURE; DULL TO SPARKLING LUSTER;
 SILTY TO GRITTY TEXTURE; VSL TO MOD CALC
 CARBONACEOUS MATERIAL AND LAMINATIONS;
 TRACE LOOSE COAL; CARBONACEOUS EXAMPLES;
 NO VISIBLE STRUCTURE.
 SANDSTONE = WHITE TO LT GRAY; ABNT LOOSE



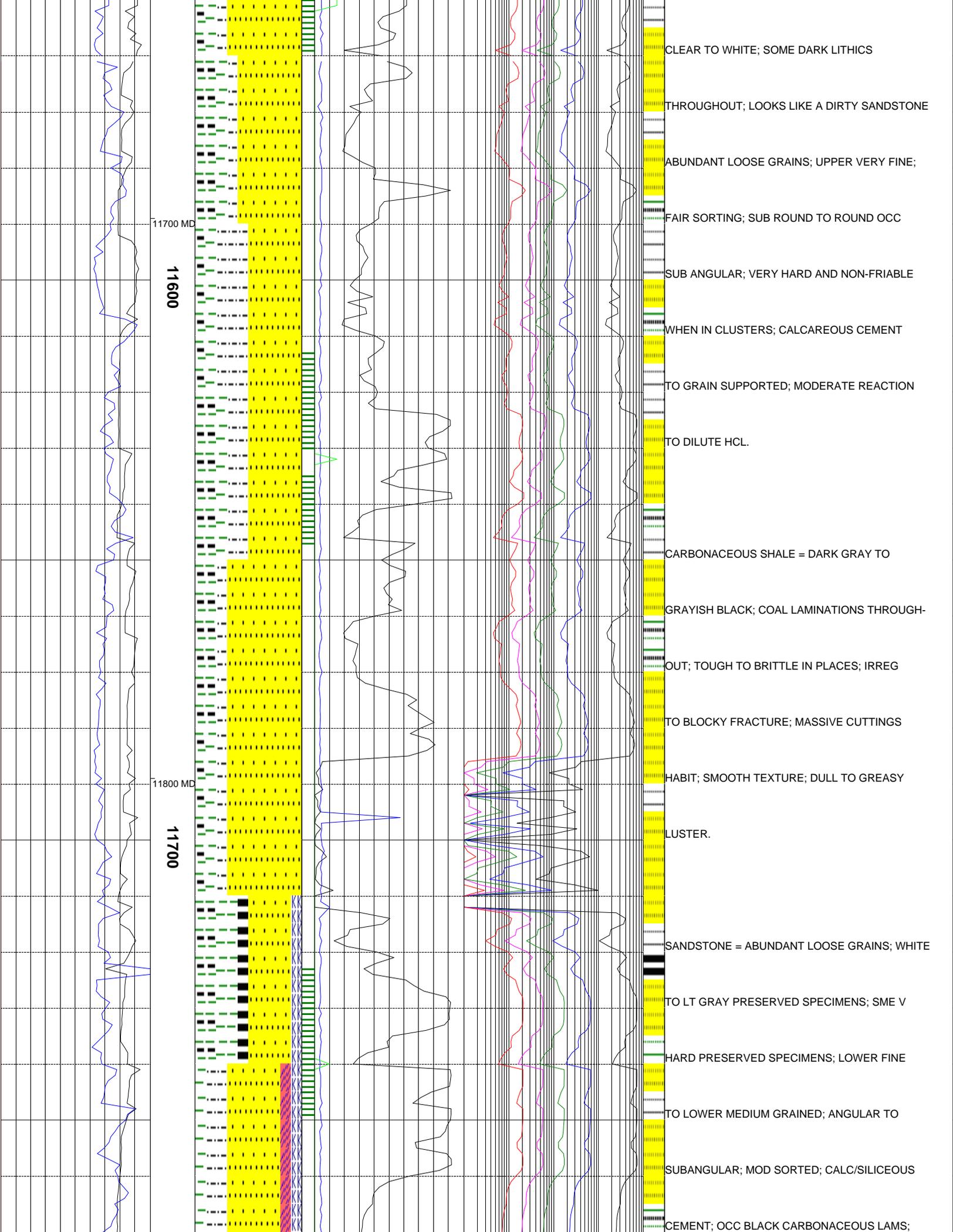
11500 MD
11400

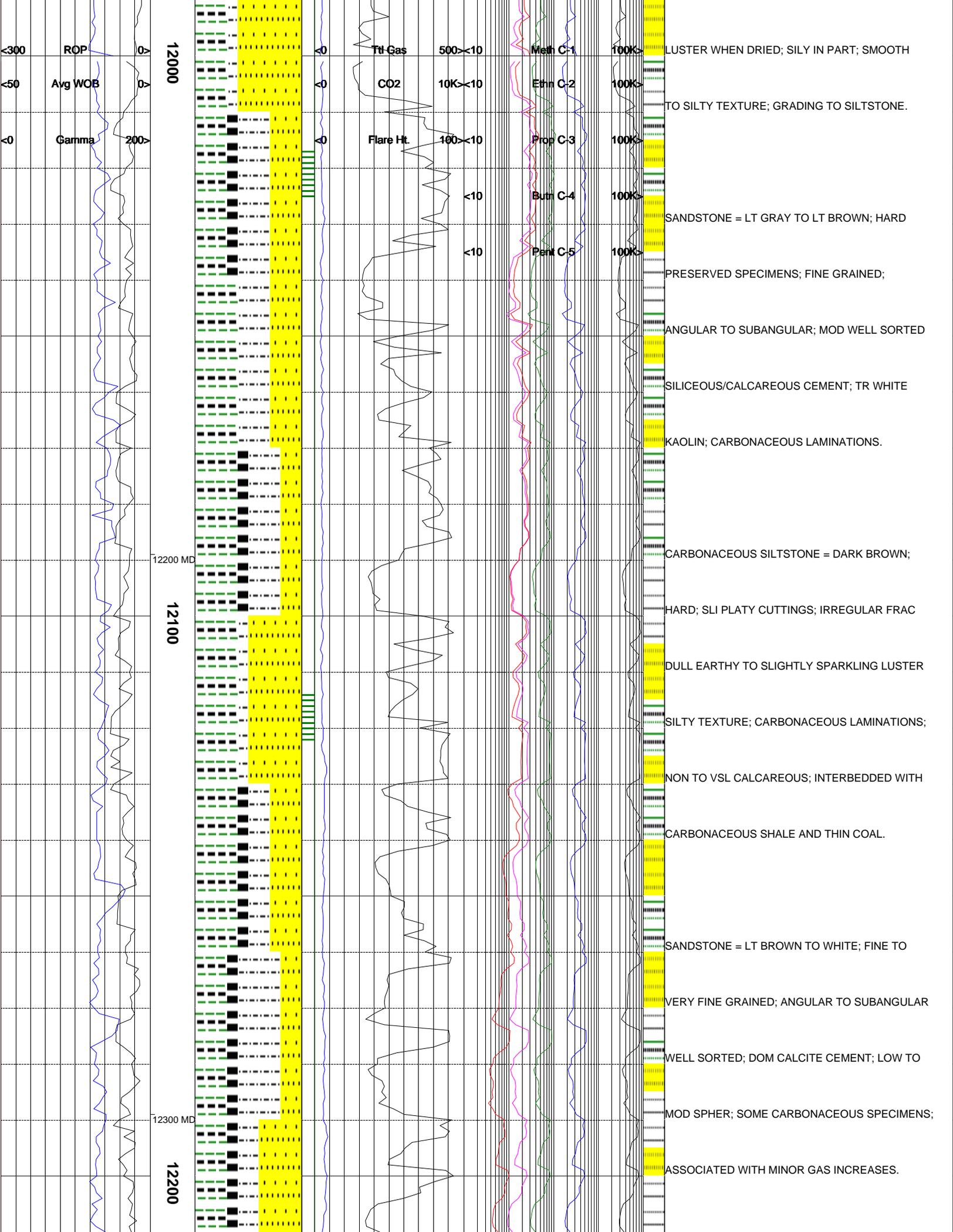
11600 MD
11500

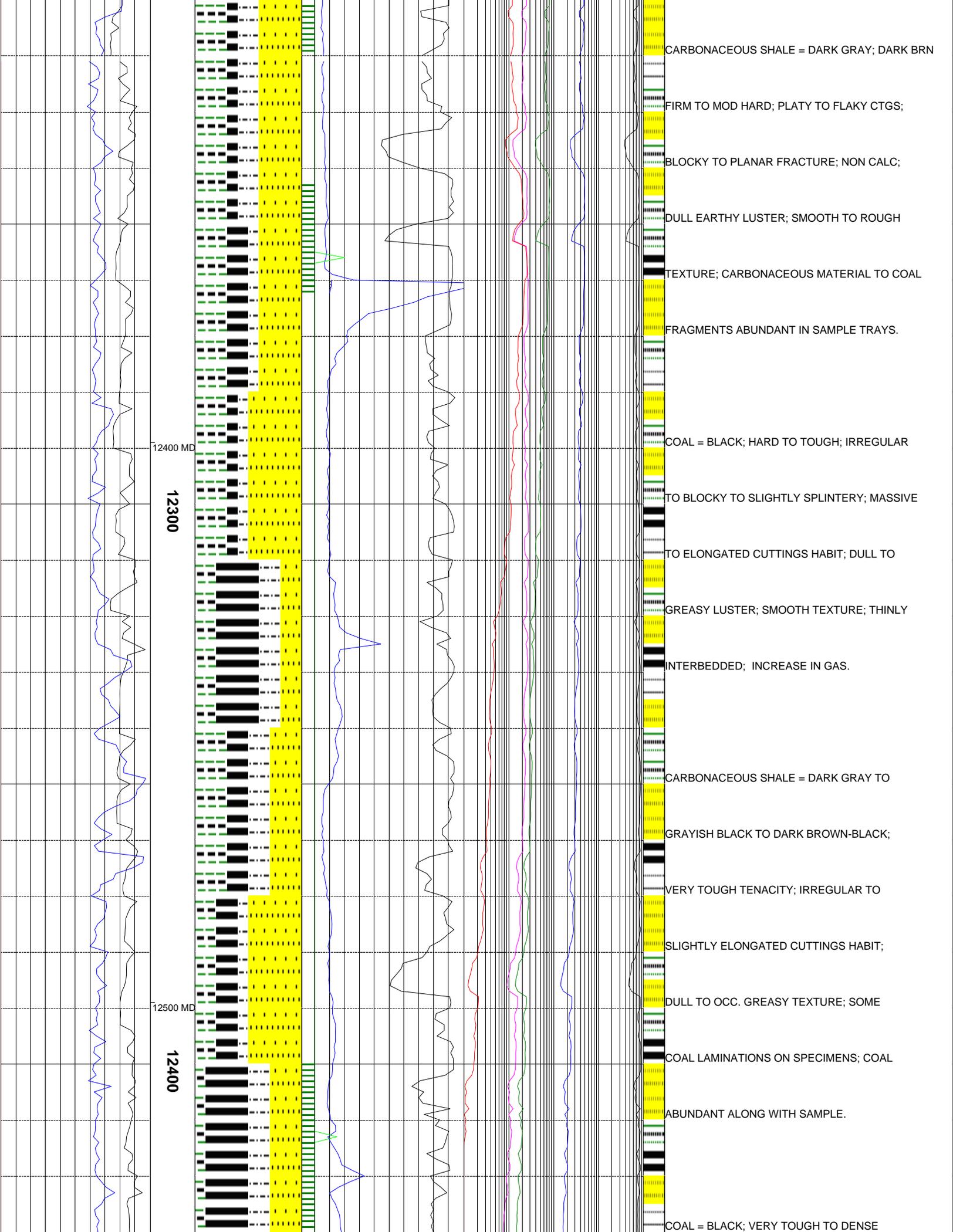
<300 ROP
<50 Avg WOB
<0 Gamma 200>

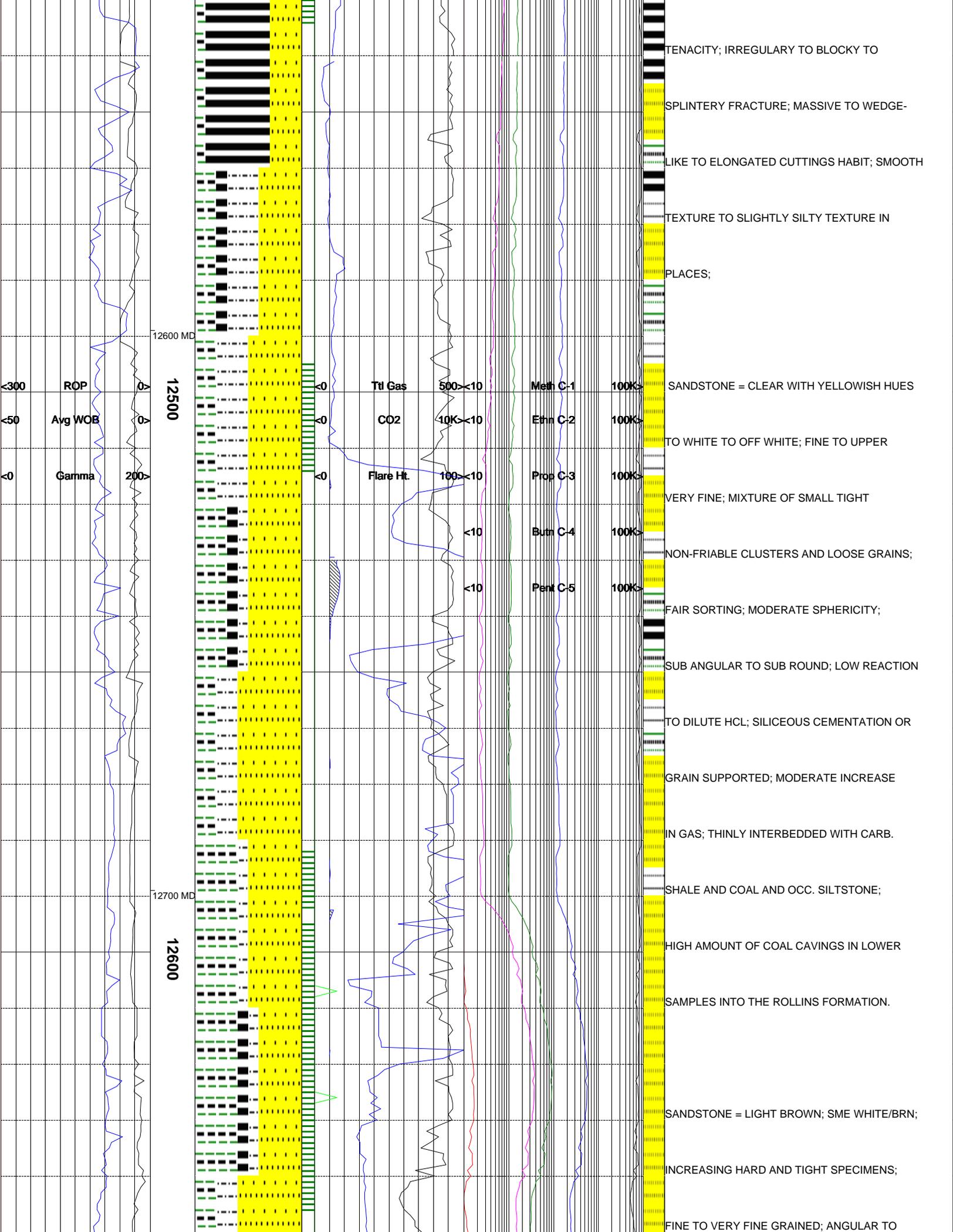
<0 Ttl Gas 500><10 Mesh C-1 100K>
<0 CO2 10K><10 Eth C-2 100K>
<0 Flare Ht. 100><10 Prop C-3 100K>
<10 But C-4 100K>
<10 Pent C-5 100K>

GRAINS; FINE GRAINED; ANGULAR TO SBANG;
 MOD WELL SORTED; CALC/SILICEOUS CEMENT;
 LOOSE KAOLIN IN SAMPLES; COARSE CALCITE
 FRACTURE FILL THAT IS ATTACHED AS
 NODULES OR LAMINATED THROUGH SOME
 SHALE SPECIMENS; WHEN SANDSTONE IS IN
 CLUSTERS IT IS VERY HARD NON-FRIABLE;
 MODERATE ELEVATION IN DITCH GAS DURING
 SANDSTONE INTERVALS; HIGHLY REACTIVE TO
 DILUTE HCL. ASSOCIATED WITH SLOW ROP.
 SHALE = LIGHT GRAY TO MEDIUM GRAY;
 TOUGH TO BRITTLE TENACITY; IRREGULAR
 TO BLOCKY FRACTURE; MAINLY MASSIVE
 TO OCC PLATY CUTTINGS HABIT; SMOOTH
 TO SLIGHTLY SILTY TEXTURE; THIN
 STRUCTURE; REDUCTION IN BACK GROUND
 GAS; SOME SPECIMENS VERY HARD TO
 FIRM.
 SANDSTONE = YELLOWISH WHITE TO A CLEAR
 WITH HUES OF YELLOW OR BROWN TO JUST









12600 MD

12500

12700 MD

12600

ROP

Avg WOB

Gamma

Ttl Gas

CO2

Flare Ht.

Meth C-1

Ethn C-2

Prop C-3

Butn C-4

Pent C-5

500 < 10

10K < 10

100 < 10

< 10

< 10

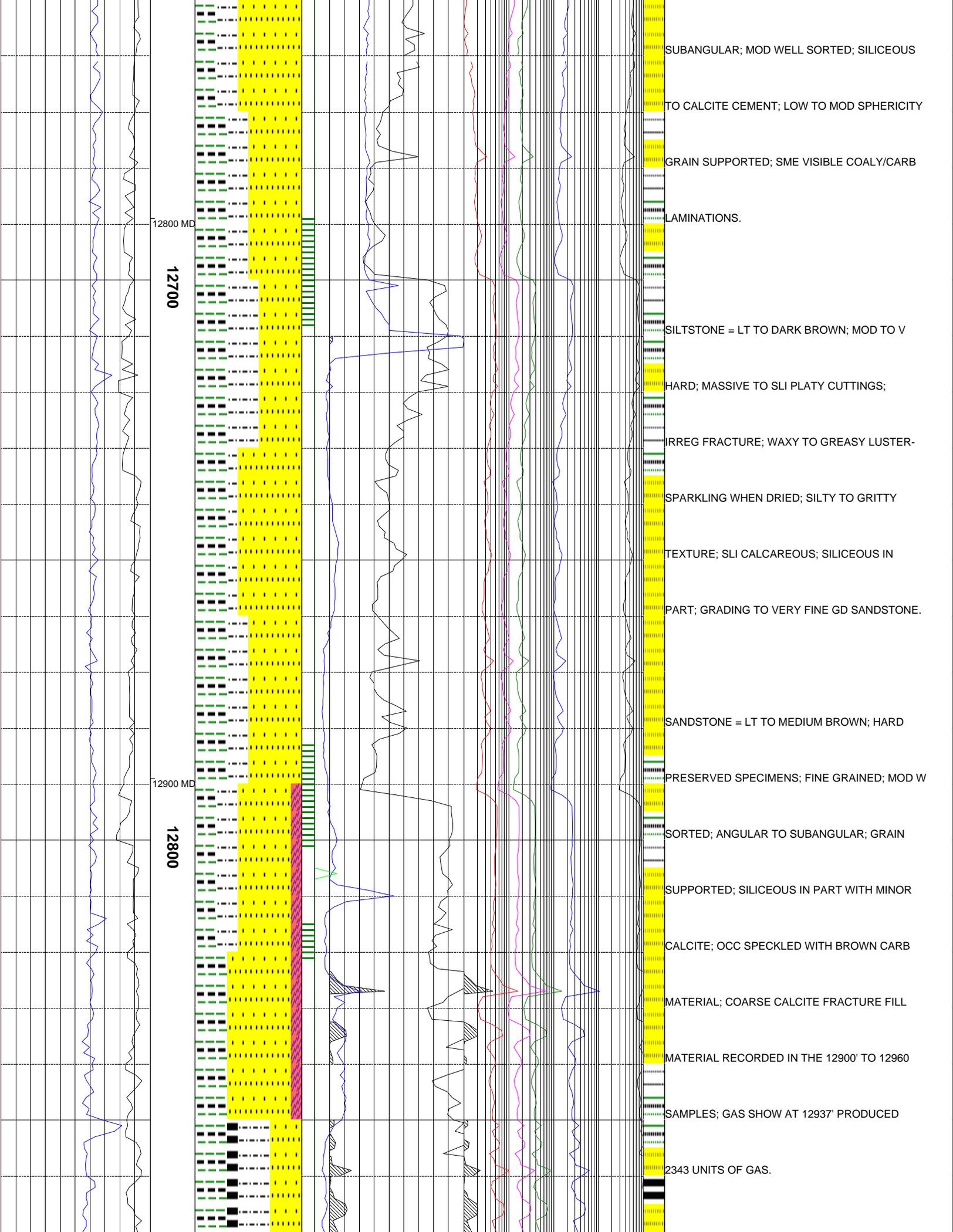
100K >

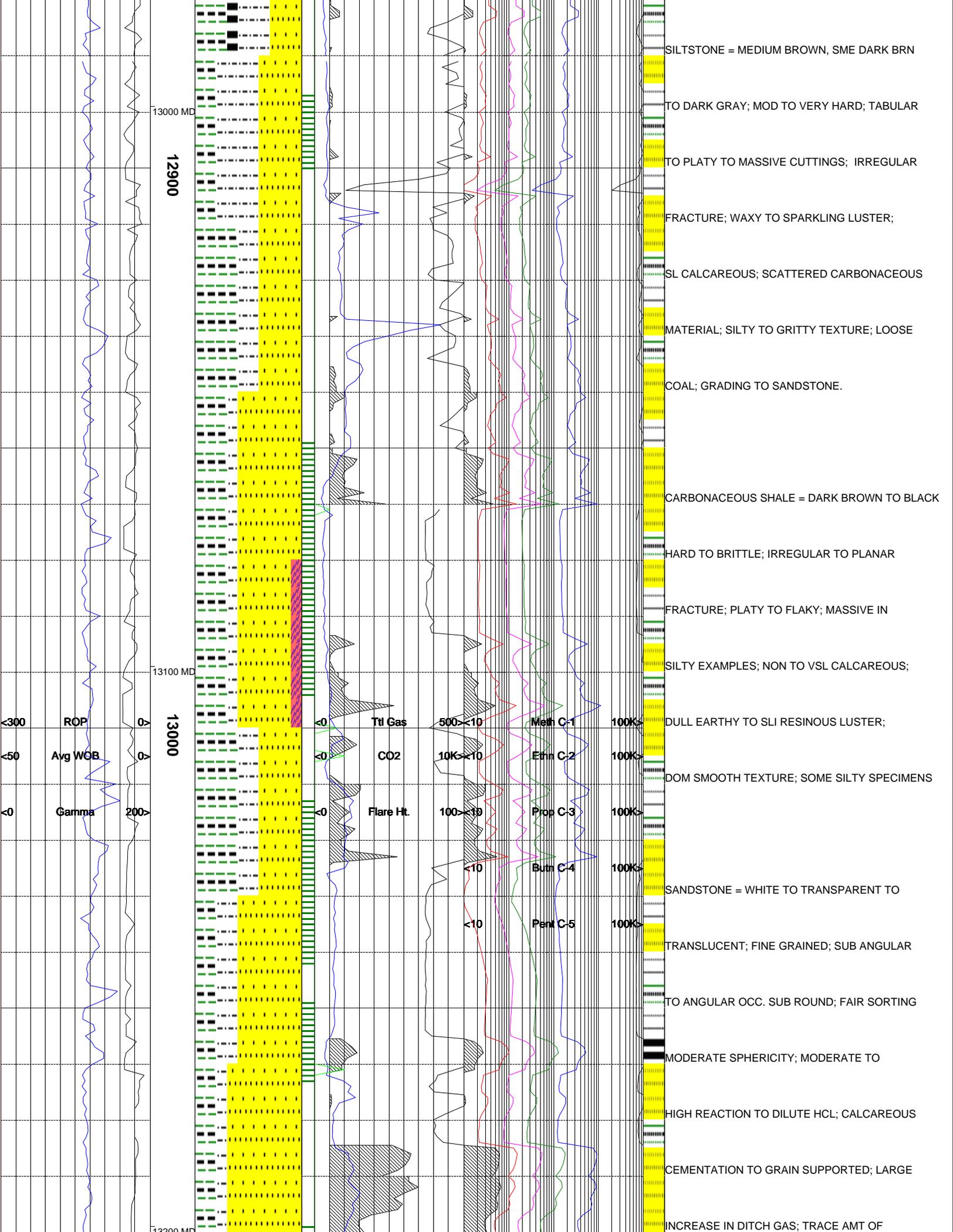
100K >

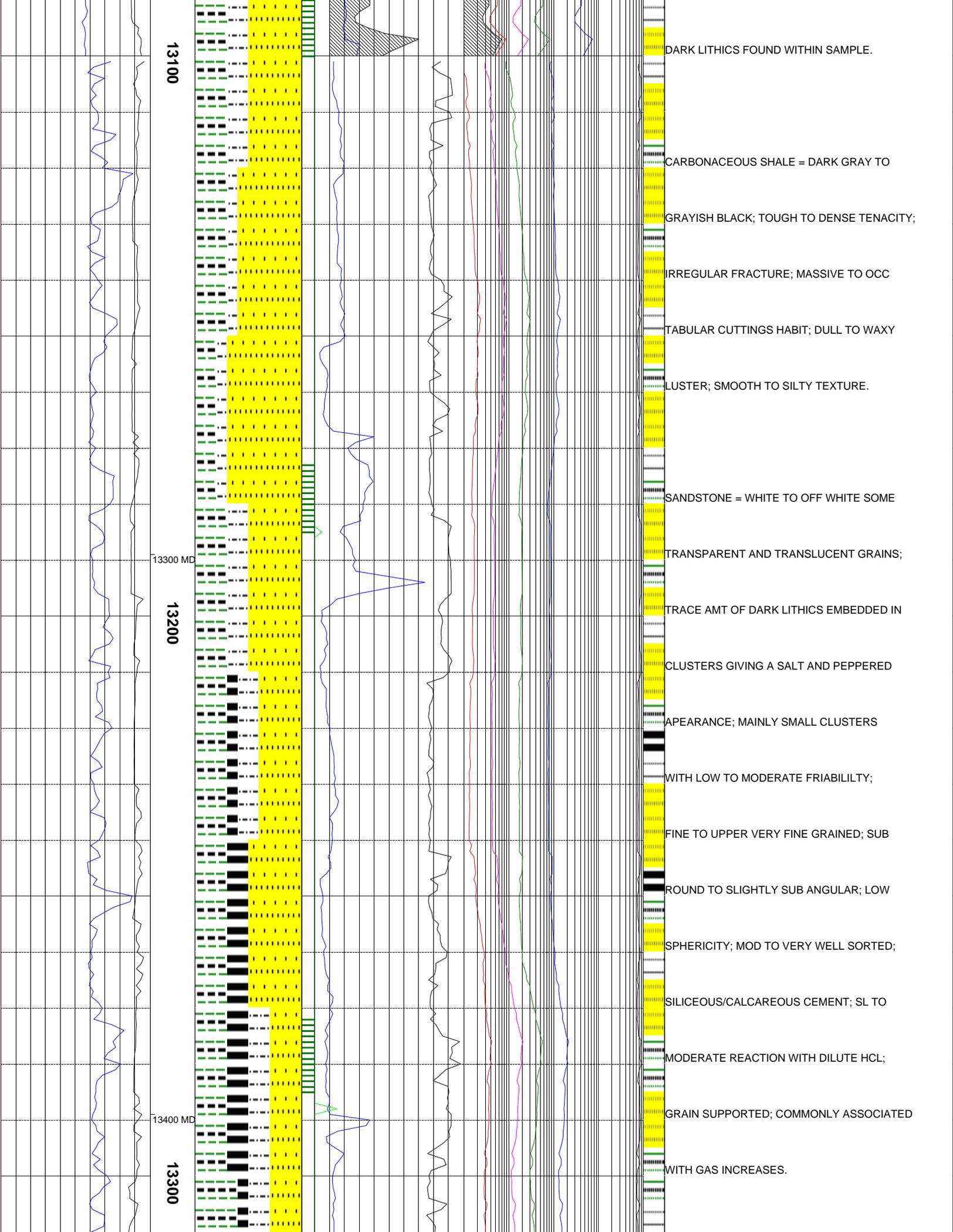
100K >

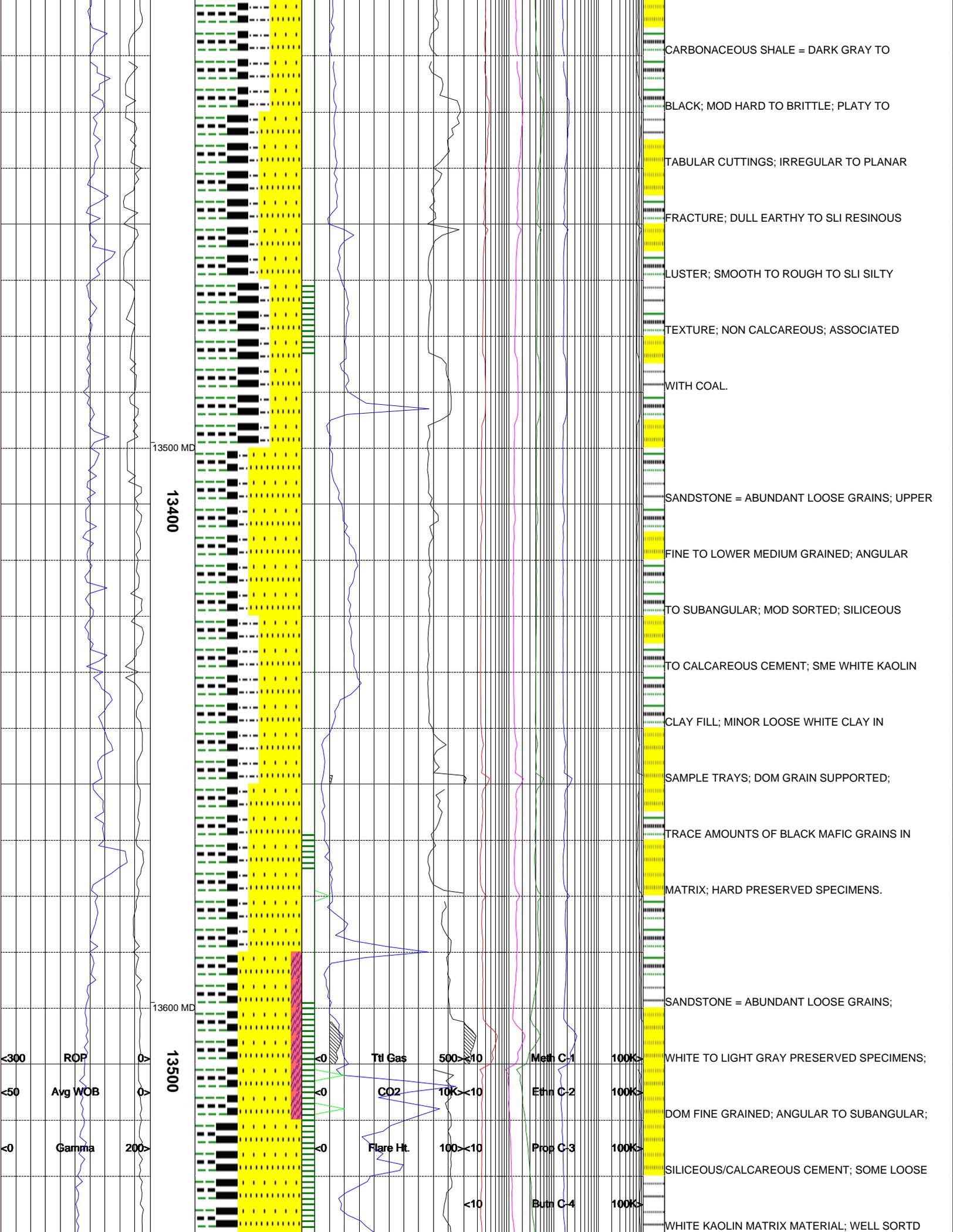
100K >

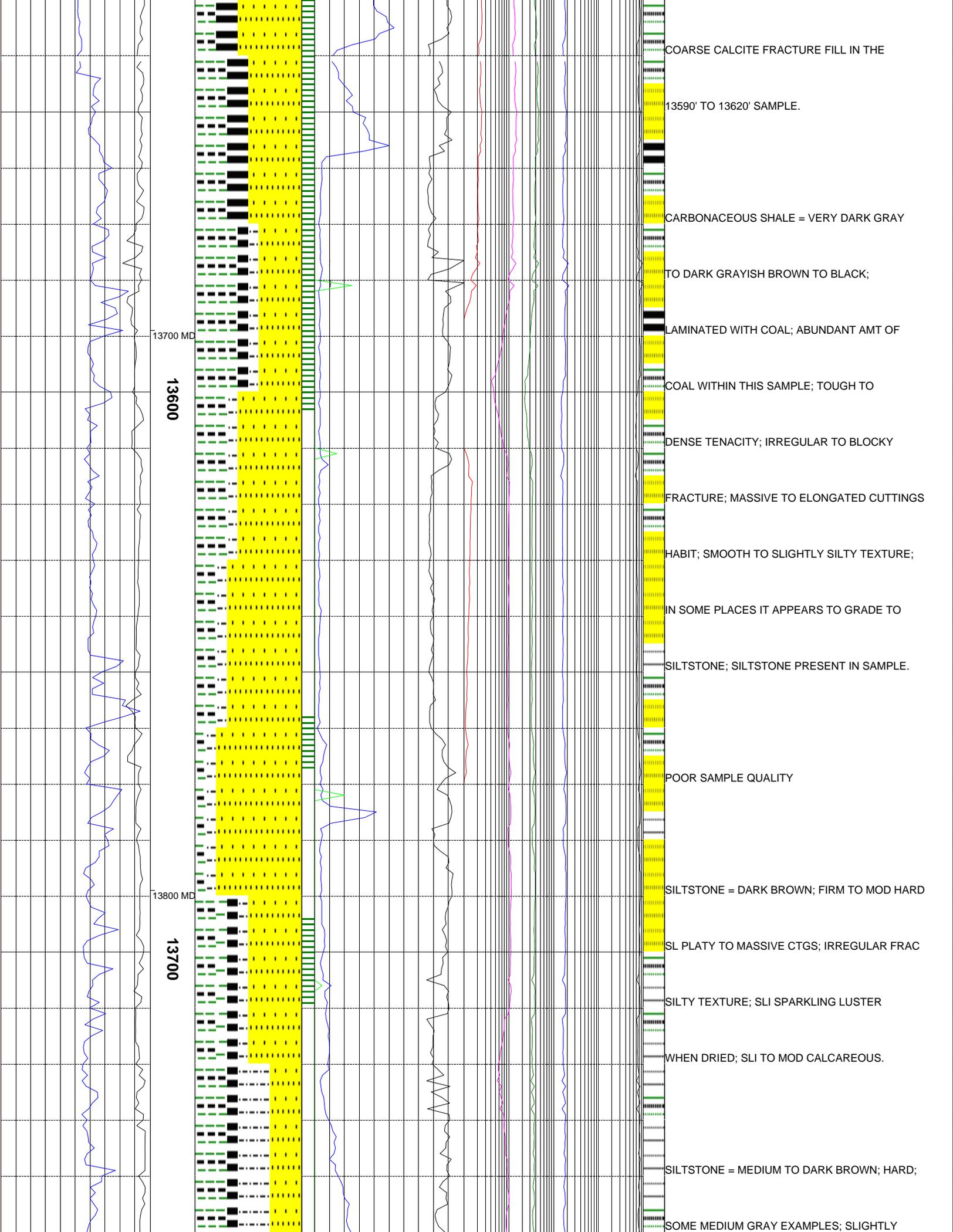
100K >

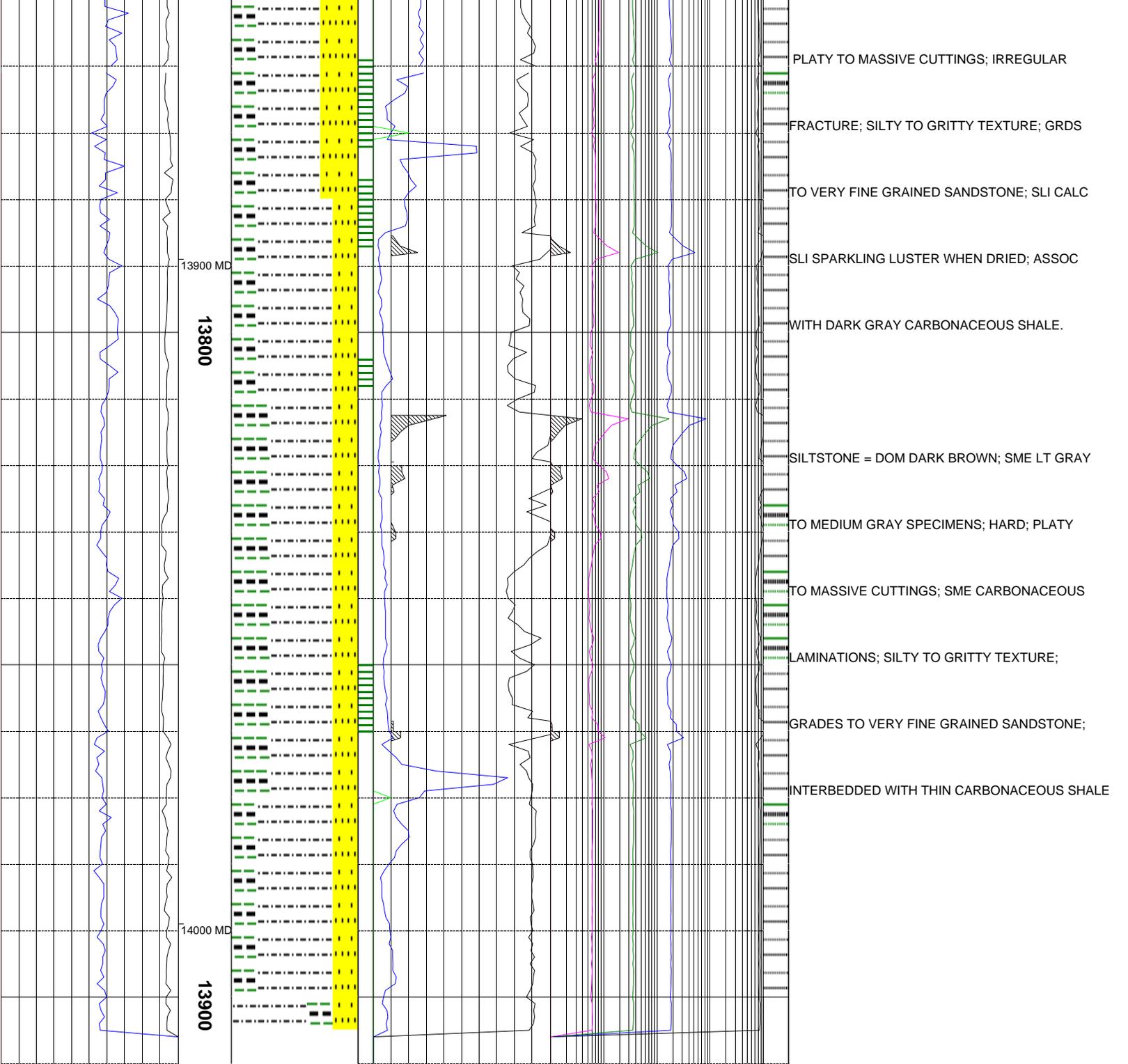












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