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MUDLOG MD

COMPANY ExxonMobil Production
WELL FRU197-33B3
FIELD Piceance Creek
REGION Rockies
COORDINATES 39.921374000
05108282504000
ELEVATION G.L.:6549.8'
RKB: 30.2'
COUNTY, STATE Rio Blanco, CO
API INDEX 051031143300
SPUD DATE 05/24/2010
CONTRACTOR HE
CO. REP. Chad Jarvis
RIG/TYPE HP321
LOGGING UNIT MLU#31
GEOLOGISTS Barbara Delaney
Chad Record
ADD. PERSONS Mike Franco
Mark Gross
CO. GEOLOGIST Chris Alba

LOG INTERVAL

CASING DATA

DEPTHS: 4550' TO 12720'
DATES: 05/25/2010 TO 06/03/2010
SCALE: 5" = 100'

16" AT 150'
10.75" AT 4537'
4.5" AT 12701'
AT

MUD TYPES

HOLE SIZE

WATER-BASED TO 4550'
LSND TO 12720'
TO
TO

14.75" TO 4550'
9.5" TO 9855'
7.875" TO 12720'
TO

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	

<150 ROP 0>
 ft/hr
 <50 Avg WOB 0>
 klbs

Depth

Lithology

MGS

<0 Ttl Gas 2K>
 units
 <330 CO2 20K>
 ppm
 <0 Flare Ht. 100>
 ft

<10 Meth C-1 100K>
 ppm
 <10 Ethn C-2 100K>
 <10 Prop C-3 100K>
 <10 Butn C-4 100K>
 <10 Pent C-5 100K>

Interp. Lith

Remarks
Survey Data, Mud Reports, Other Info.

4400

ALL SAMPLE COLOR DESCRIPTIONS REFERENCED

TO THE G.S.A. ROCK COLOR CHART.

ROCK CHARACTERISTICS AND CONSTITUENTS

ARE LISTED FROM MOST ABUNDANT TO LEAST

ABUNDANT PERCENTAGE OF SAMPLE.

GAS CALIBRATED TO S.P.L.W.A.

STANDARDS (2% ME = 100 UNITS).

GAS CHROMATOGRAPHY EQUIPMENT CALIBRATED

TO A TEST GAS COMPLSED OF THE FOLLOWING:

METHANE = 10,000 PPM

ETHANE = 1,000 PPM

PROPANE = 1,000 PPM

I-BUTANE = 1,000 PPM

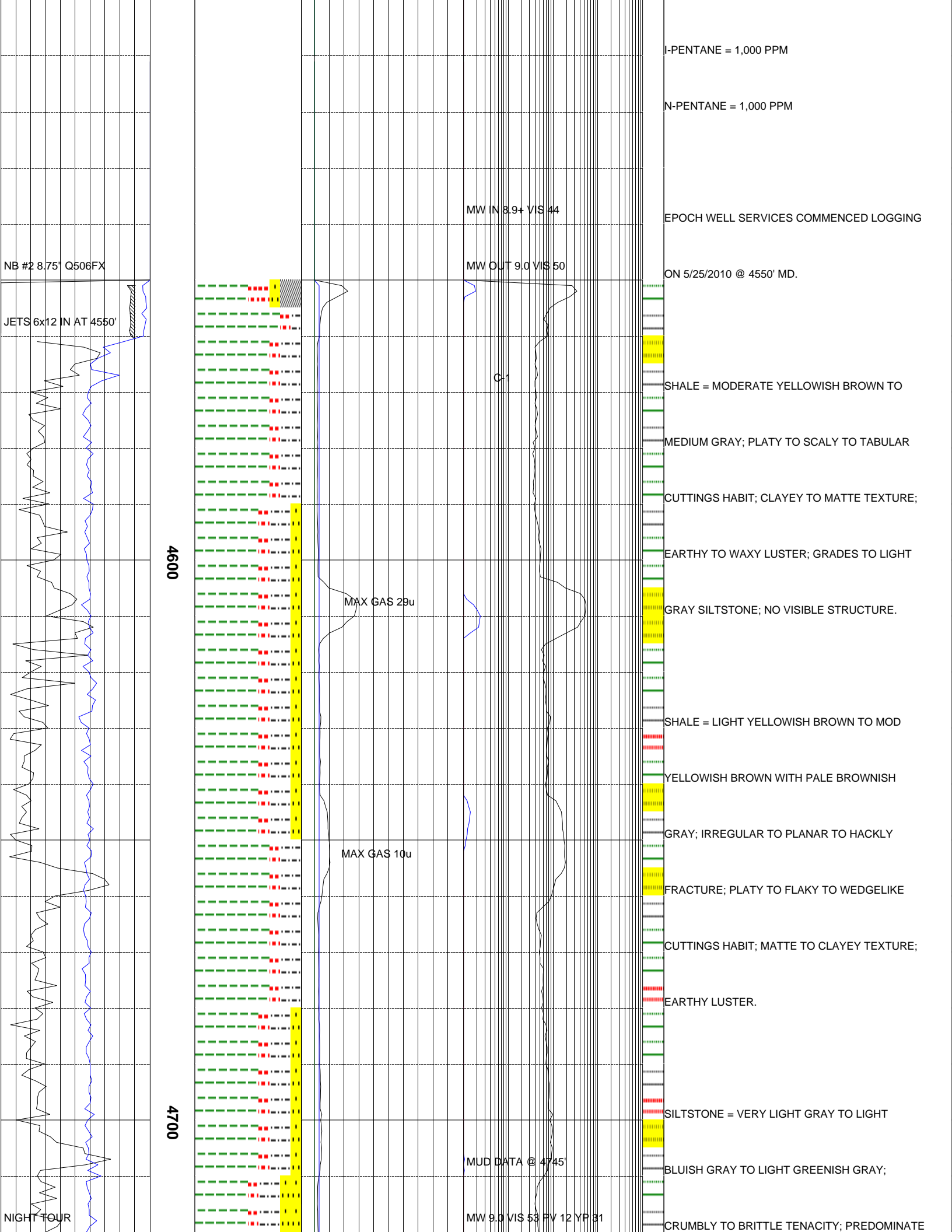
N-BUTANE = 1,000 PPM

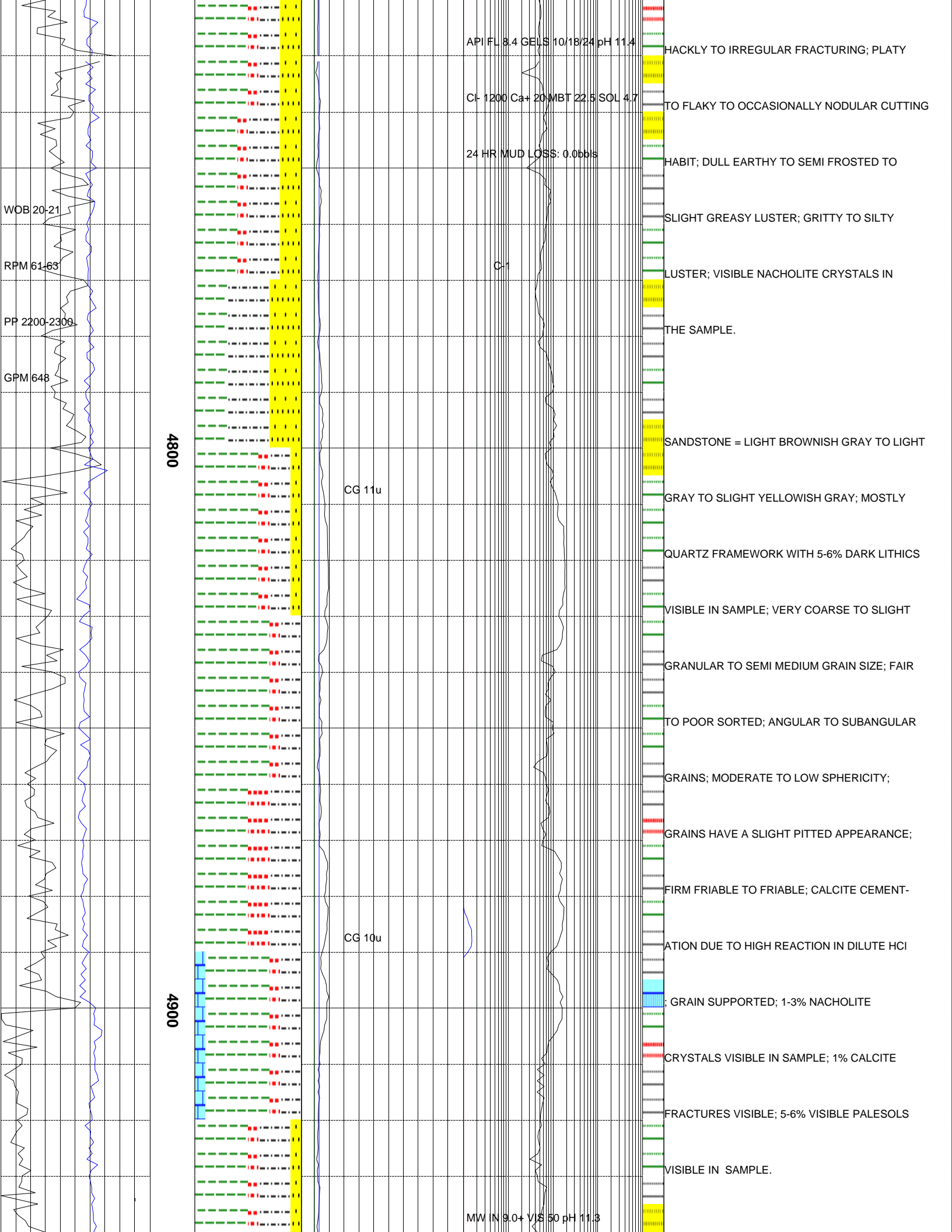
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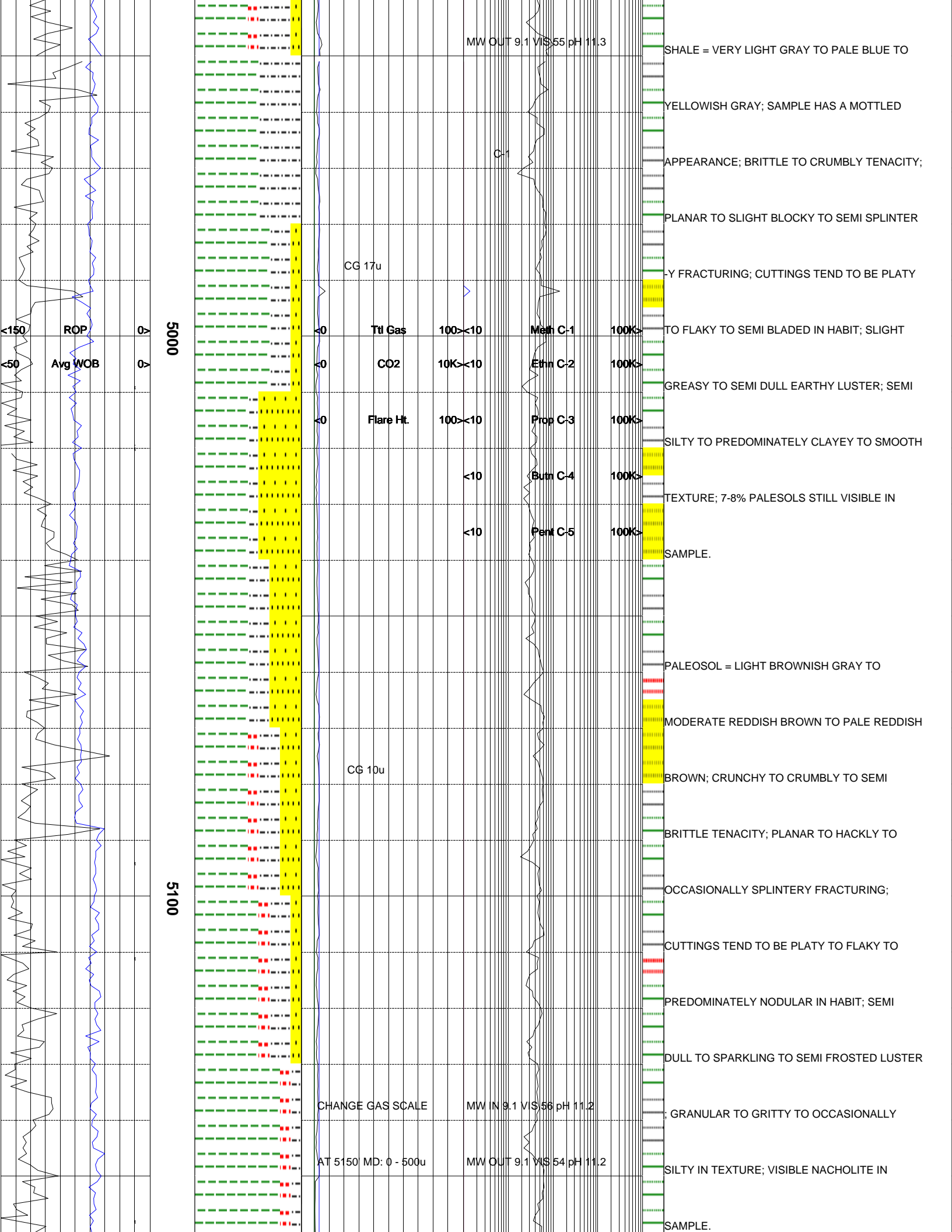
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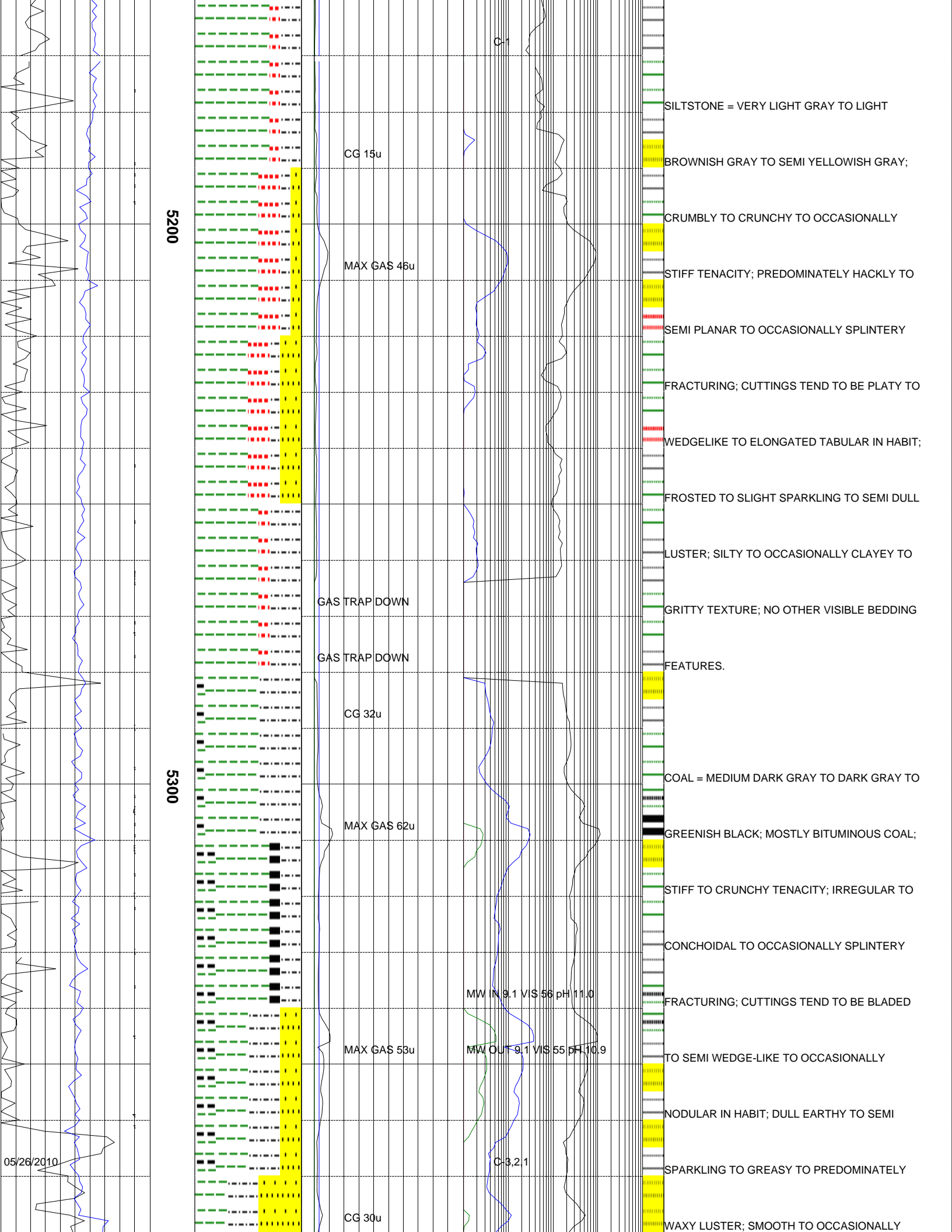
<0 Ttl Gas 100>

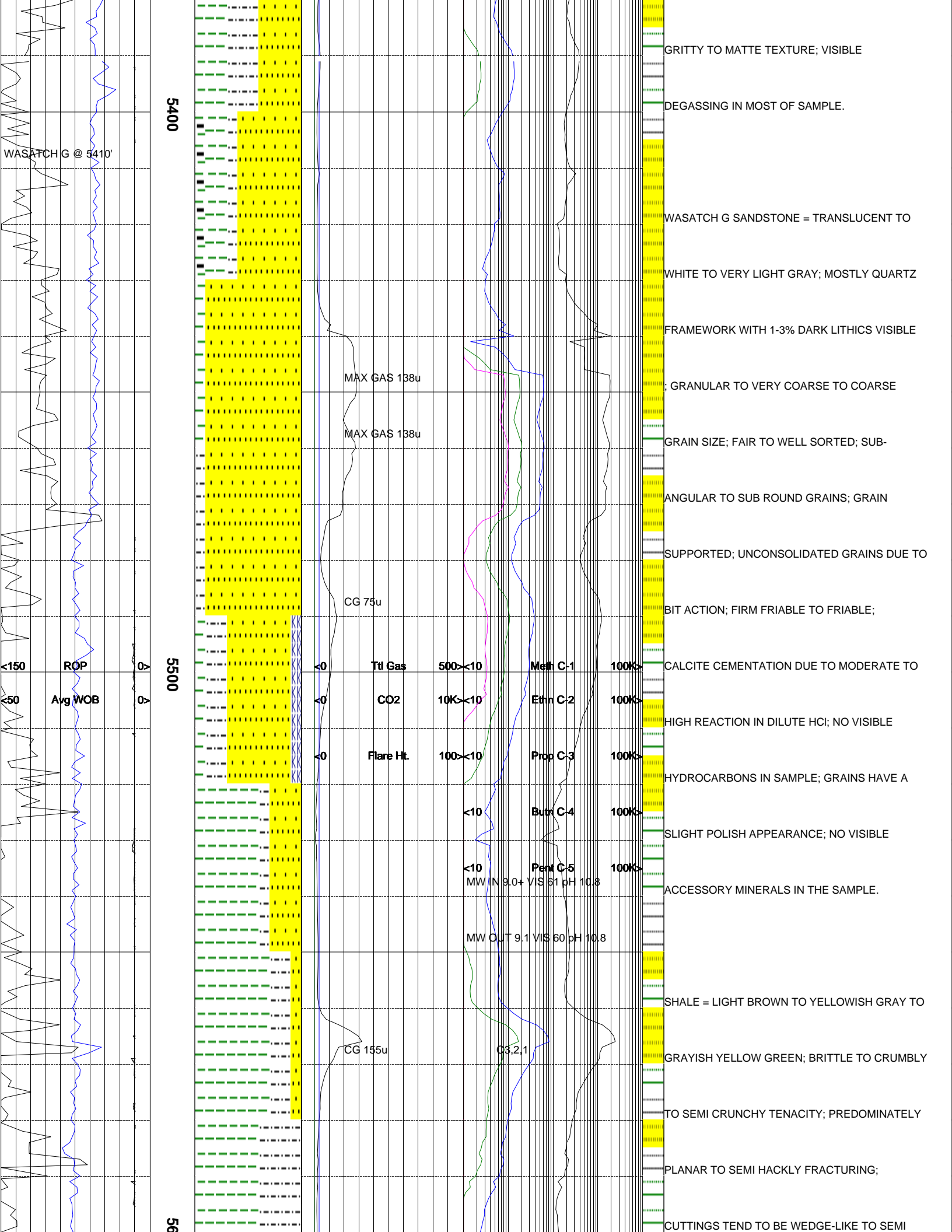
<10 Meth C-1 100K>











5400

WASATCH G @ 5410'

GRITTY TO MATTE TEXTURE; VISIBLE

DEGASSING IN MOST OF SAMPLE.

WASATCH G SANDSTONE = TRANSLUCENT TO

WHITE TO VERY LIGHT GRAY; MOSTLY QUARTZ

FRAMEWORK WITH 1-3% DARK LITHICS VISIBLE

MAX GAS 138u

; GRANULAR TO VERY COARSE TO COARSE

MAX GAS 138u

GRAIN SIZE; FAIR TO WELL SORTED; SUB-

ANGULAR TO SUB ROUND GRAINS; GRAIN

SUPPORTED; UNCONSOLIDATED GRAINS DUE TO

CG 75u

BIT ACTION; FIRM FRIABLE TO FRIABLE;

5500

ROP

Ttl Gas

500 < 10

Meth C-1

100K >

CALCITE CEMENTATION DUE TO MODERATE TO

Avg WOB

CO2

10K < 10

Ethn C-2

100K >

HIGH REACTION IN DILUTE HCl; NO VISIBLE

Flare Ht.

100 < 10

Prop C-3

100K >

HYDROCARBONS IN SAMPLE; GRAINS HAVE A

< 10

Butn C-4

100K >

SLIGHT POLISH APPEARANCE; NO VISIBLE

< 10

Pent C-5

100K >

ACCESSORY MINERALS IN THE SAMPLE.

MW IN 9.0+ VIS 61 pH 10.8

MW OUT 9.1 VIS 60 pH 10.8

CG 155u

CG 2.1

SHALE = LIGHT BROWN TO YELLOWISH GRAY TO

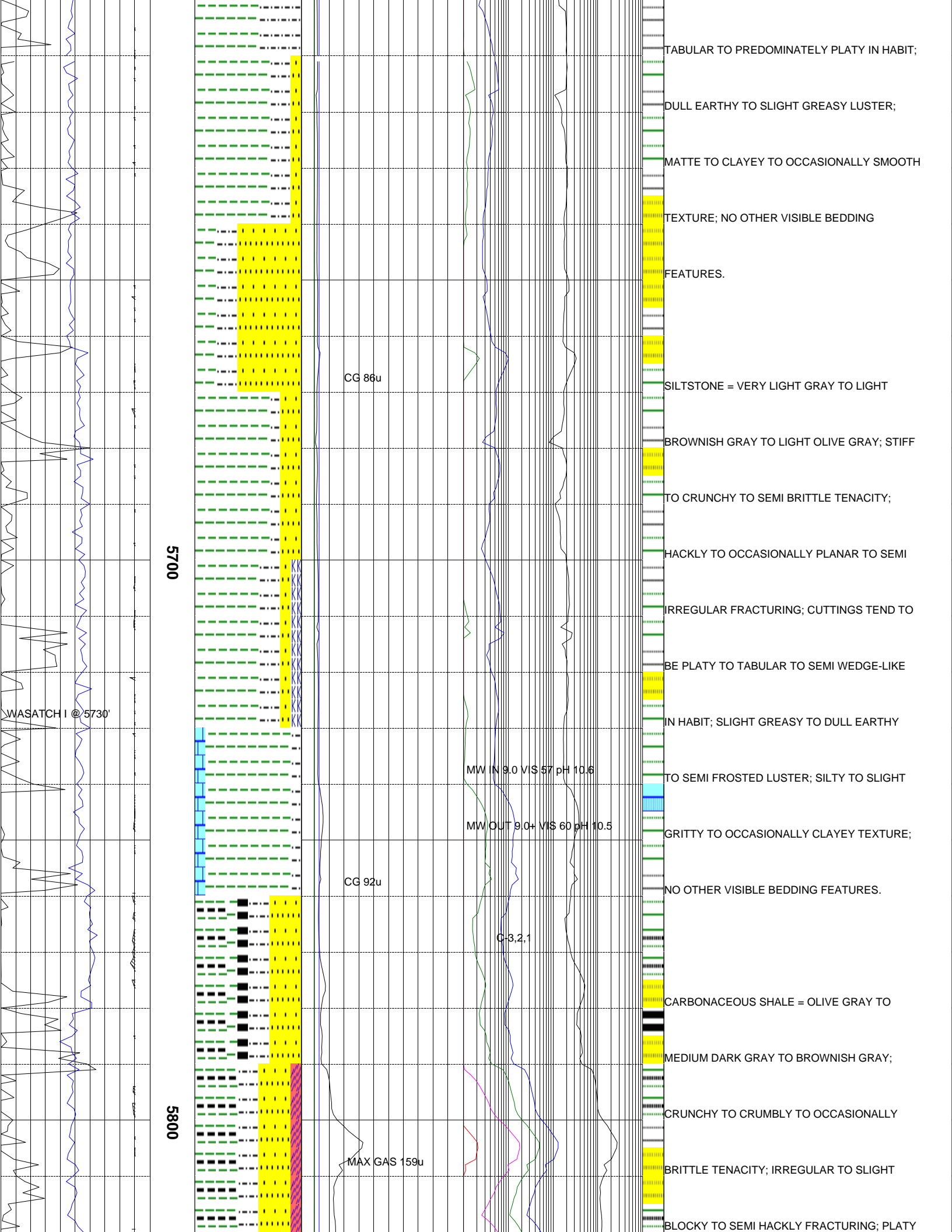
GRAYISH YELLOW GREEN; BRITTLE TO CRUMBLY

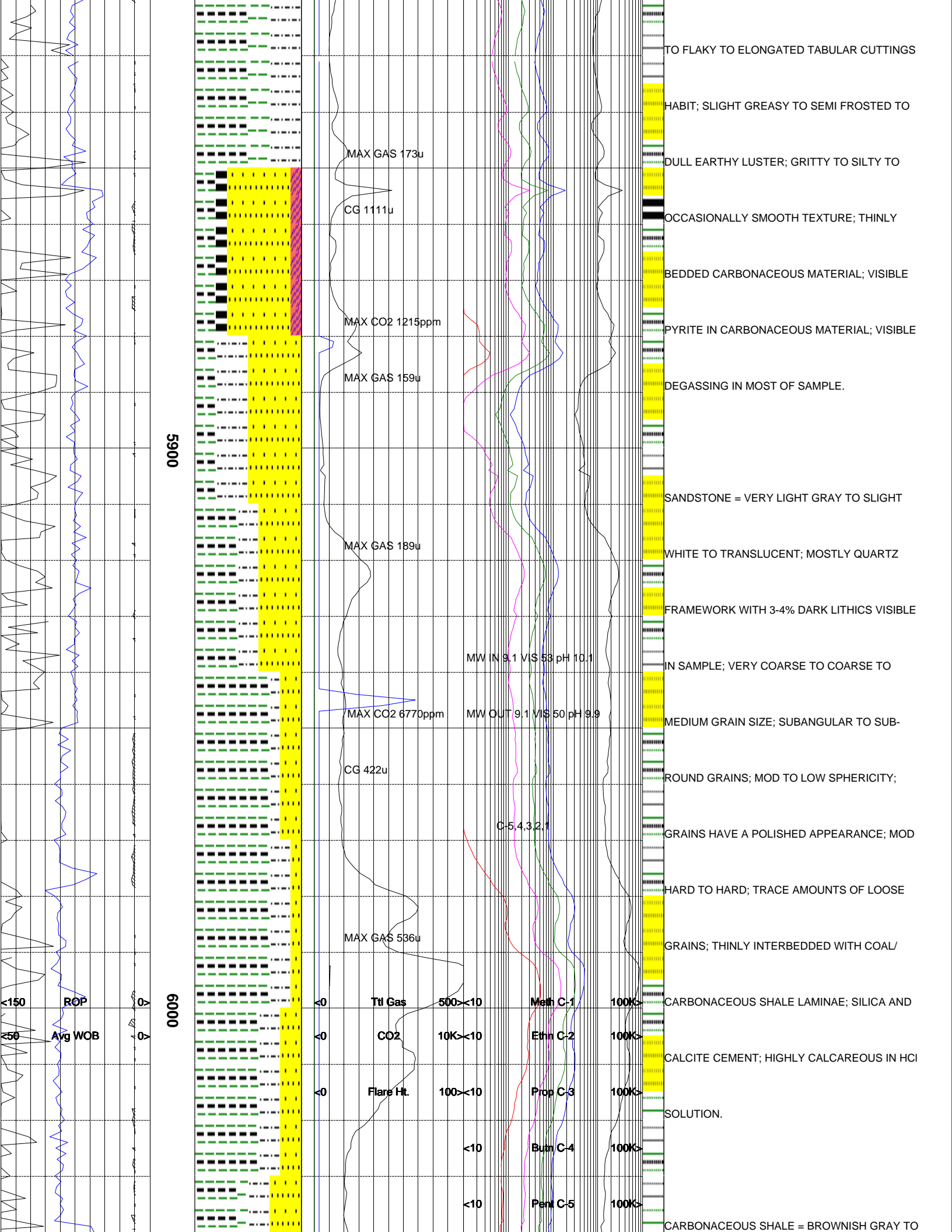
TO SEMI CRUNCHY TENACITY; PREDOMINATELY

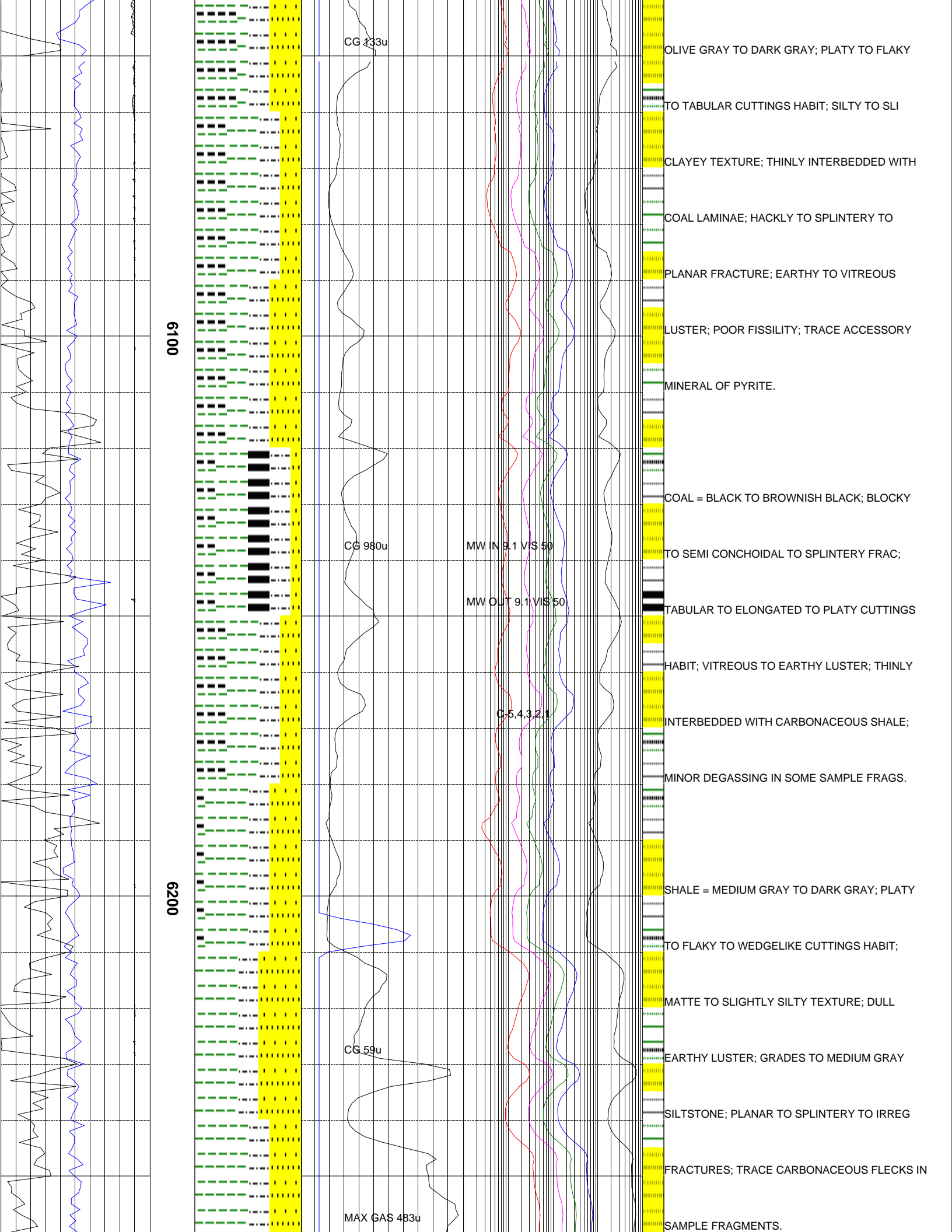
PLANAR TO SEMI HACKLY FRACTURING;

56

CUTTINGS TEND TO BE WEDGE-LIKE TO SEMI







6100

6200

CG 133u

CG 980u

MW IN 9.1 VIS 50

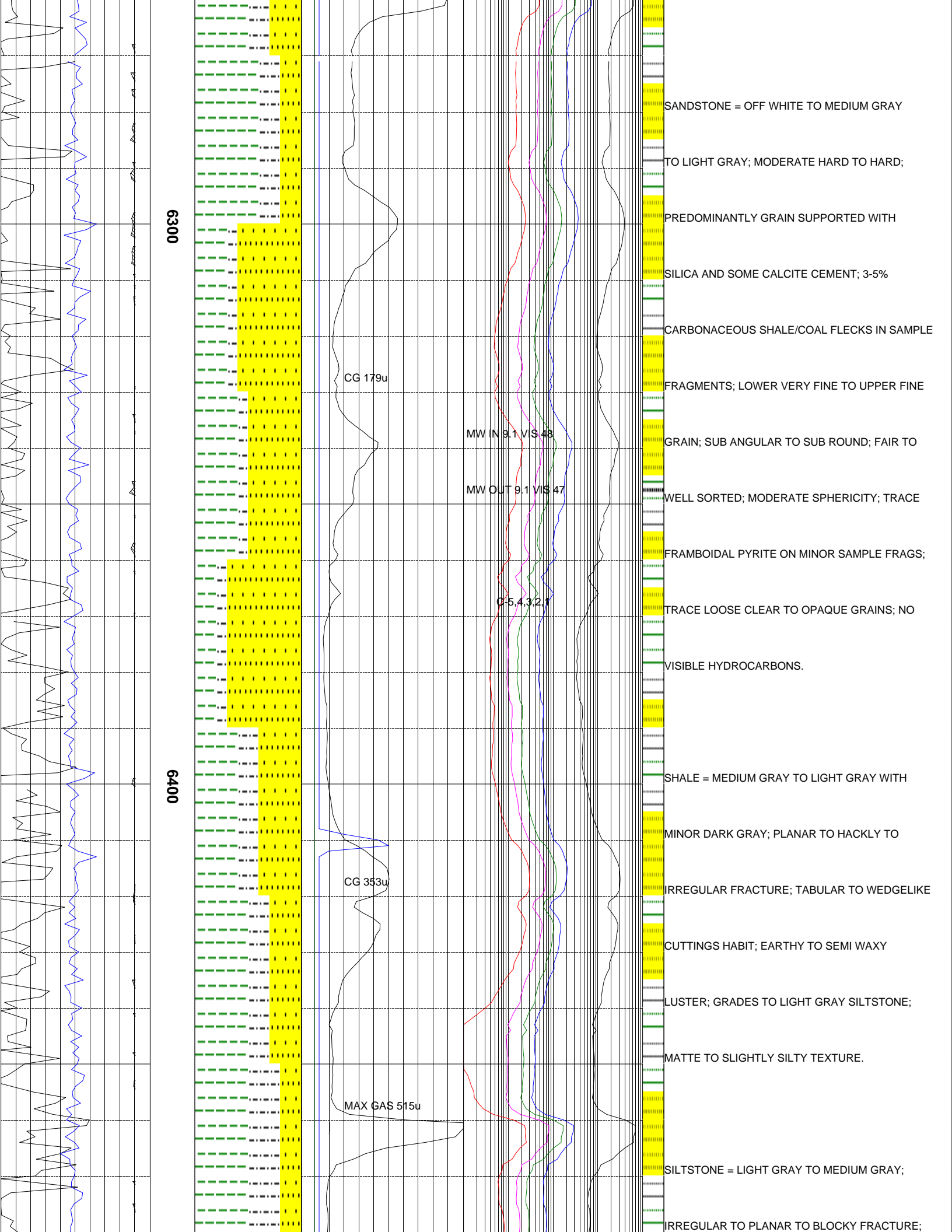
MW OUT 9.1 VIS 50

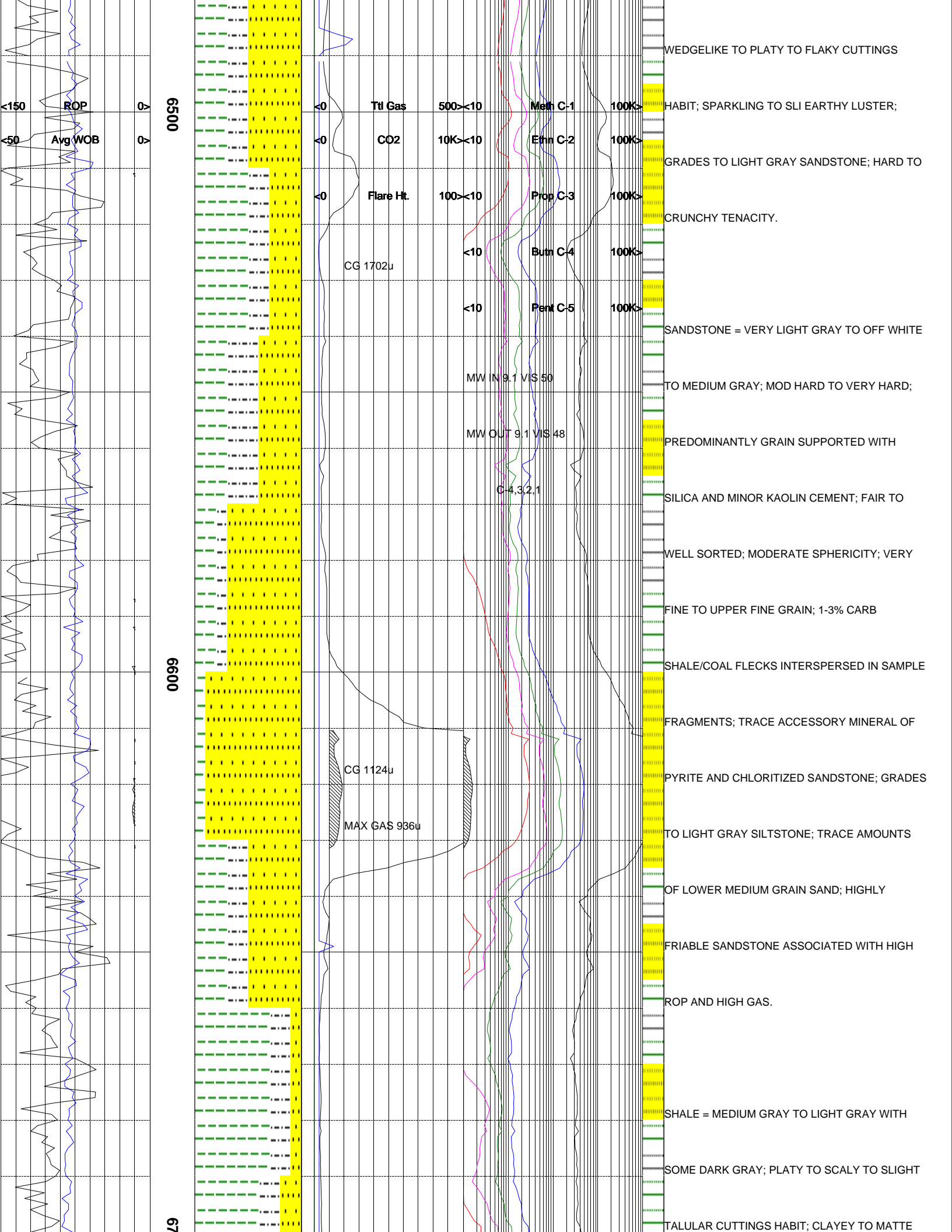
C-5.4.3.2.1

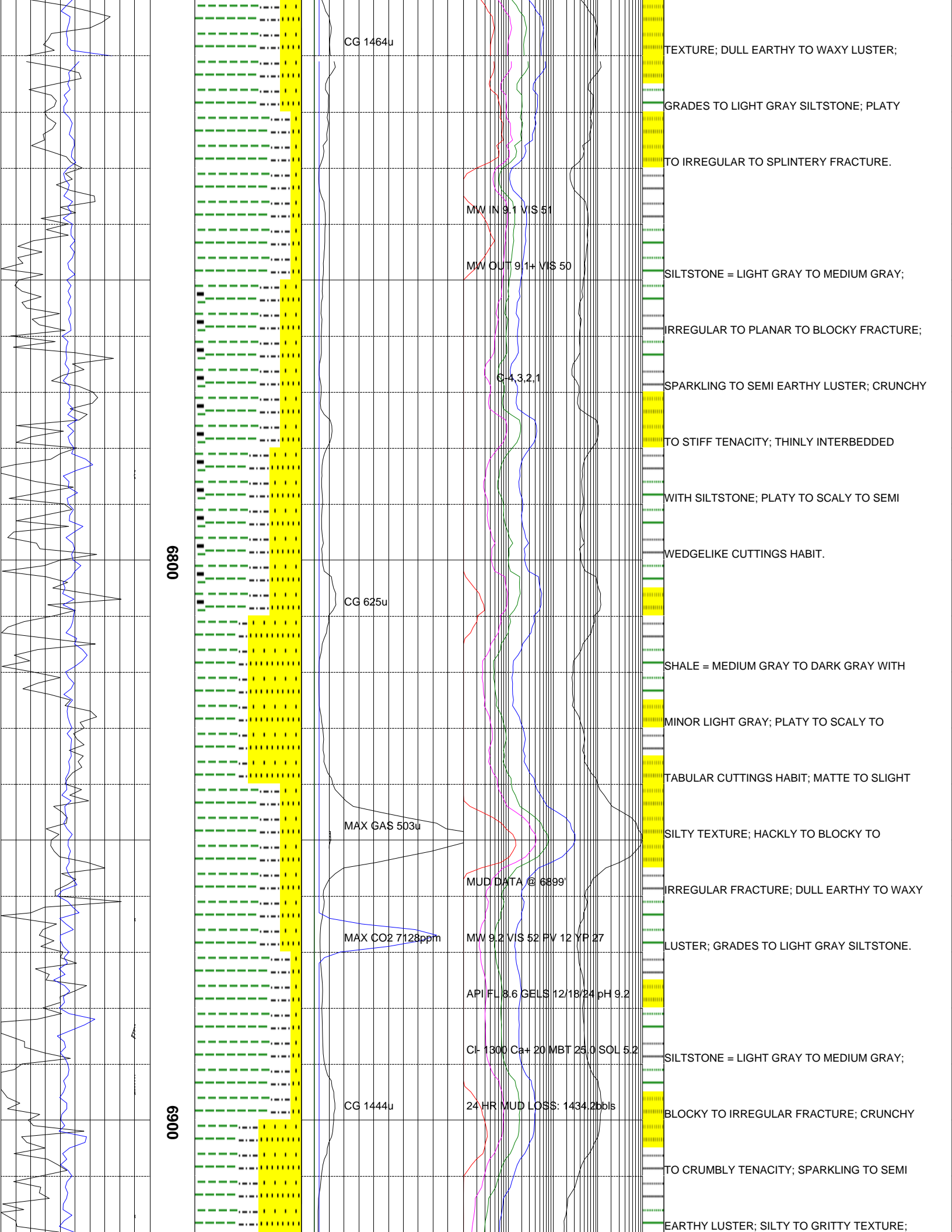
CG 59u

MAX GAS 483u

OLIVE GRAY TO DARK GRAY; PLATY TO FLAKY
 TO TABULAR CUTTINGS HABIT; SILTY TO SLI
 CLAYEY TEXTURE; THINLY INTERBEDDED WITH
 COAL LAMINAE; HACKLY TO SPLINTERY TO
 PLANAR FRACTURE; EARTHY TO VITREOUS
 LUSTER; POOR FISSILITY; TRACE ACCESSORY
 MINERAL OF PYRITE.
 COAL = BLACK TO BROWNISH BLACK; BLOCKY
 TO SEMI CONCHOIDAL TO SPLINTERY FRAC;
 TABULAR TO ELONGATED TO PLATY CUTTINGS
 HABIT; VITREOUS TO EARTHY LUSTER; THINLY
 INTERBEDDED WITH CARBONACEOUS SHALE;
 MINOR DEGASSING IN SOME SAMPLE FRAGS.
 SHALE = MEDIUM GRAY TO DARK GRAY; PLATY
 TO FLAKY TO WEDGELIKE CUTTINGS HABIT;
 MATTE TO SLIGHTLY SILTY TEXTURE; DULL
 EARTHY LUSTER; GRADES TO MEDIUM GRAY
 SILTSTONE; PLANAR TO SPLINTERY TO IRREG
 FRACTURES; TRACE CARBONACEOUS FLECKS IN
 SAMPLE FRAGMENTS.







0089

0069

CG 1464u

CG 625u

MAX GAS 503u

MAX CO2 7128ppm

CG 1444u

MW IN 9.1 VIS 51

MW OUT 9.1+ VIS 50

CG 4.3.2.1

MUD DATA @ 6899'

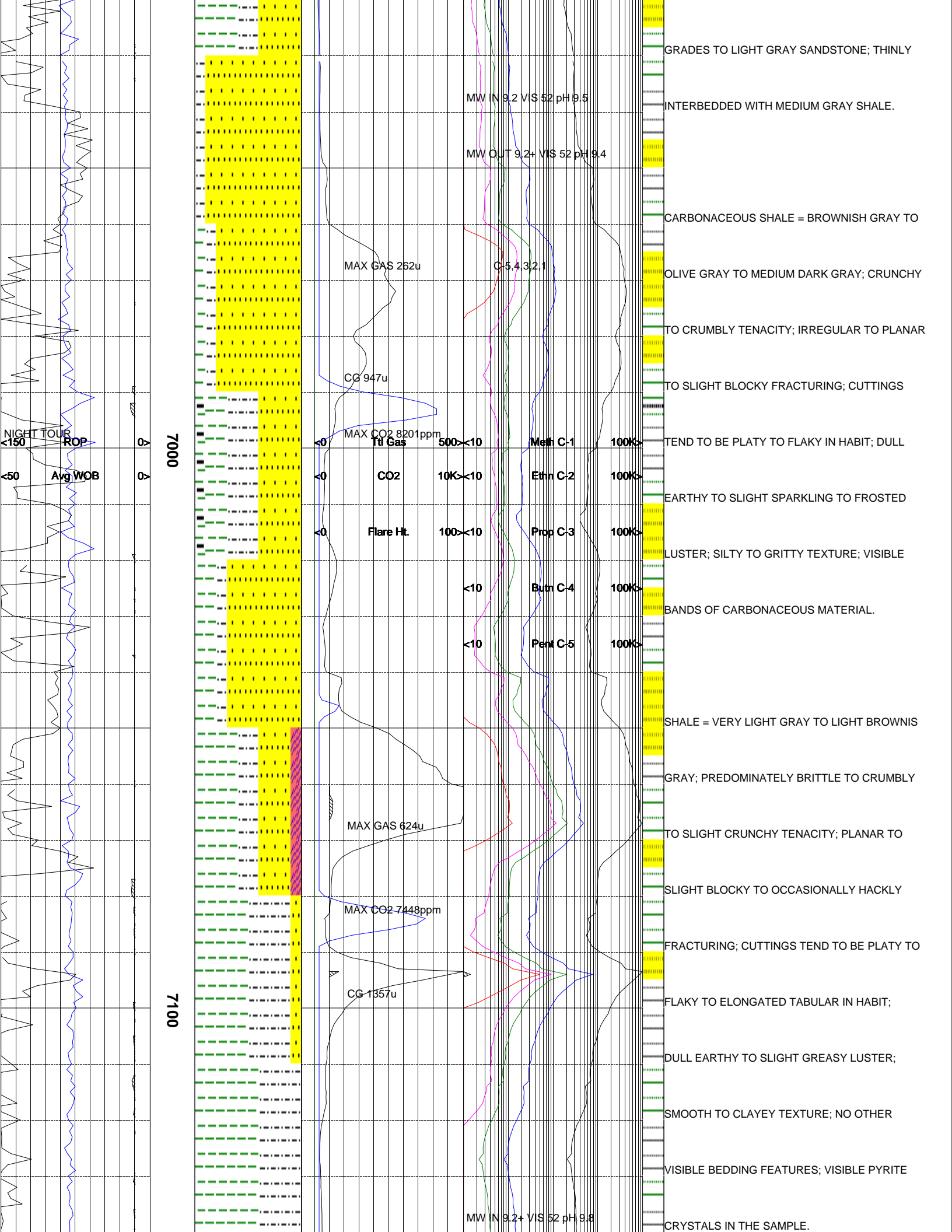
MW 9.2 VIS 52 PV 12 YP 27

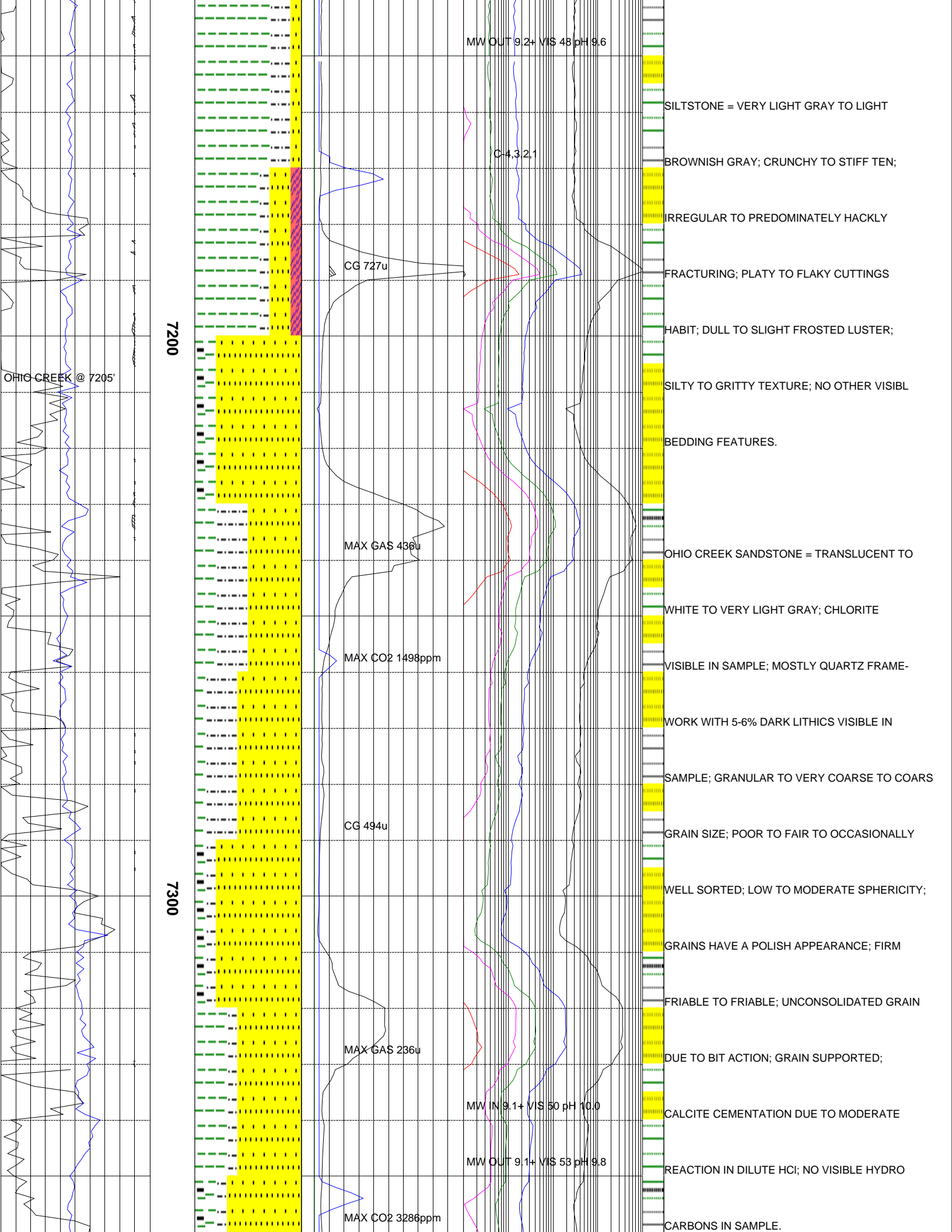
API FL 8.6 GELS 12/18/24 pH 9.2

Cl- 1300 Ca+ 20 MBT 25.0 SOL 5.2

24 HR MUD LOSS: 1434.2bbis

TEXTURE; DULL EARTHY TO WAXY LUSTER;
 GRADES TO LIGHT GRAY SILTSTONE; PLATY
 TO IRREGULAR TO SPLINTERY FRACTURE.
 SILTSTONE = LIGHT GRAY TO MEDIUM GRAY;
 IRREGULAR TO PLANAR TO BLOCKY FRACTURE;
 SPARKLING TO SEMI EARTHY LUSTER; CRUNCHY
 TO STIFF TENACITY; THINLY INTERBEDDED
 WITH SILTSTONE; PLATY TO SCALY TO SEMI
 WEDGELIKE CUTTINGS HABIT.
 SHALE = MEDIUM GRAY TO DARK GRAY WITH
 MINOR LIGHT GRAY; PLATY TO SCALY TO
 TABULAR CUTTINGS HABIT; MATTE TO SLIGHT
 SILTY TEXTURE; HACKLY TO BLOCKY TO
 IRREGULAR FRACTURE; DULL EARTHY TO WAXY
 LUSTER; GRADES TO LIGHT GRAY SILTSTONE.
 SILTSTONE = LIGHT GRAY TO MEDIUM GRAY;
 BLOCKY TO IRREGULAR FRACTURE; CRUNCHY
 TO CRUMBLY TENACITY; SPARKLING TO SEMI
 EARTHY LUSTER; SILTY TO GRITTY TEXTURE;





MW OUT 9.12+ VIS 48 pH 9.6

C-4.3.2.1

CG 727u

7200

OHIO CREEK @ 7205'

MAX GAS 430u

MAX CO2 1498ppm

CG 494u

7300

MAX GAS 236u

MW IN 9.1+ VIS 50 pH 10.0

MW OUT 9.11+ VIS 53 pH 9.8

MAX CO2 3286ppm

SILTSTONE = VERY LIGHT GRAY TO LIGHT

BROWNISH GRAY; CRUNCHY TO STIFF TEN;

IRREGULAR TO PREDOMINATELY HACKLY

FRACTURING; PLATY TO FLAKY CUTTINGS

HABIT; DULL TO SLIGHT FROSTED LUSTER;

SILTY TO GRITTY TEXTURE; NO OTHER VISIBL

BEDDING FEATURES.

OHIO CREEK SANDSTONE = TRANSLUCENT TO

WHITE TO VERY LIGHT GRAY; CHLORITE

VISIBLE IN SAMPLE; MOSTLY QUARTZ FRAME-

WORK WITH 5-6% DARK LITHICS VISIBLE IN

SAMPLE; GRANULAR TO VERY COARSE TO COARS

GRAIN SIZE; POOR TO FAIR TO OCCASIONALLY

WELL SORTED; LOW TO MODERATE SPHERICITY;

GRAINS HAVE A POLISH APPEARANCE; FIRM

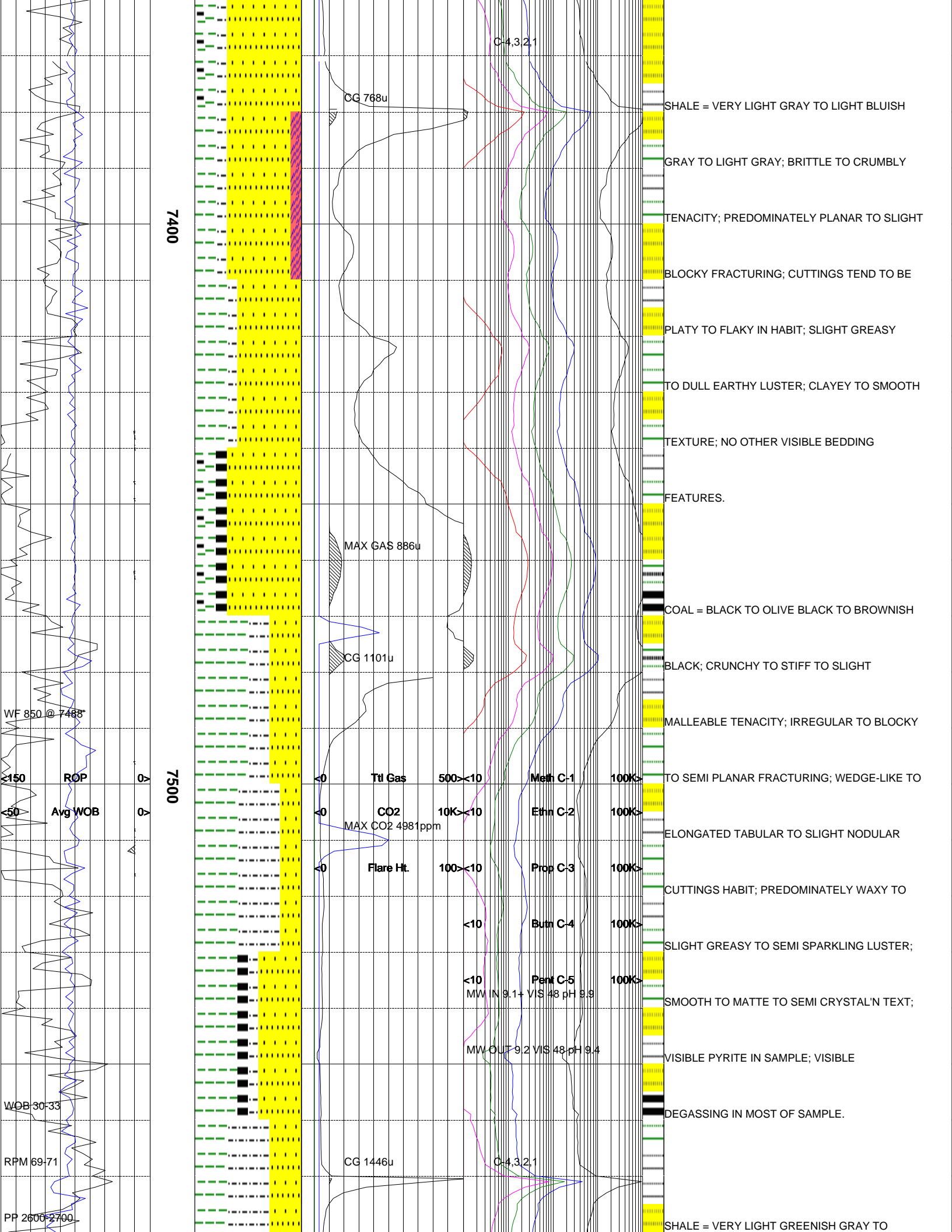
FRIABLE TO FRIABLE; UNCONSOLIDATED GRAIN

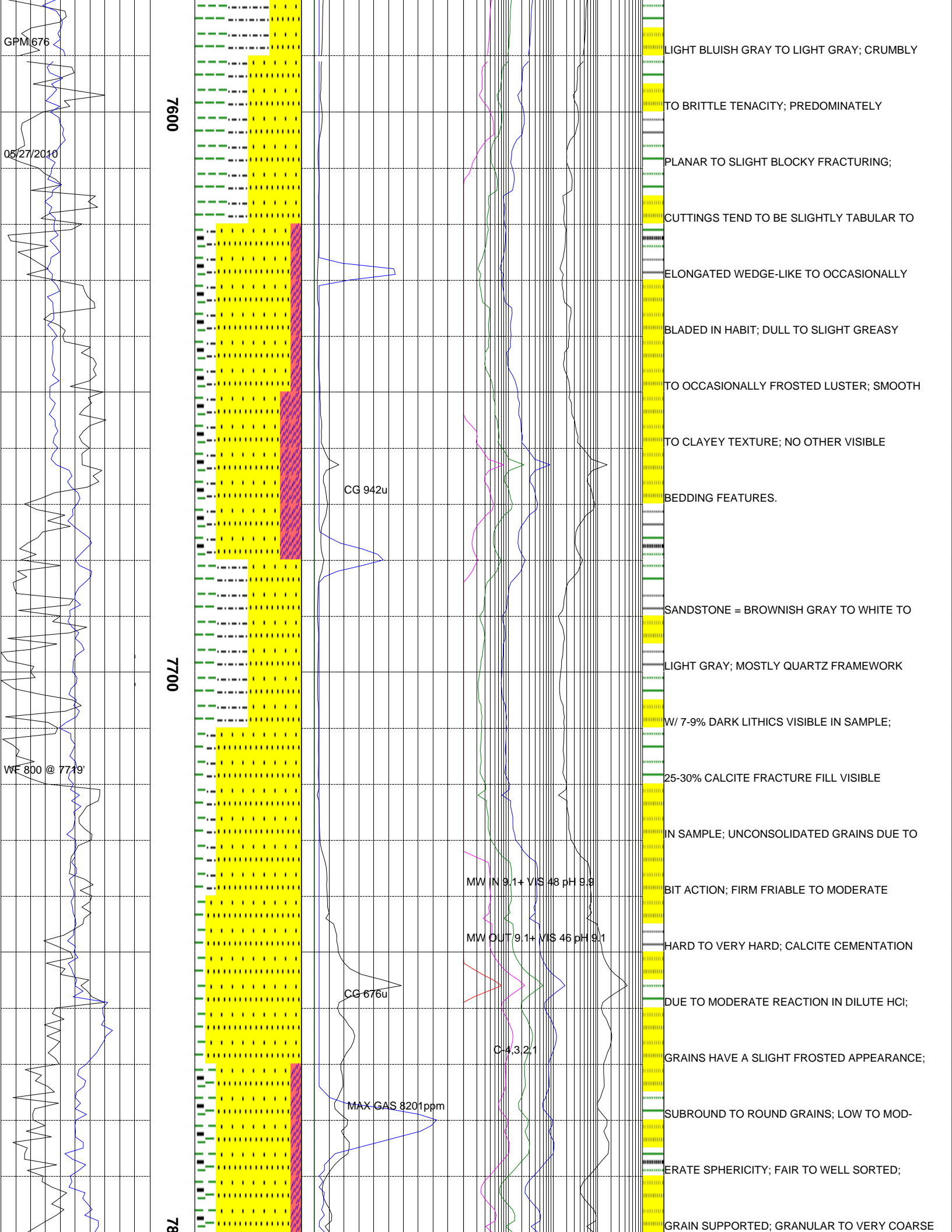
DUE TO BIT ACTION; GRAIN SUPPORTED;

CALCITE CEMENTATION DUE TO MODERATE

REACTION IN DILUTE HCl; NO VISIBLE HYDRO

CARBONS IN SAMPLE.





GPM 676

05/27/2010

WF 800 @ 7719'

7600

7700

78

CG 942u

CG 676u

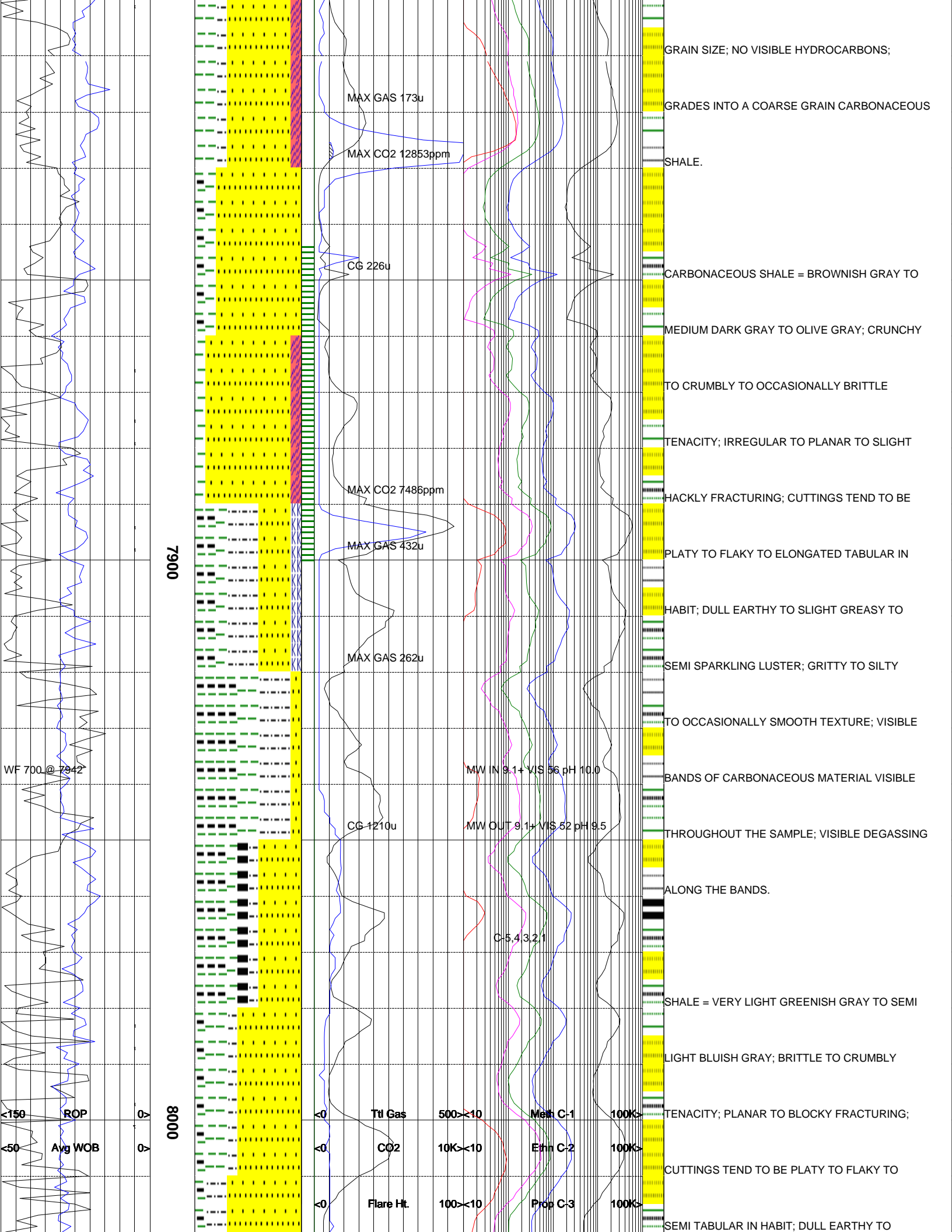
MAX GAS 8201ppm

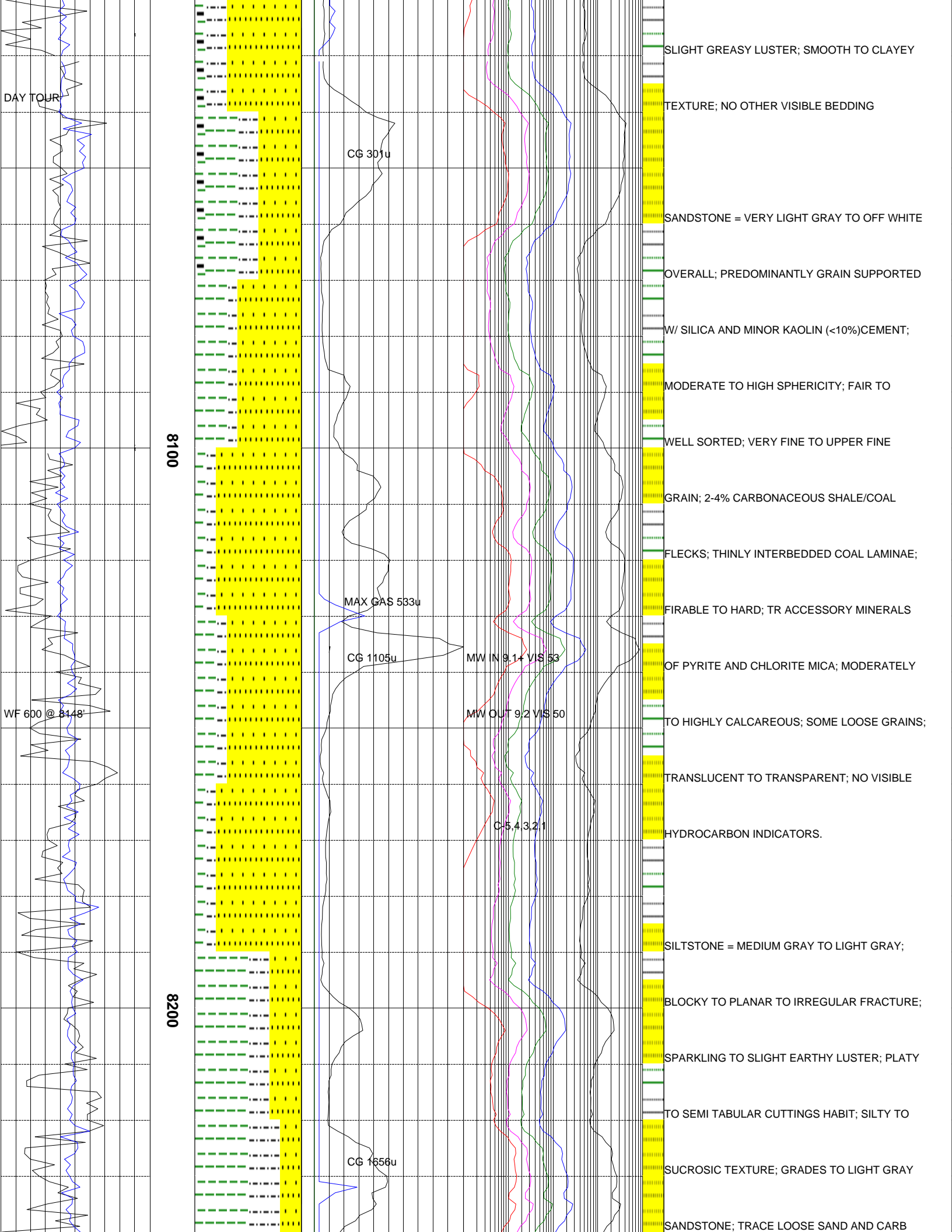
MW IN 9.1+ VIS 48 pH 9.9

MW OUT 9.1+ VIS 46 pH 9.1

C 4.321

LIGHT BLUISH GRAY TO LIGHT GRAY; CRUMBLY
 TO BRITTLE TENACITY; PREDOMINATELY
 PLANAR TO SLIGHT BLOCKY FRACTURING;
 CUTTINGS TEND TO BE SLIGHTLY TABULAR TO
 ELONGATED WEDGE-LIKE TO OCCASIONALLY
 BLADED IN HABIT; DULL TO SLIGHT GREASY
 TO OCCASIONALLY FROSTED LUSTER; SMOOTH
 TO CLAYEY TEXTURE; NO OTHER VISIBLE
 BEDDING FEATURES.
 SANDSTONE = BROWNISH GRAY TO WHITE TO
 LIGHT GRAY; MOSTLY QUARTZ FRAMEWORK
 W/ 7-9% DARK LITHICS VISIBLE IN SAMPLE;
 25-30% CALCITE FRACTURE FILL VISIBLE
 IN SAMPLE; UNCONSOLIDATED GRAINS DUE TO
 BIT ACTION; FIRM FRIABLE TO MODERATE
 HARD TO VERY HARD; CALCITE CEMENTATION
 DUE TO MODERATE REACTION IN DILUTE HCl;
 GRAINS HAVE A SLIGHT FROSTED APPEARANCE;
 SUBROUND TO ROUND GRAINS; LOW TO MOD-
 ERATE SPHERICITY; FAIR TO WELL SORTED;
 GRAIN SUPPORTED; GRANULAR TO VERY COARSE





SLIGHT GREASY LUSTER; SMOOTH TO CLAYEY

TEXTURE; NO OTHER VISIBLE BEDDING

SANDSTONE = VERY LIGHT GRAY TO OFF WHITE

OVERALL; PREDOMINANTLY GRAIN SUPPORTED

W/ SILICA AND MINOR KAOLIN (<10%) CEMENT;

MODERATE TO HIGH SPHERICITY; FAIR TO

WELL SORTED; VERY FINE TO UPPER FINE

GRAIN; 2-4% CARBONACEOUS SHALE/COAL

FLECKS; THINLY INTERBEDDED COAL LAMINAE;

FIRABLE TO HARD; TR ACCESSORY MINERALS

OF PYRITE AND CHLORITE MICA; MODERATELY

TO HIGHLY CALCAREOUS; SOME LOOSE GRAINS;

TRANSLUCENT TO TRANSPARENT; NO VISIBLE

HYDROCARBON INDICATORS.

SILTSTONE = MEDIUM GRAY TO LIGHT GRAY;

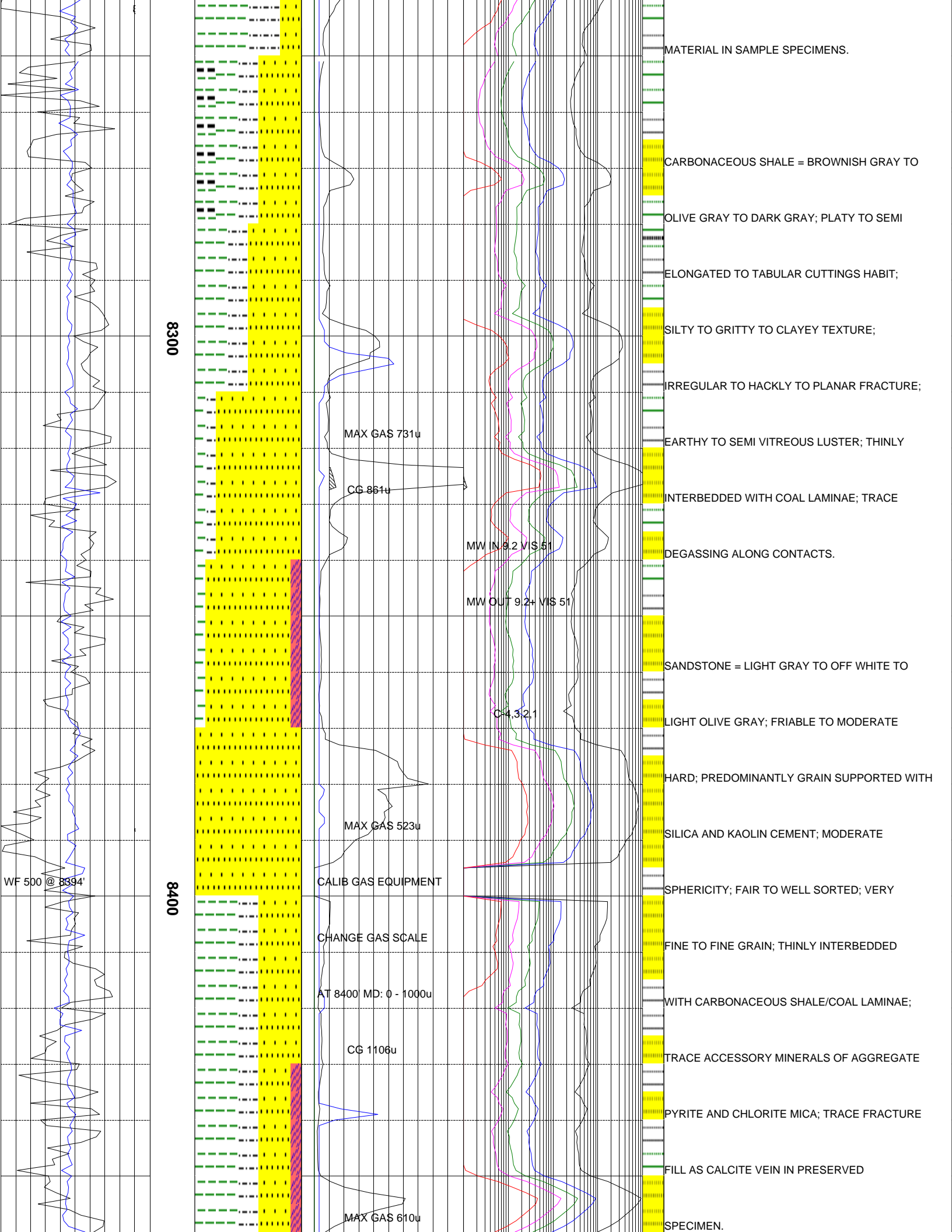
BLOCKY TO PLANAR TO IRREGULAR FRACTURE;

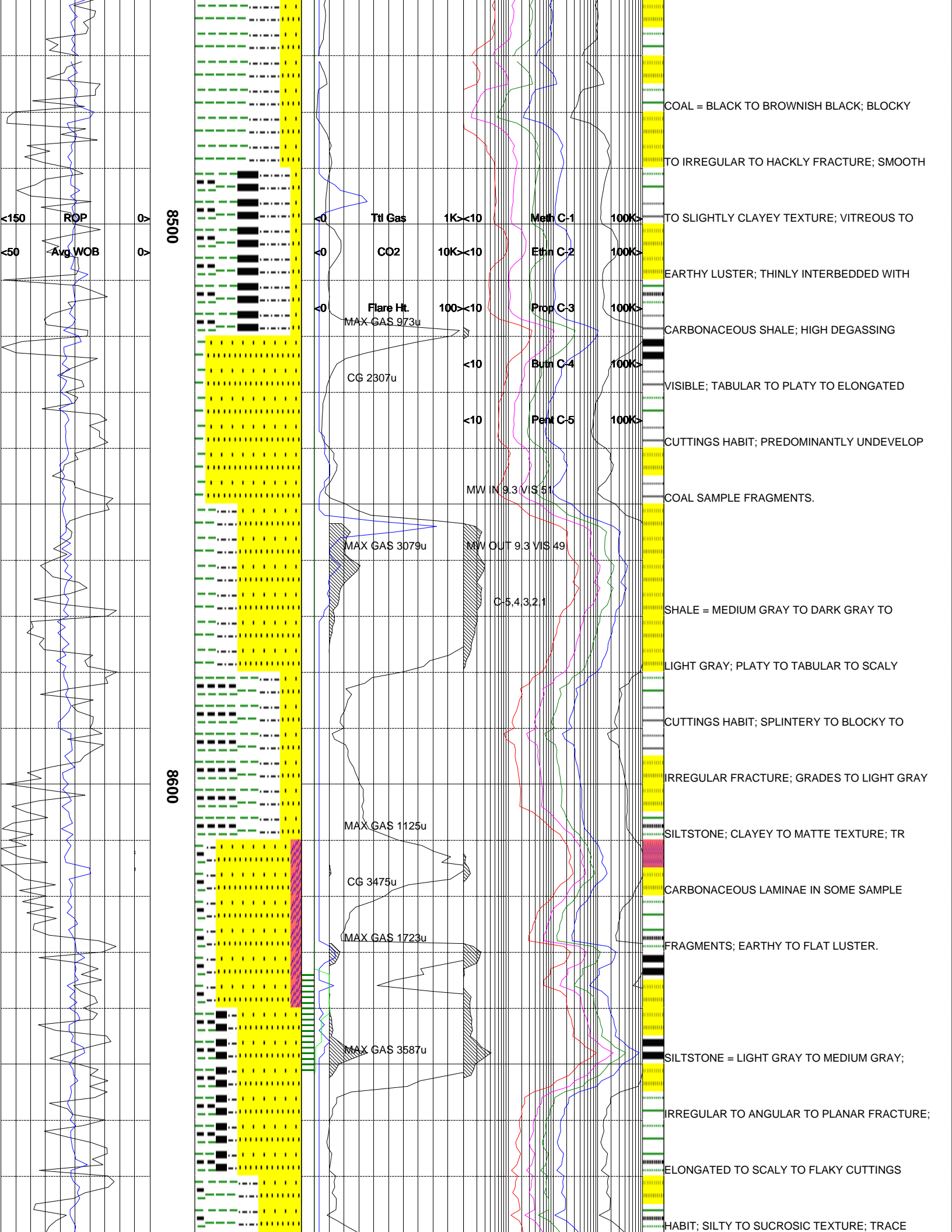
SPARKLING TO SLIGHT EARTHY LUSTER; PLATY

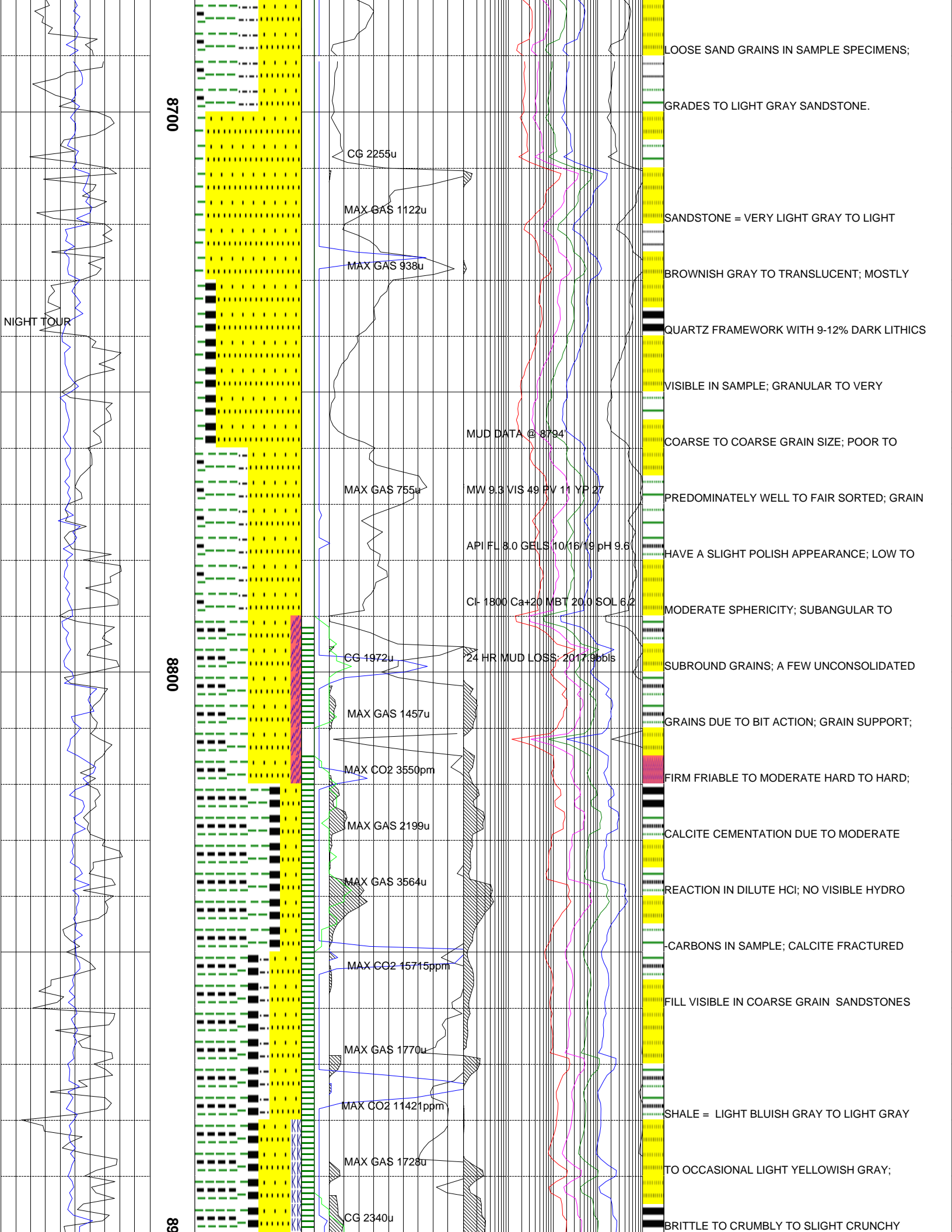
TO SEMI TABULAR CUTTINGS HABIT; SILTY TO

SUCROSIC TEXTURE; GRADES TO LIGHT GRAY

SANDSTONE; TRACE LOOSE SAND AND CARB







8700

8800

89

CG 2255u

MAX GAS 1122u

MAX GAS 938u

MAX GAS 755u

CG 1972u

MAX GAS 1457u

MAX CO2 3550ppm

MAX GAS 2199u

MAX GAS 3564u

MAX CO2 15715ppm

MAX GAS 1770u

MAX CO2 11421ppm

MAX GAS 1728u

CG 2340u

MUD DATA @ 8794

MW 9.3 VIS 49 PV 11 YP 27

API FL 8.0 GELS 10/16/19 pH 9.6

CI- 1800 Ca+20 MBT 20.0 SOL 6.2

24 HR MUD LOSS: 2017.9bbbls

LOOSE SAND GRAINS IN SAMPLE SPECIMENS;

GRADES TO LIGHT GRAY SANDSTONE.

SANDSTONE = VERY LIGHT GRAY TO LIGHT

BROWNISH GRAY TO TRANSLUCENT; MOSTLY

QUARTZ FRAMEWORK WITH 9-12% DARK LITHICS

VISIBLE IN SAMPLE; GRANULAR TO VERY

COARSE TO COARSE GRAIN SIZE; POOR TO

PREDOMINATELY WELL TO FAIR SORTED; GRAIN

HAVE A SLIGHT POLISH APPEARANCE; LOW TO

MODERATE SPHERICITY; SUBANGULAR TO

SUBROUND GRAINS; A FEW UNCONSOLIDATED

GRAINS DUE TO BIT ACTION; GRAIN SUPPORT;

FIRM FRIABLE TO MODERATE HARD TO HARD;

CALCITE CEMENTATION DUE TO MODERATE

REACTION IN DILUTE HCl; NO VISIBLE HYDRO

CARBONS IN SAMPLE; CALCITE FRACTURED

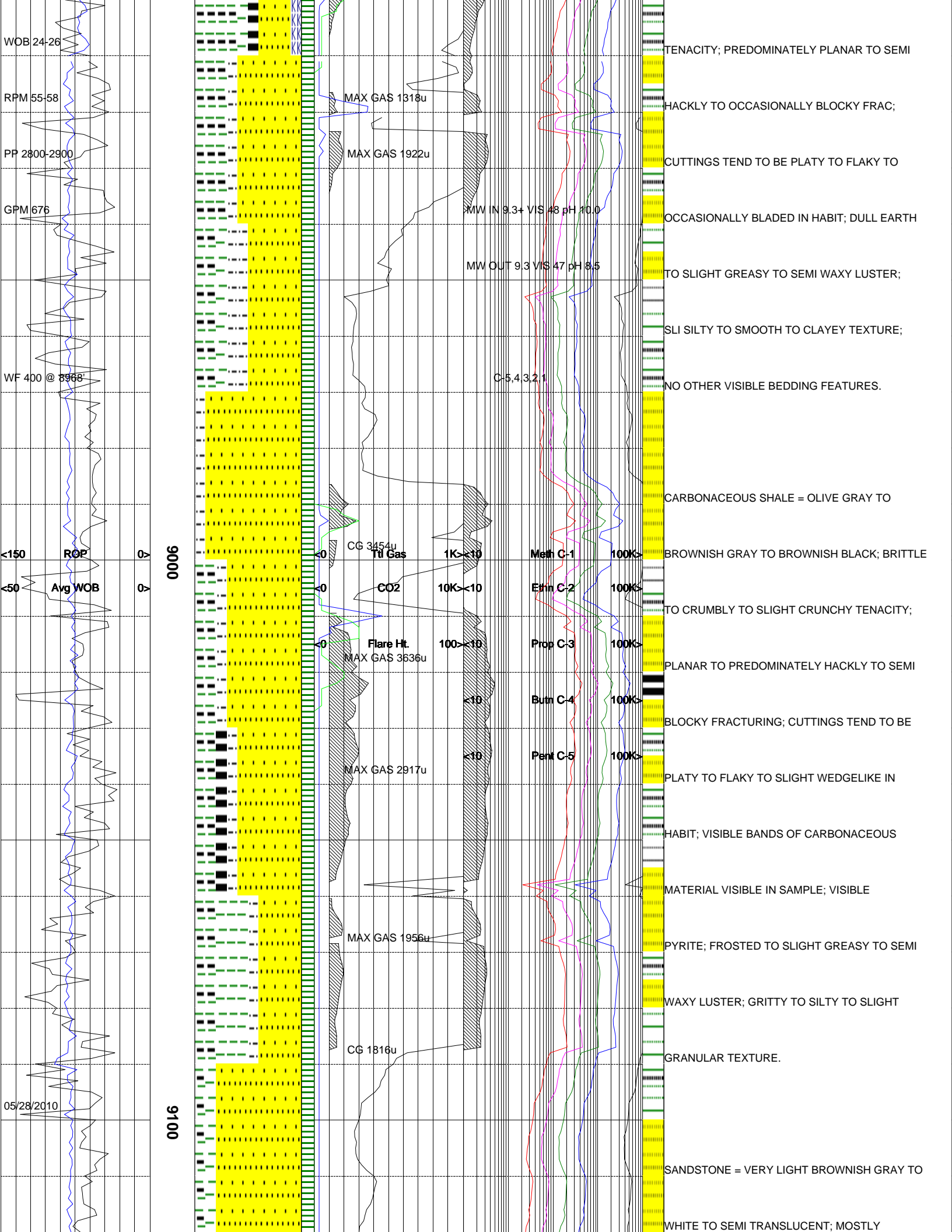
FILL VISIBLE IN COARSE GRAIN SANDSTONES

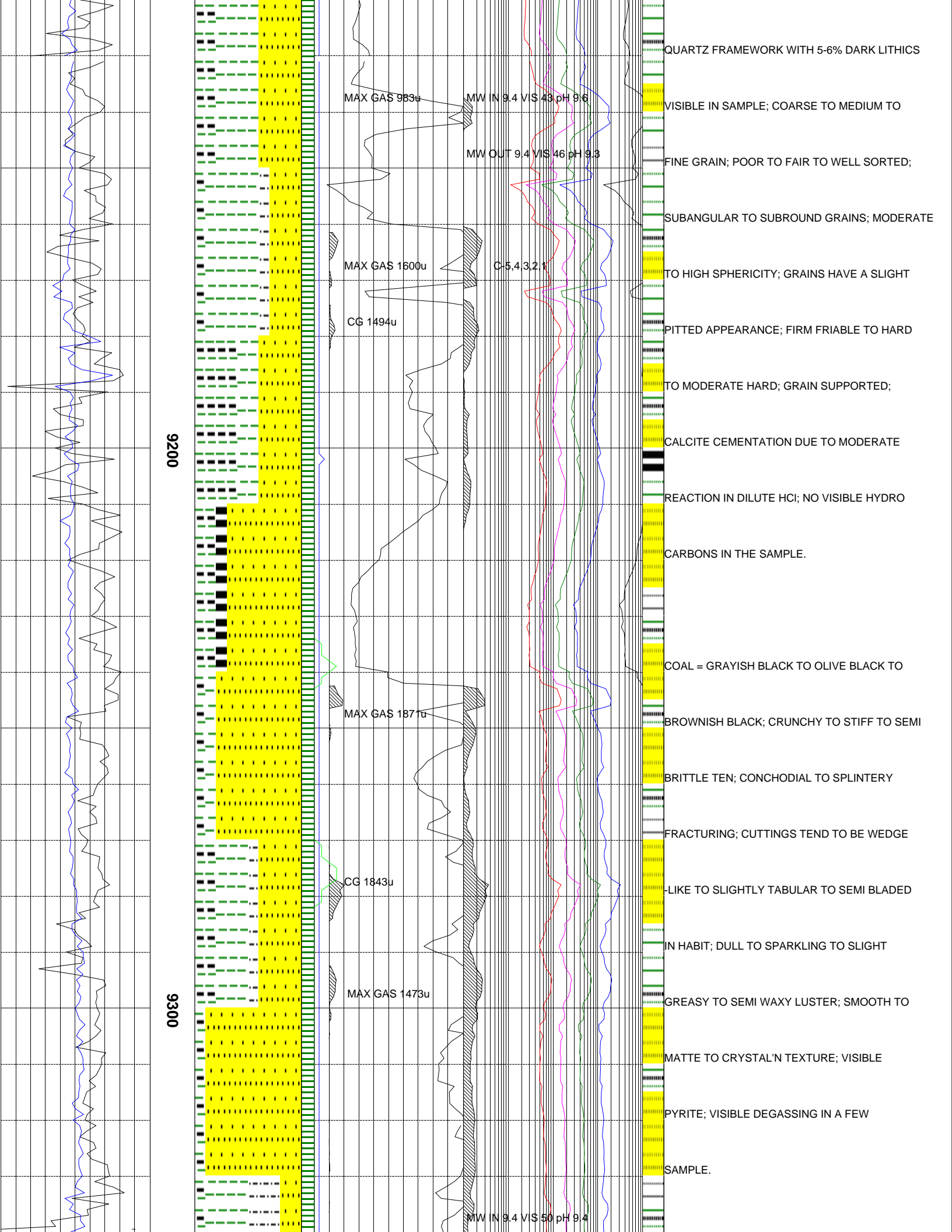
SHALE = LIGHT BLuish GRAY TO LIGHT GRAY

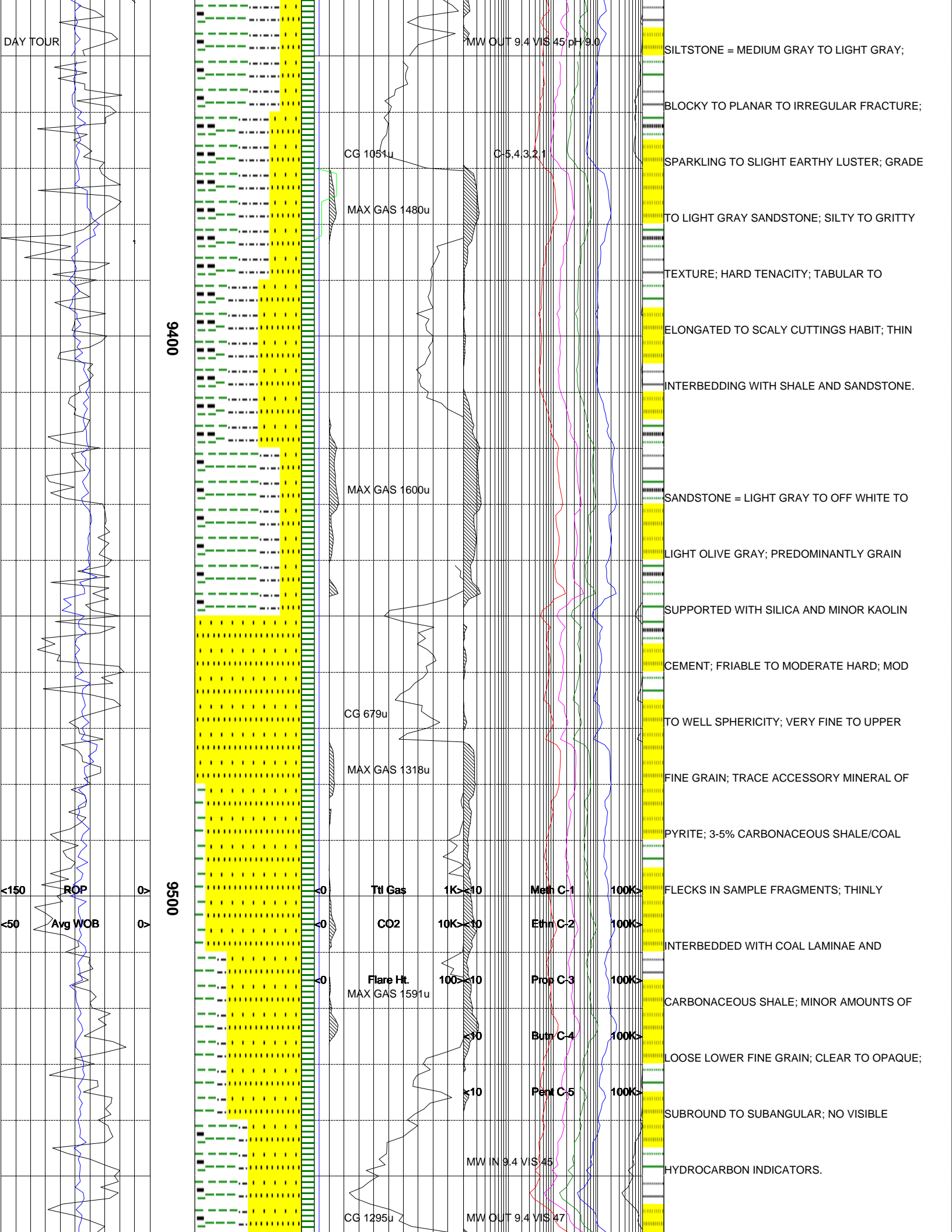
TO OCCASIONAL LIGHT YELLOWISH GRAY;

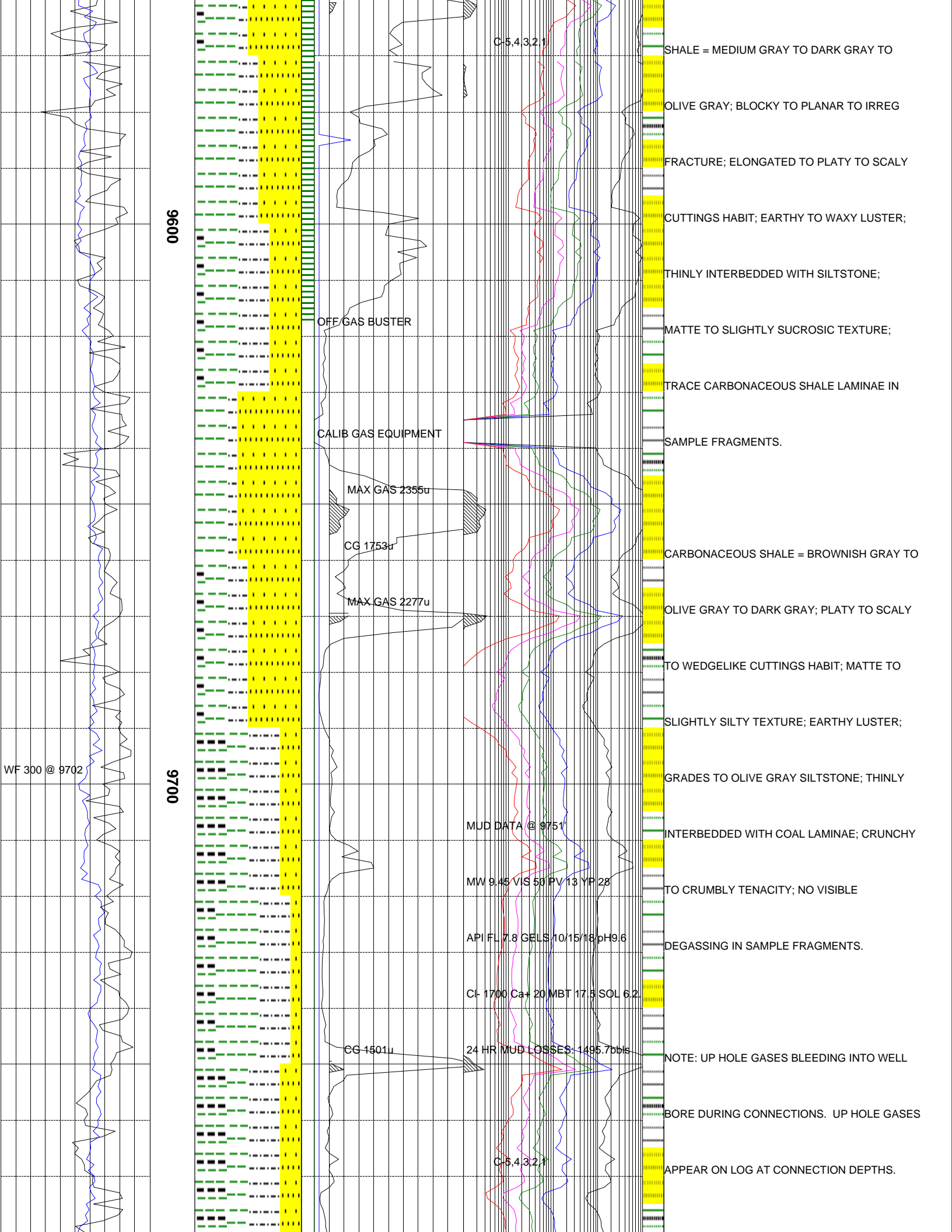
BRITTLE TO CRUMBLY TO SLIGHT CRUNCHY

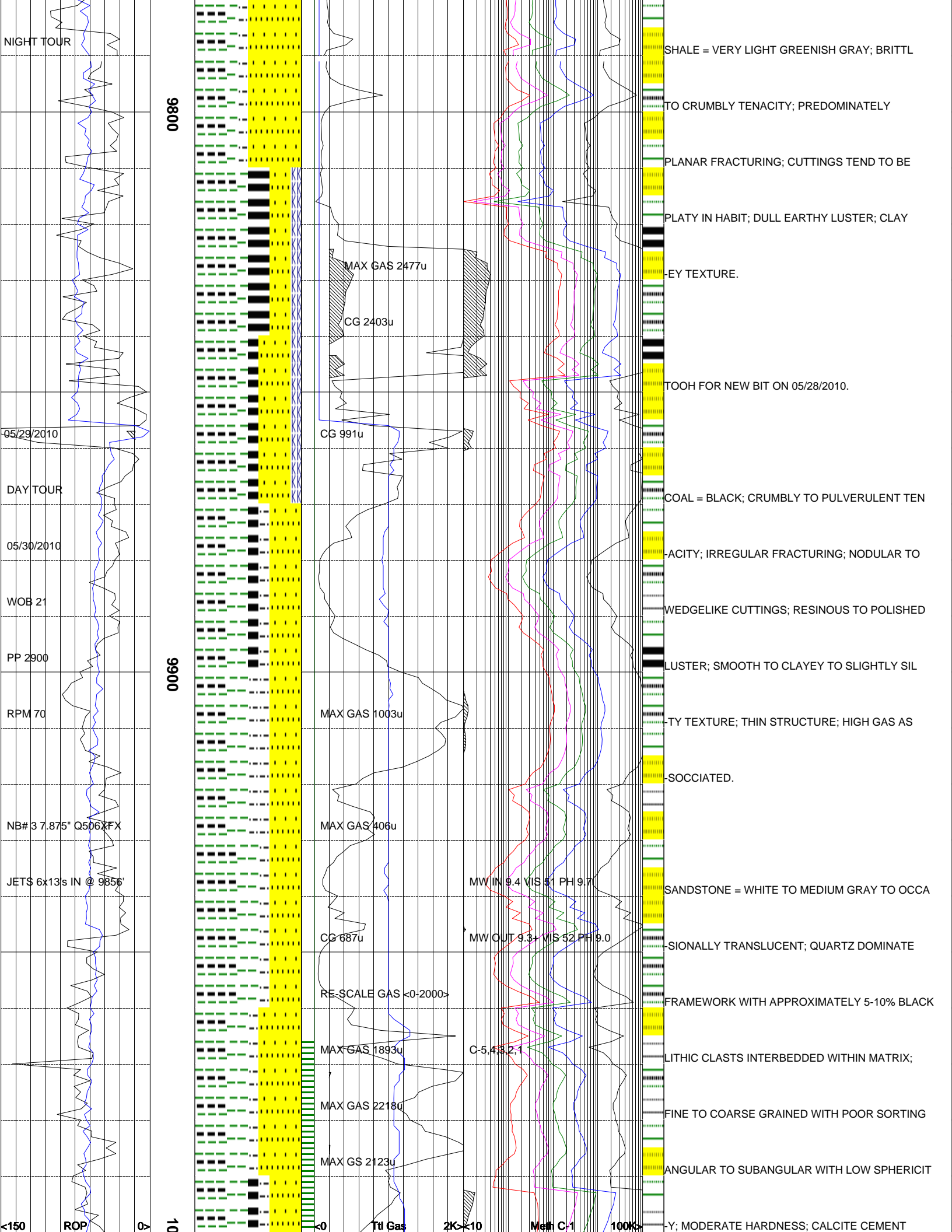
NIGHT TOUR

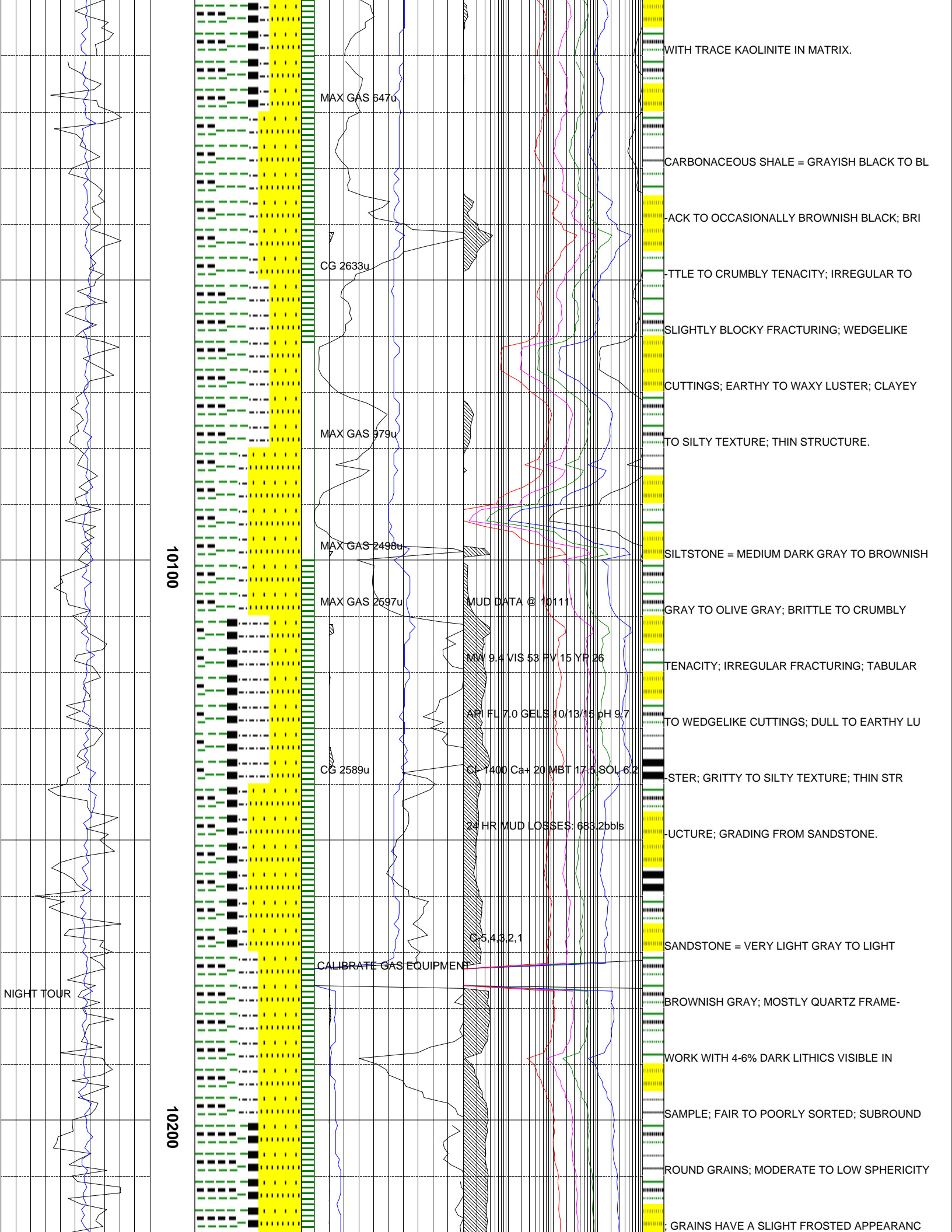


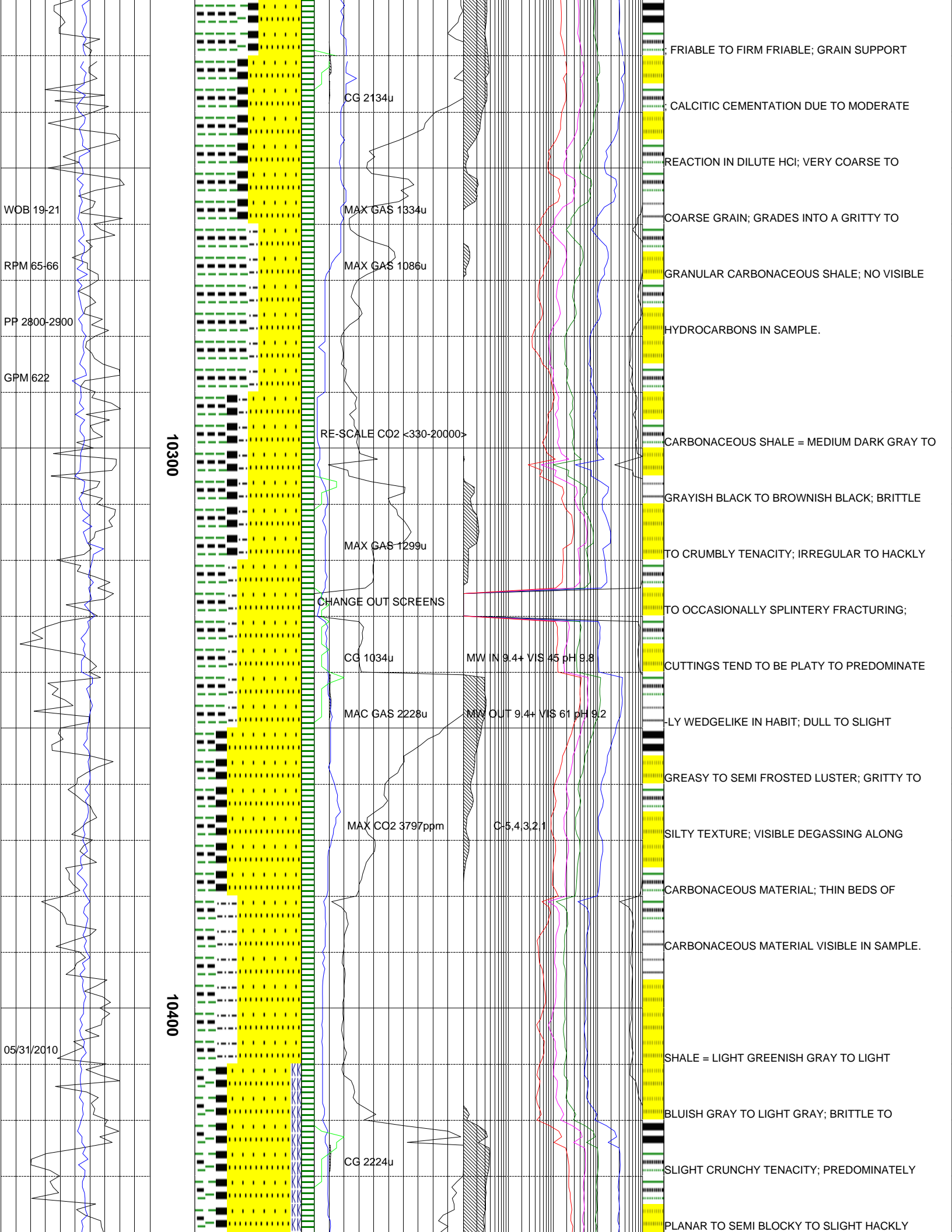












10300

10400

WOB 19-21

RPM 65-66

PP 2800-2900

GPM 622

05/31/2010

CG 2134u

MAX GAS 1334u

MAX GAS 1086u

RE-SCALE CO2 <330-20000>

MAX GAS 1299u

CHANGE OUT SCREENS

CG 1034u

MAC GAS 2228u

MAX CO2 3797ppm

CG 2224u

MW IN 9.4+ VIS 45 pH 9.8

MW OUT 9.4+ VIS 61 pH 9.2

C=5.4321

FRIABLE TO FIRM FRIABLE; GRAIN SUPPORT

CALCITIC CEMENTATION DUE TO MODERATE

REACTION IN DILUTE HCl; VERY COARSE TO

COARSE GRAIN; GRADES INTO A GRITTY TO

GRANULAR CARBONACEOUS SHALE; NO VISIBLE

HYDROCARBONS IN SAMPLE.

CARBONACEOUS SHALE = MEDIUM DARK GRAY TO

GRAYISH BLACK TO BROWNISH BLACK; BRITTLE

TO CRUMBLY TENACITY; IRREGULAR TO HACKLY

TO OCCASIONALLY SPLINTERY FRACTURING;

CUTTINGS TEND TO BE PLATY TO PREDOMINATE

LY WEDGELIKE IN HABIT; DULL TO SLIGHT

GREASY TO SEMI FROSTED LUSTER; GRITTY TO

SILTY TEXTURE; VISIBLE DEGASSING ALONG

CARBONACEOUS MATERIAL; THIN BEDS OF

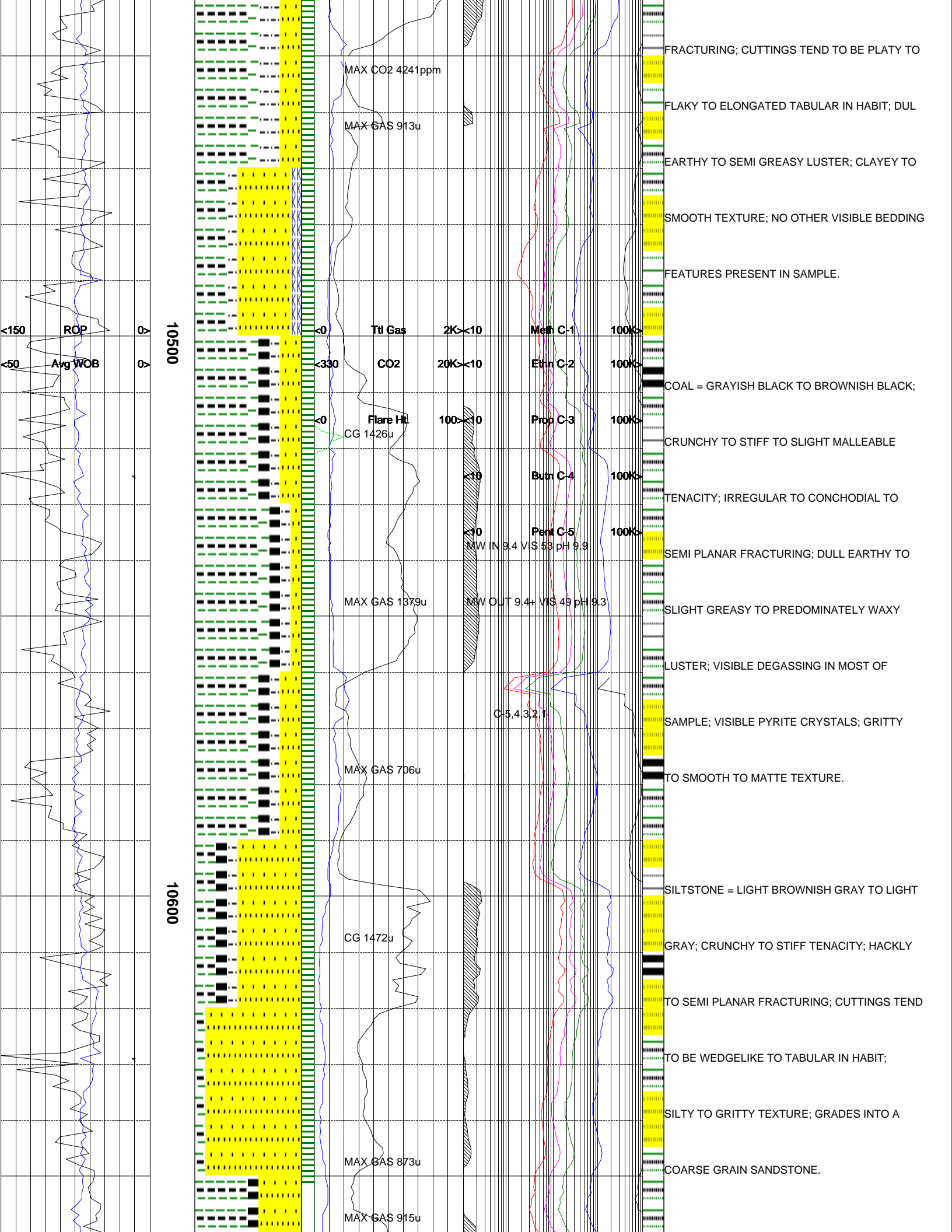
CARBONACEOUS MATERIAL VISIBLE IN SAMPLE.

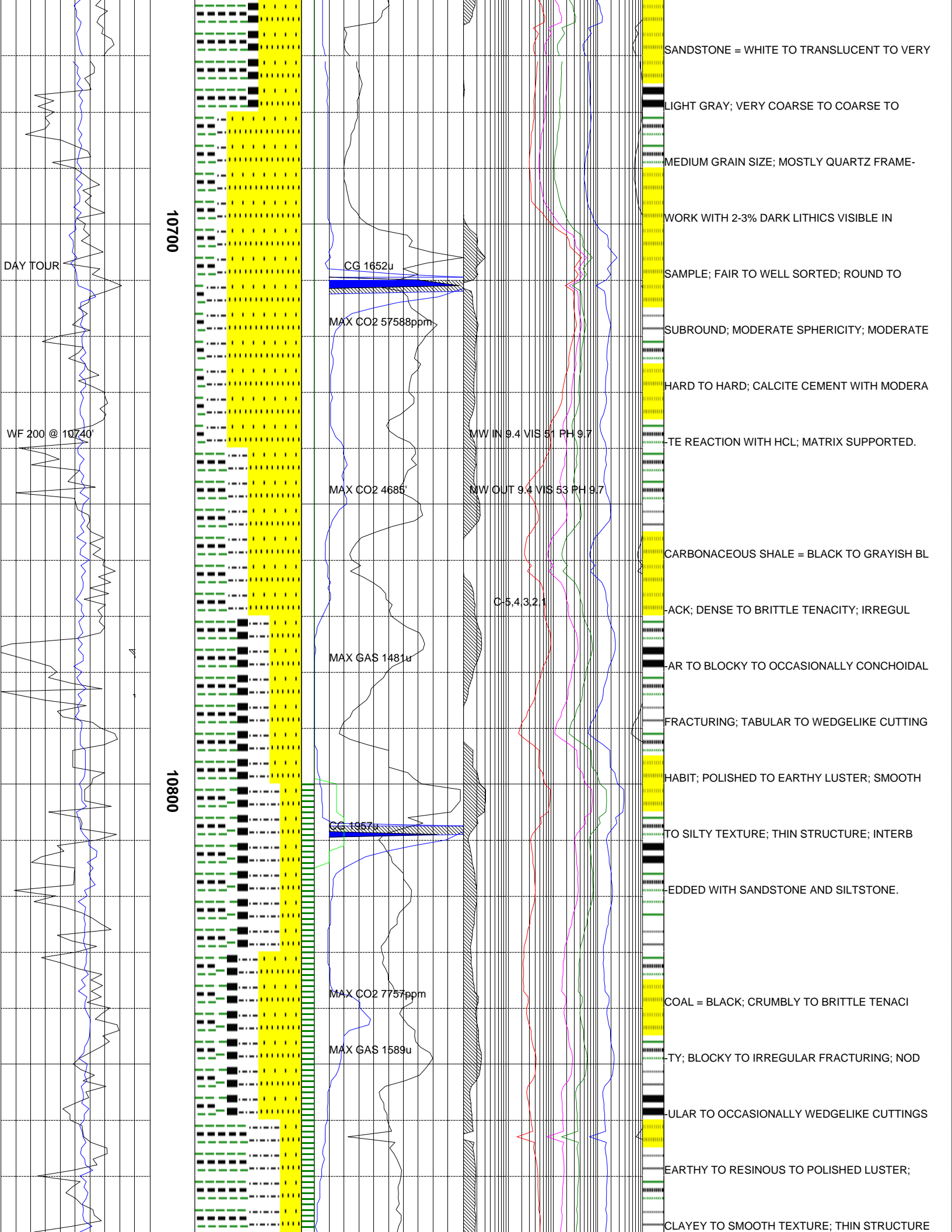
SHALE = LIGHT GREENISH GRAY TO LIGHT

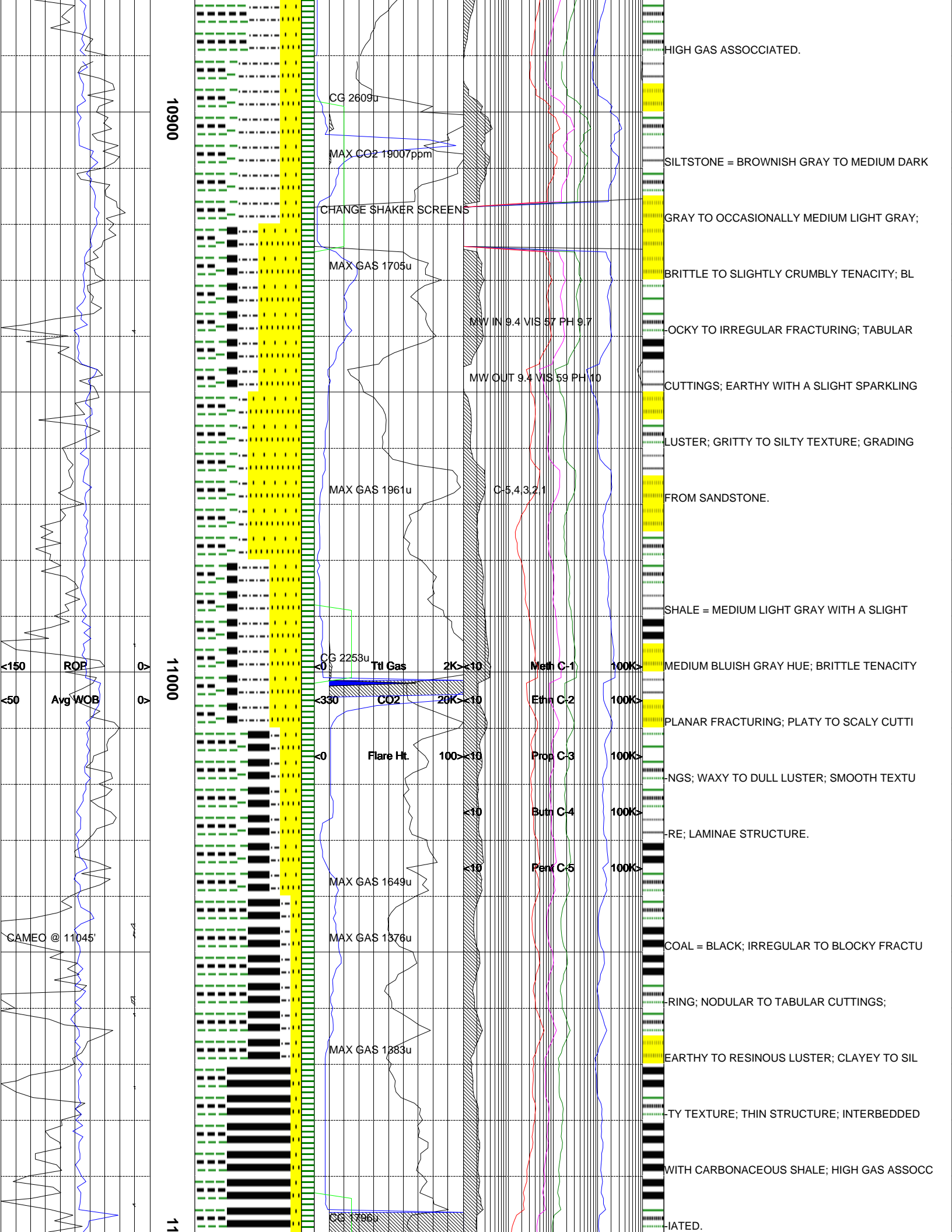
BLUISH GRAY TO LIGHT GRAY; BRITTLE TO

SLIGHT CRUNCHY TENACITY; PREDOMINATELY

PLANAR TO SEMI BLOCKY TO SLIGHT HACKLY







10900

11000

11

CG 2609u

MAX CO2 19007ppm

CHANGE SHAKER SCREENS

MAX GAS 1705u

MW IN 9.4 VIS 57 PH 9.7

MW OUT 9.4 VIS 59 PH 10

MAX GAS 1961u

C=5.4321

CG 2253u

Ttl Gas

2K > 10

Meth C-1

100K >

CO2

20K > 10

Ethn C-2

100K >

Flare Ht.

100 > 10

Prop C-3

100K >

Butn C-4

100K >

Pent C-5

100K >

MAX GAS 1649u

MAX GAS 1376u

MAX GAS 1283u

CG 1796u

<150 ROP

<50 Avg WOB

CAMEC @ 11045'

HIGH GAS ASSOCIATED.

SILTSTONE = BROWNISH GRAY TO MEDIUM DARK

GRAY TO OCCASIONALLY MEDIUM LIGHT GRAY;

BRITTLE TO SLIGHTLY CRUMBLY TENACITY; BL

OCKY TO IRREGULAR FRACTURING; TABULAR

CUTTINGS; EARTHY WITH A SLIGHT SPARKLING

LUSTER; GRITTY TO SILTY TEXTURE; GRADING

FROM SANDSTONE.

SHALE = MEDIUM LIGHT GRAY WITH A SLIGHT

MEDIUM BLUISH GRAY HUE; BRITTLE TENACITY

PLANAR FRACTURING; PLATY TO SCALY CUTTI

NGS; WAXY TO DULL LUSTER; SMOOTH TEXTU

RE; LAMINAE STRUCTURE.

COAL = BLACK; IRREGULAR TO BLOCKY FRACTU

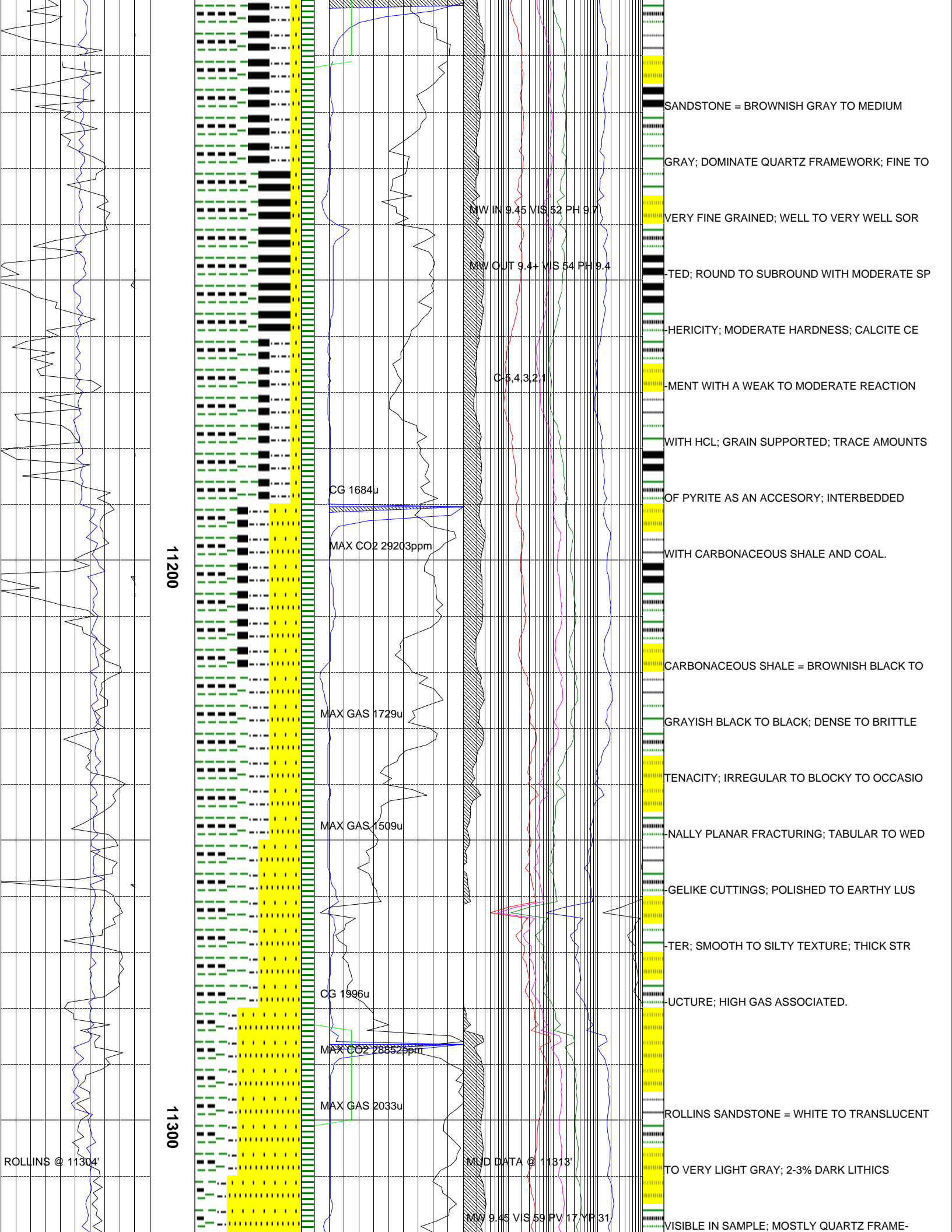
RING; NODULAR TO TABULAR CUTTINGS;

EARTHY TO RESINOUS LUSTER; CLAYEY TO SIL

TY TEXTURE; THIN STRUCTURE; INTERBEDDED

WITH CARBONACEOUS SHALE; HIGH GAS ASSOC

IATED.



11200

11300

CG 1684u

MAX CO2 29203ppm

MAX GAS 1729u

MAX GAS 1509u

CG 1996u

MAX CO2 28852ppm

MAX GAS 2033u

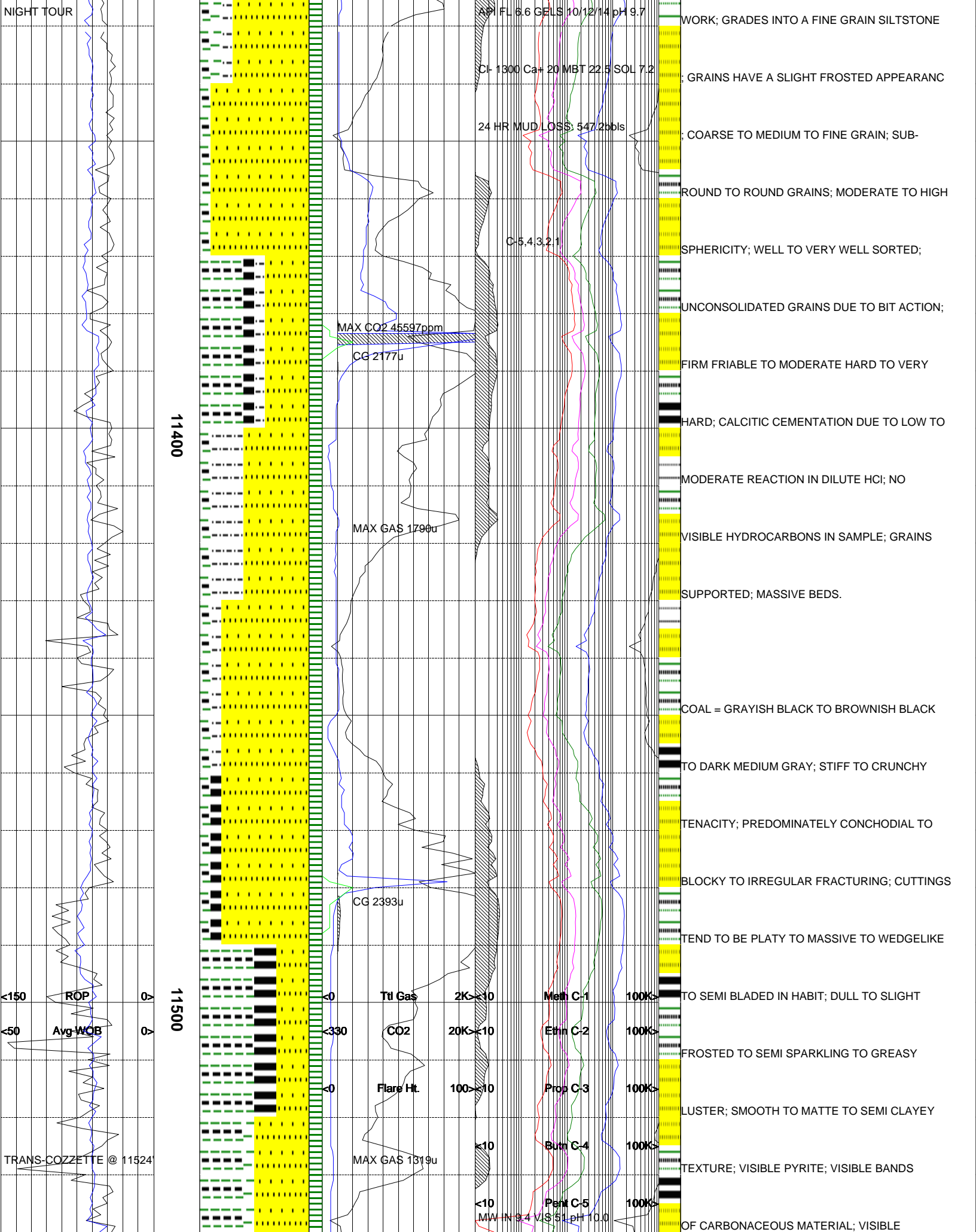
MW IN 9.45 VIS 52 PH 9.7

MW OUT 9.4+ VIS 54 PH 9.4

MWD DATA @ 11313'

MW 9.45 VIS 59 PV 17 YP 31

ROLLINS @ 11304'



NIGHT TOUR

API FL 6.6 GELS 10/12/14 pH 9.7

WORK; GRADES INTO A FINE GRAIN SILTSTONE

Cl- 1300 Ca+ 20 MBT 22.5 SOL 7.2

; GRAINS HAVE A SLIGHT FROSTED APPEARANC

24 HR MUD LOSS: 547.2bbls

; COARSE TO MEDIUM TO FINE GRAIN; SUB-

ROUND TO ROUND GRAINS; MODERATE TO HIGH

C-5.43.2.1

SPHERICITY; WELL TO VERY WELL SORTED;

UNCONSOLIDATED GRAINS DUE TO BIT ACTION;

MAX CO2 45597ppm
CG 2177u

FIRM FRIABLE TO MODERATE HARD TO VERY

HARD; CALCITIC CEMENTATION DUE TO LOW TO

MODERATE REACTION IN DILUTE HCl; NO

MAX GAS 1790u

VISIBLE HYDROCARBONS IN SAMPLE; GRAINS

SUPPORTED; MASSIVE BEDS.

COAL = GRAYISH BLACK TO BROWNISH BLACK

TO DARK MEDIUM GRAY; STIFF TO CRUNCHY

TENACITY; PREDOMINATELY CONCHODIAL TO

BLOCKY TO IRREGULAR FRACTURING; CUTTINGS

TEND TO BE PLATY TO MASSIVE TO WEDGELIKE

<150

ROP

11500

Ttl Gas

2K <10

Meth C-1

100K >

TO SEMI BLADED IN HABIT; DULL TO SLIGHT

<50

Avg-WOB

CO2

20K <10

Ethn C-2

100K >

FROSTED TO SEMI SPARKLING TO GREASY

Flare Ht.

100 >10

Prop C-3

100K >

LUSTER; SMOOTH TO MATTE TO SEMI CLAYEY

TRANS-COZZETTE @ 11524

MAX GAS 1319u

<10

Butn C-4

100K >

TEXTURE; VISIBLE PYRITE; VISIBLE BANDS

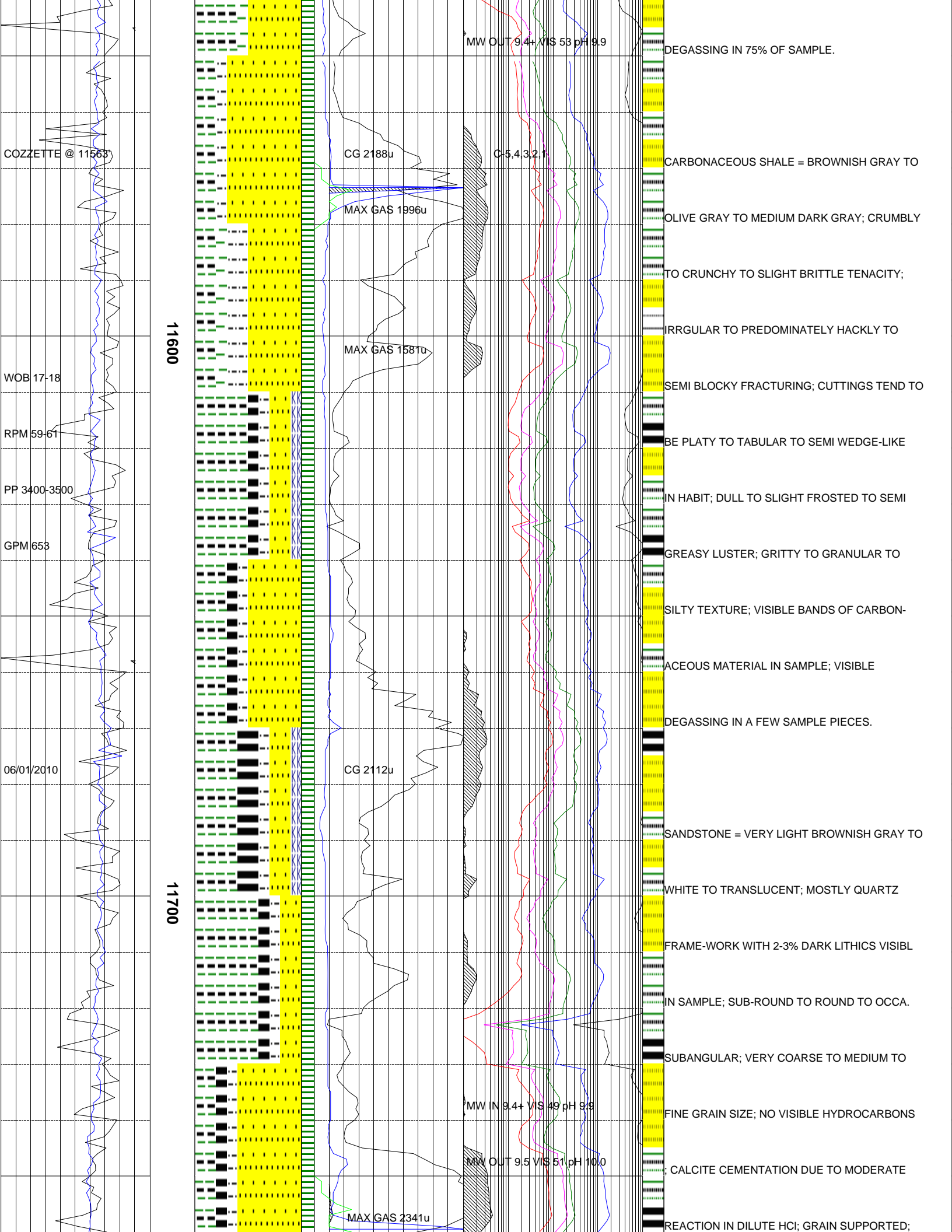
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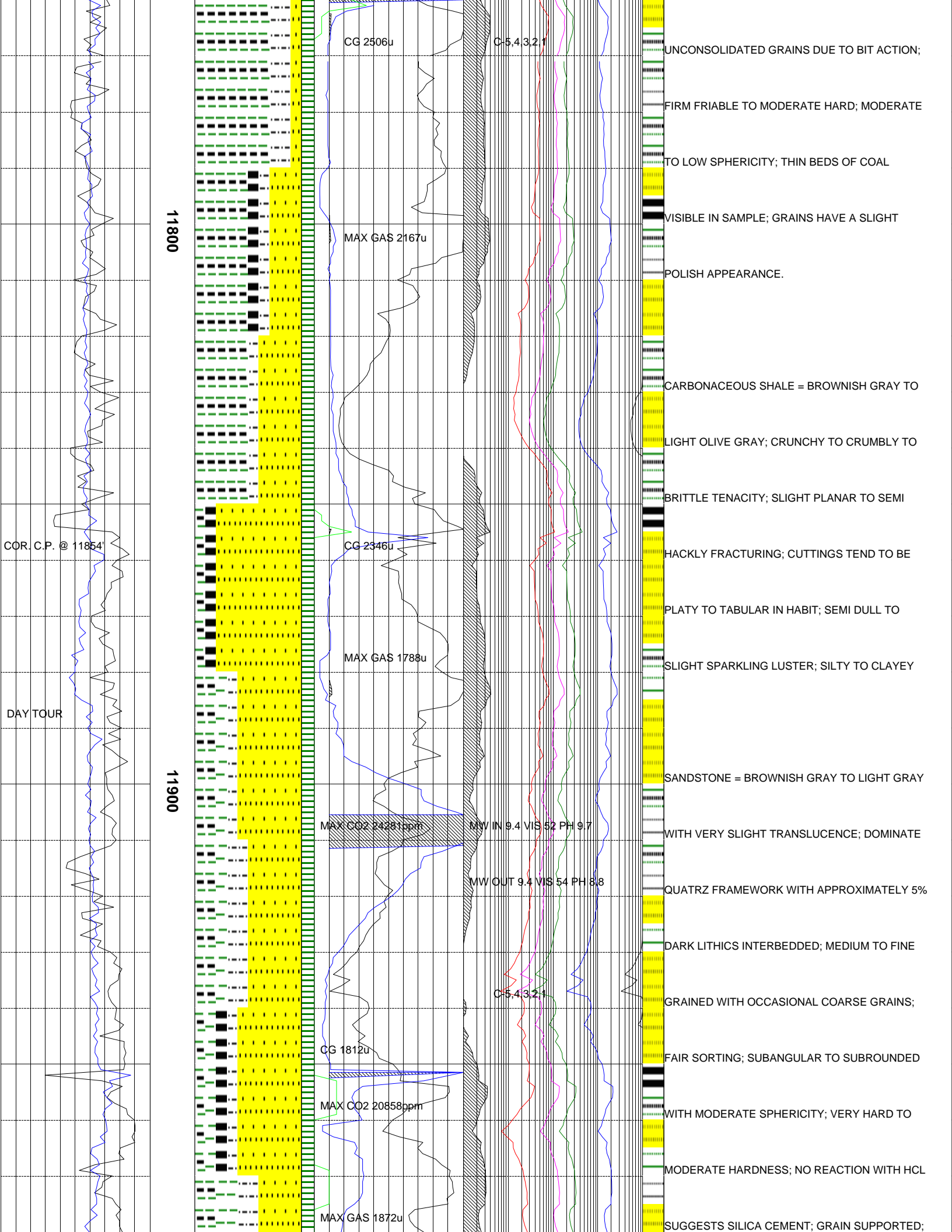
Pent C-5

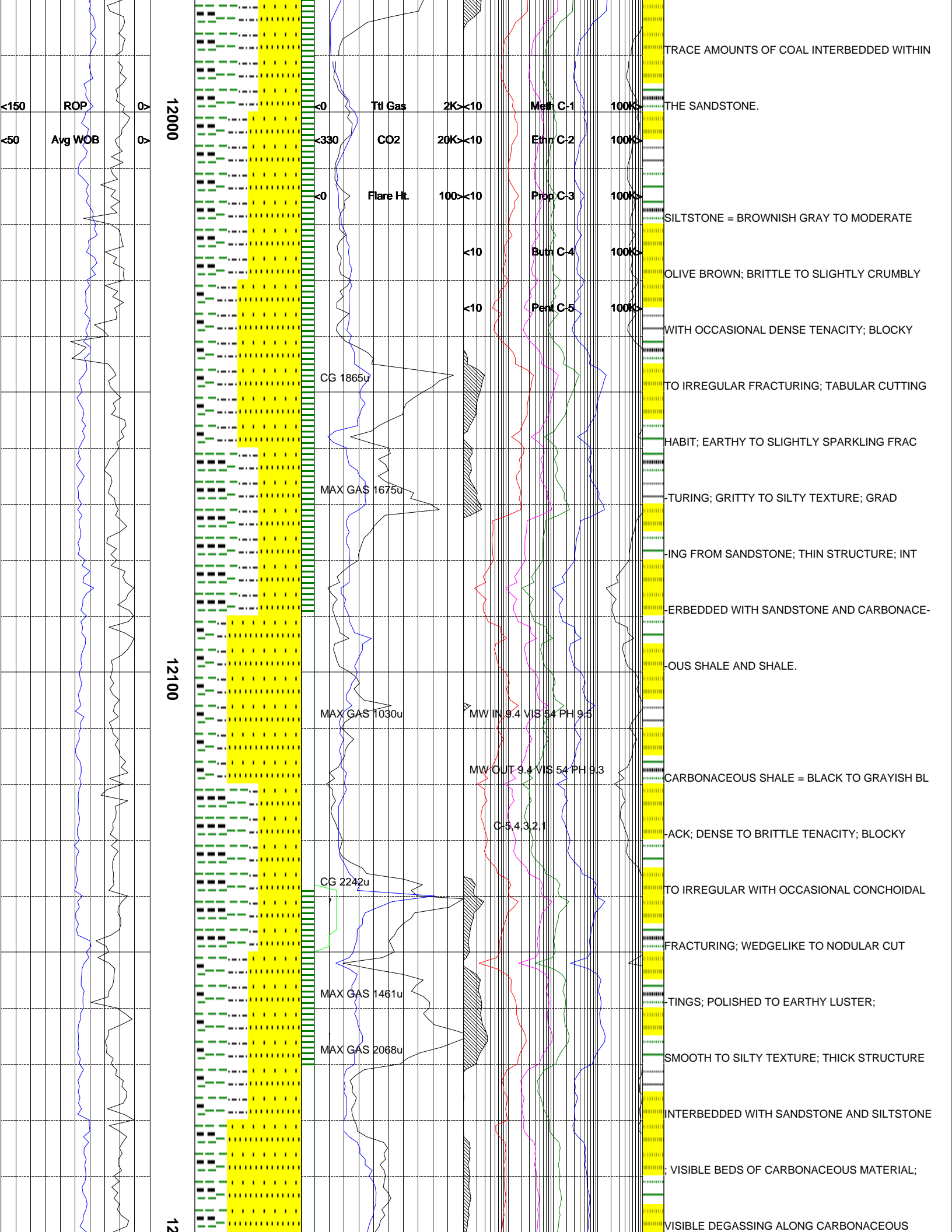
100K >

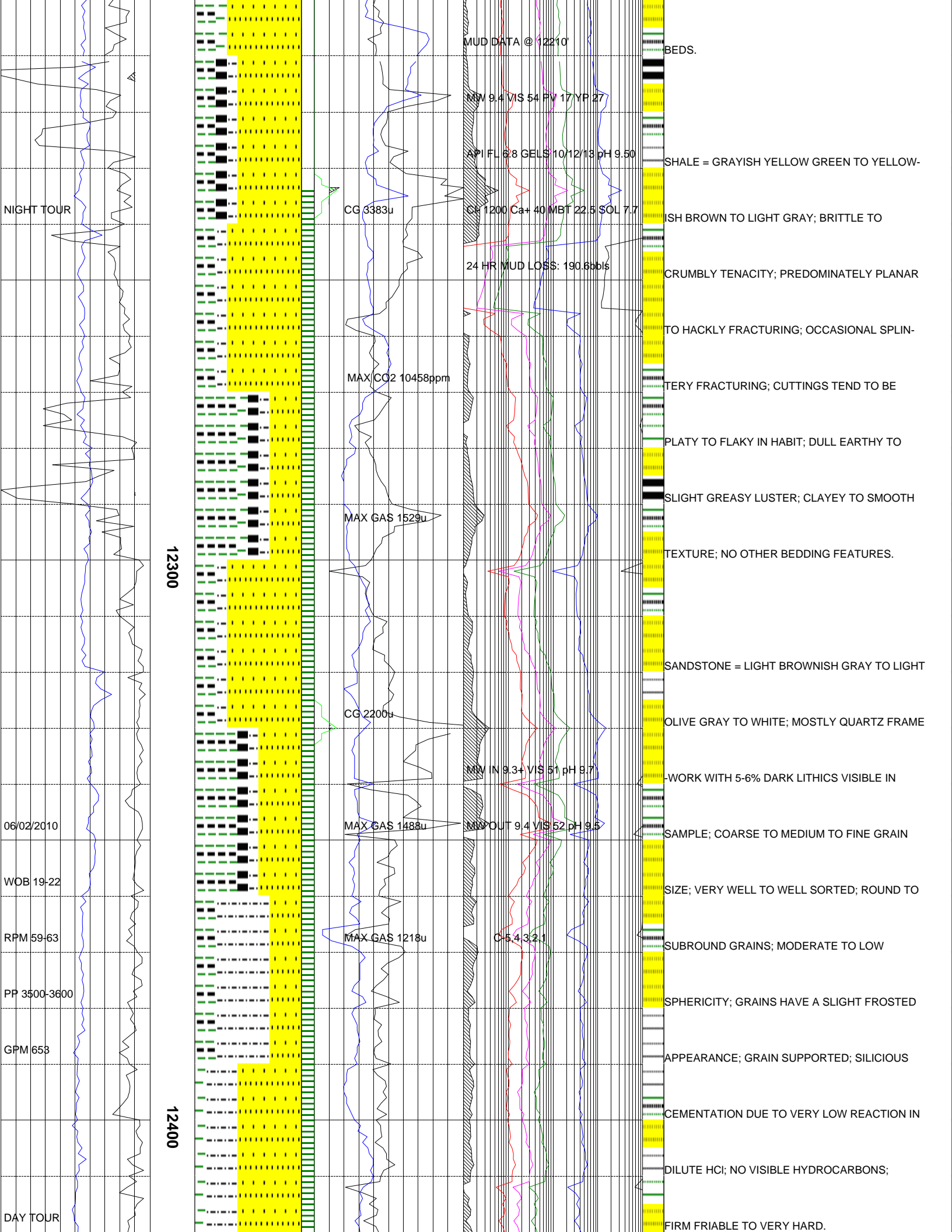
OF CARBONACEOUS MATERIAL; VISIBLE

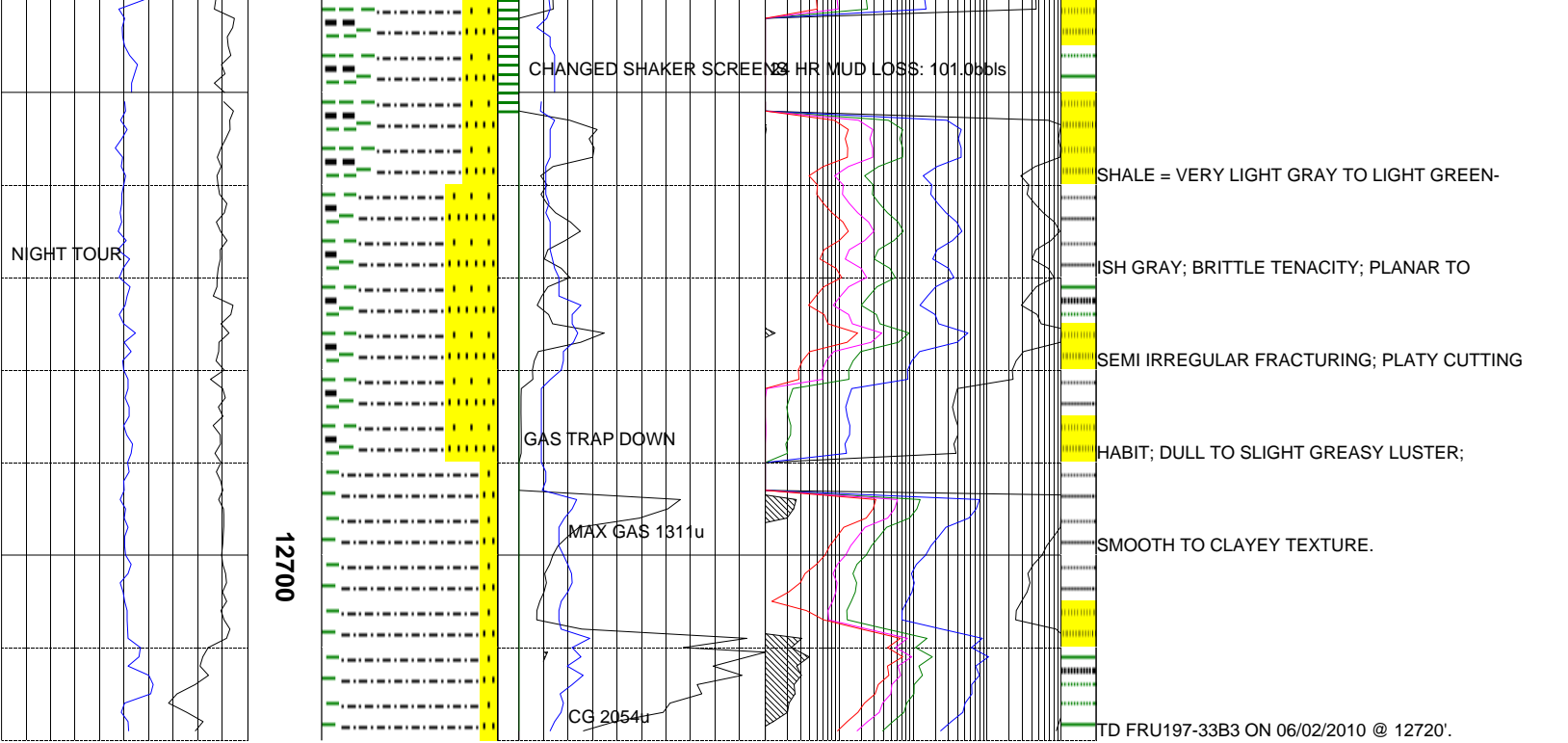
MW IN 9.4 V/S 51 pH 10.0











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