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MUDLOG MD

COMPANY	ExxonMobil Production
WELL	Freedom Unit 197-33A8
FIELD	Piceance Creek
REGION	Rockies
COORDINATES	39.915617000 108.285739000
ELEVATION	GL:6387 KB: 6414
COUNTY, STATE	Rio Blanco, Colorado
API INDEX	05-103-1140-100
SPUD DATE	January 28, 2010
CONTRACTOR	Helmerich and Payne
CO. REP.	Ricky T. Owens
RIG/TYPE	215/ Flex 3
LOGGING UNIT	MLU051
GEOLOGISTS	George Baker Brenda Marsh
ADD. PERSONS	Devin Claar Bill Johanning
CO. GEOLOGIST	Melanie Biggs

LOG INTERVAL

DEPTHS:	3,900'	TO	12,457'
DATES:	1/28/2010	TO	2/12/2010
SCALE:	5" = 100'		

CASING DATA

10.75"	AT	3,914'
7.00"	AT	8,646'
4.5"	AT	12,457'

AT

HOLE SIZE

9.875"	TO	8,648"
6.125"	TO	12.457'
	TO	
	TO	

MUD TYPES

SPUD	TO	3,900'
LSND	TO	12,457'
	TO	
	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	

[illegible][illegible][illegible][illegible]

A full-page view of a blank sheet of graph paper. The page is covered by a uniform grid of thin black lines forming small squares. There are no margins, text, or other markings on the paper.

A full-page view of a blank sheet of graph paper. The grid consists of thin, light gray horizontal and vertical lines forming small squares across the entire page. There are no margins, text, or other markings on the paper.

[illegible]

A full-page sheet of white graph paper featuring a uniform grid of thin black horizontal and vertical lines. The grid covers the entire area of the page, providing a template for drawing or writing.

[illegible][illegible][illegible][illegible][illegible][illegible][illegible]

A full-page view of a blank sheet of graph paper. The grid consists of thin, light gray horizontal and vertical lines forming small squares across the entire page. There are no margins, text, or other markings on the paper.

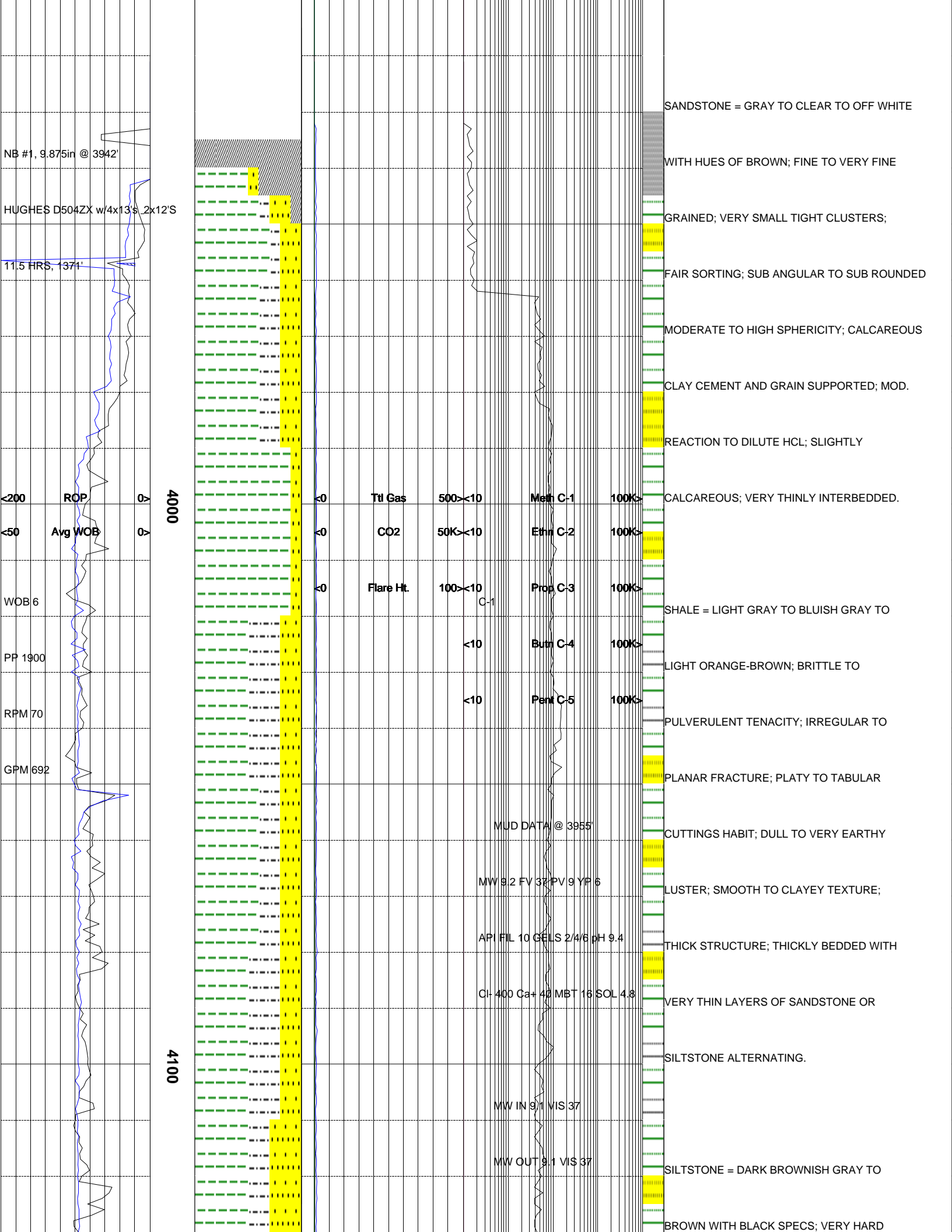
A full-page view of a blank sheet of graph paper. The grid consists of small squares formed by thin black lines. There are approximately 20 columns and 30 rows of squares. A vertical margin line is present on the left side, creating a narrow column. A horizontal margin line is present near the top, creating a short header row. The rest of the page is filled with the grid pattern.

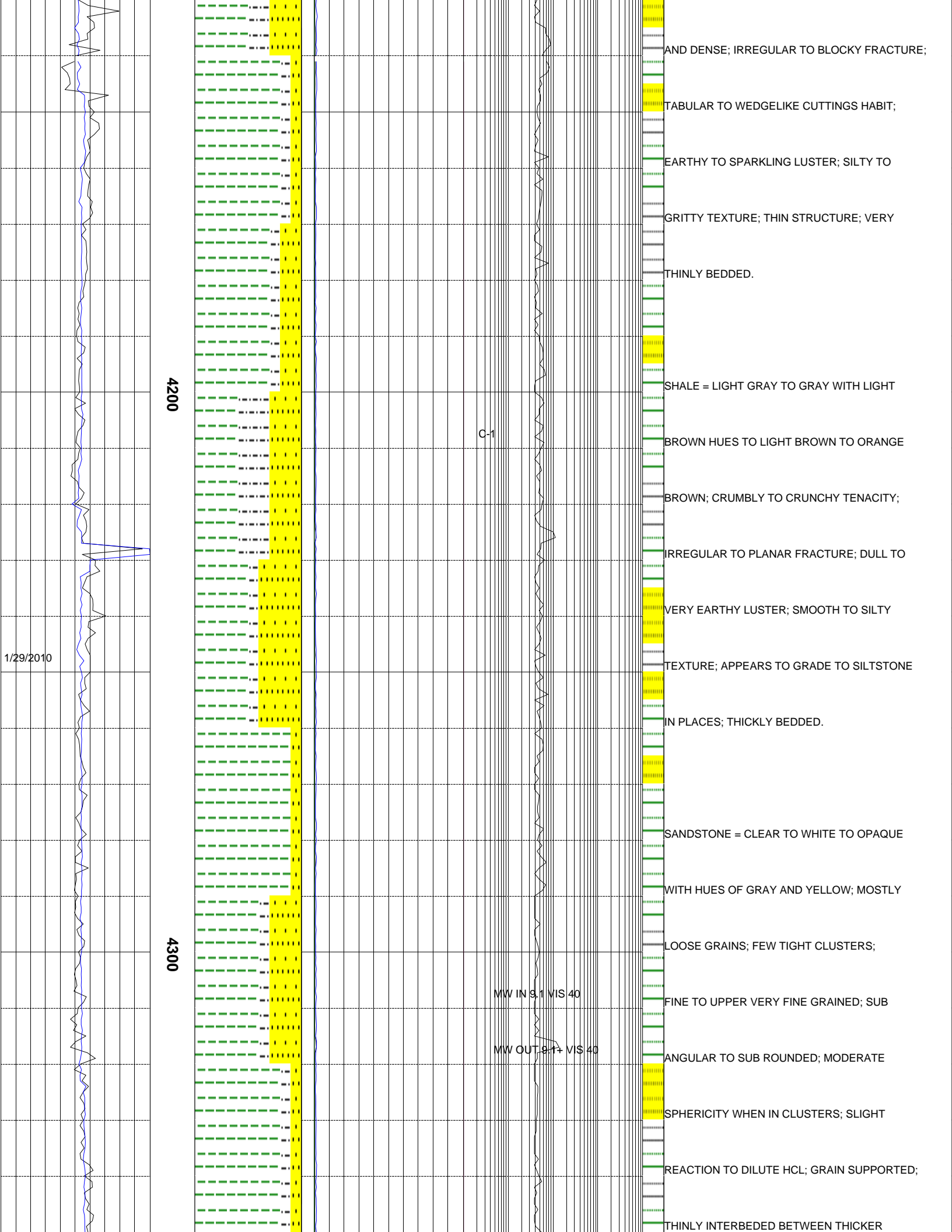
A full-page view of a blank sheet of graph paper. The grid consists of thin, light gray horizontal and vertical lines forming small squares across the entire page. There are no margins, text, or other markings on the paper.

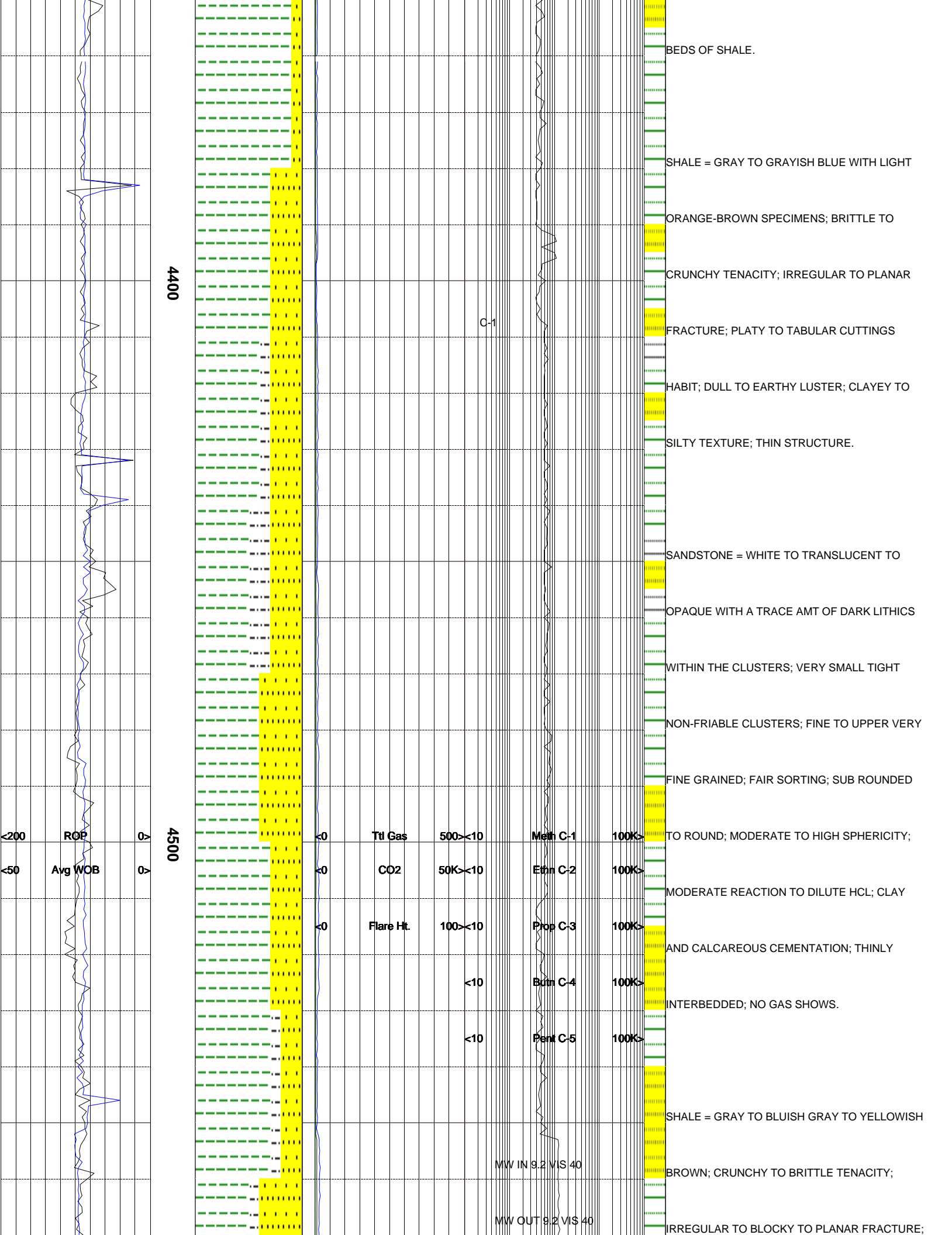
A full-page view of a blank sheet of graph paper. The grid consists of thin, light gray horizontal and vertical lines forming small squares across the entire page. There are no margins, text, or other markings on the paper.

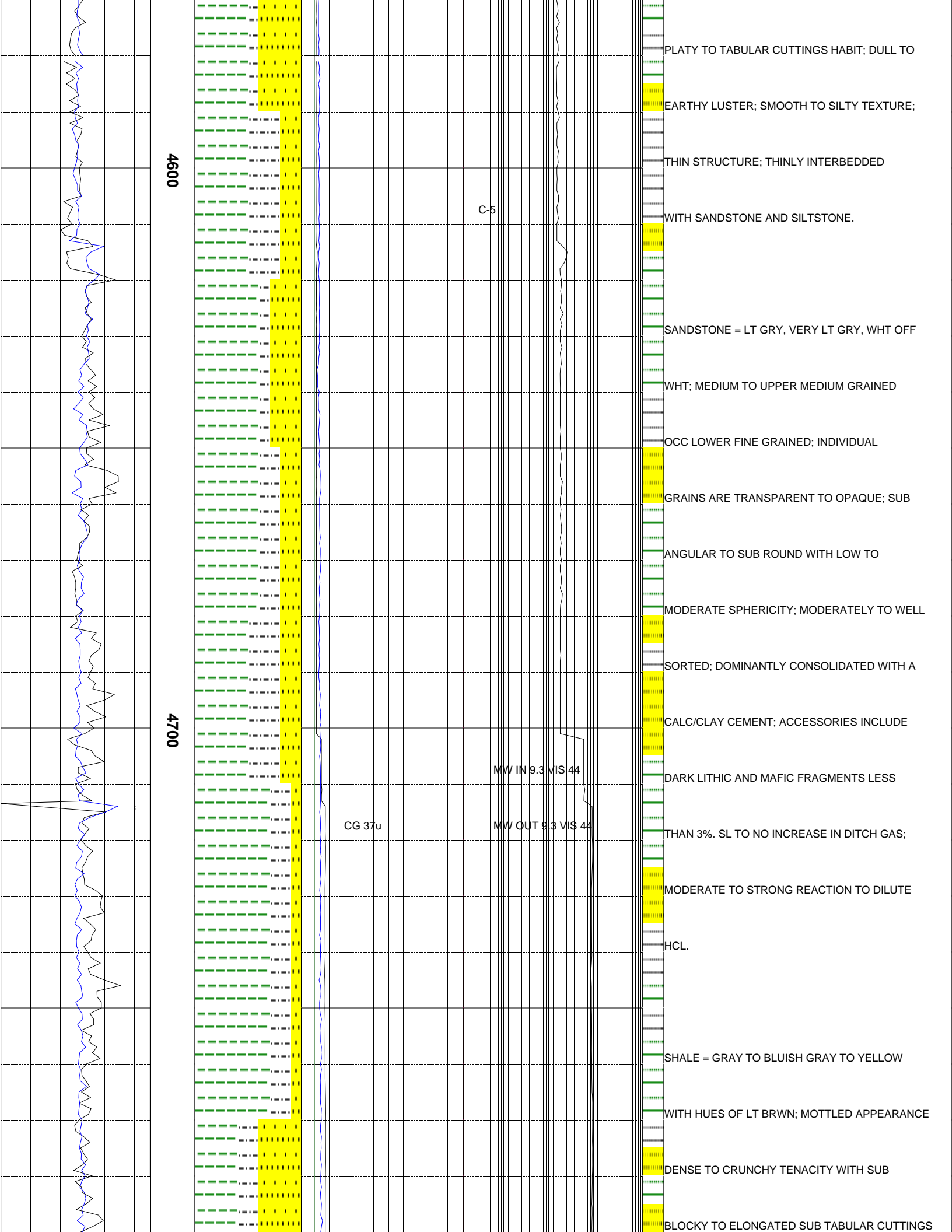
A full-page view of a blank sheet of graph paper. The grid consists of thin, light gray horizontal and vertical lines forming small squares across the entire page. There are no margins, text, or other markings on the paper.

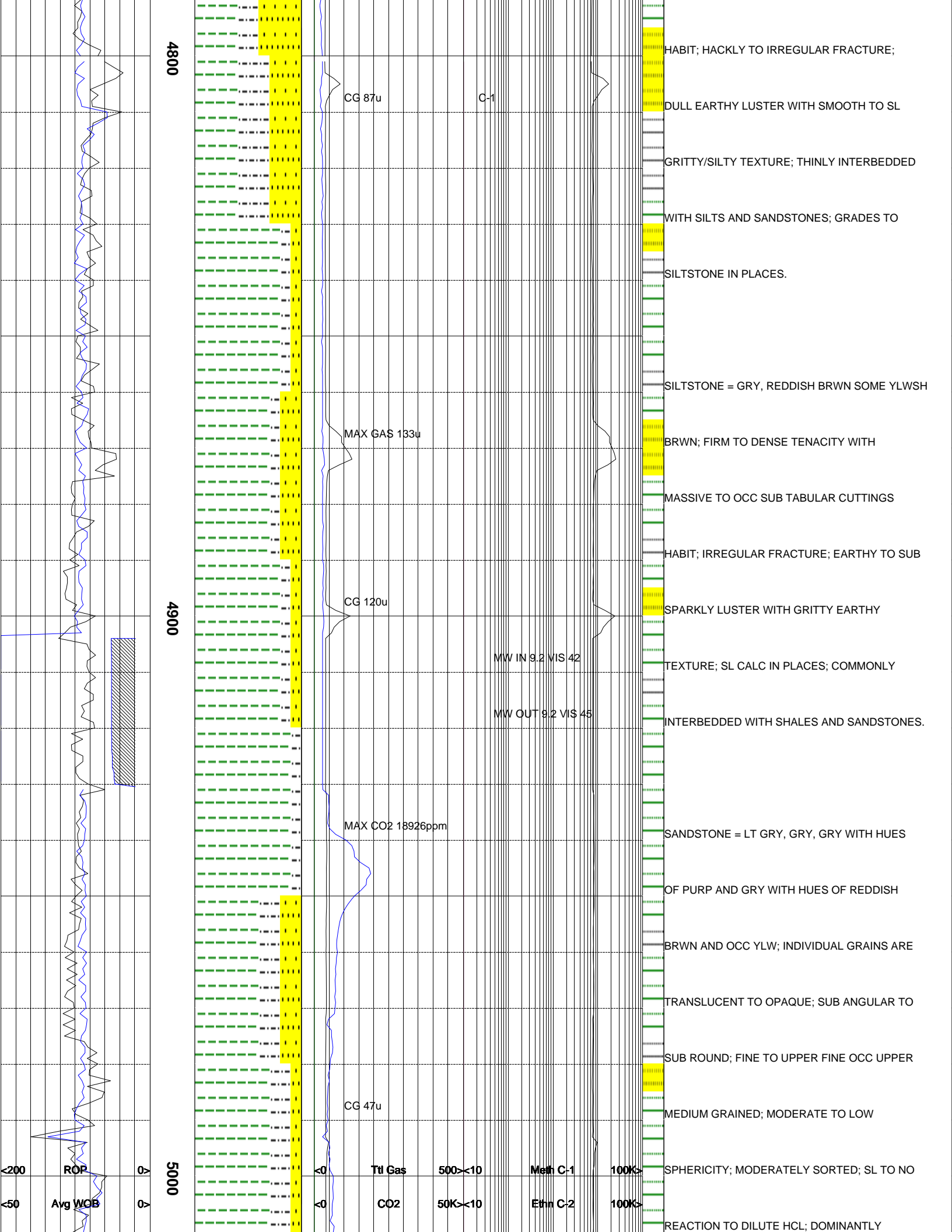
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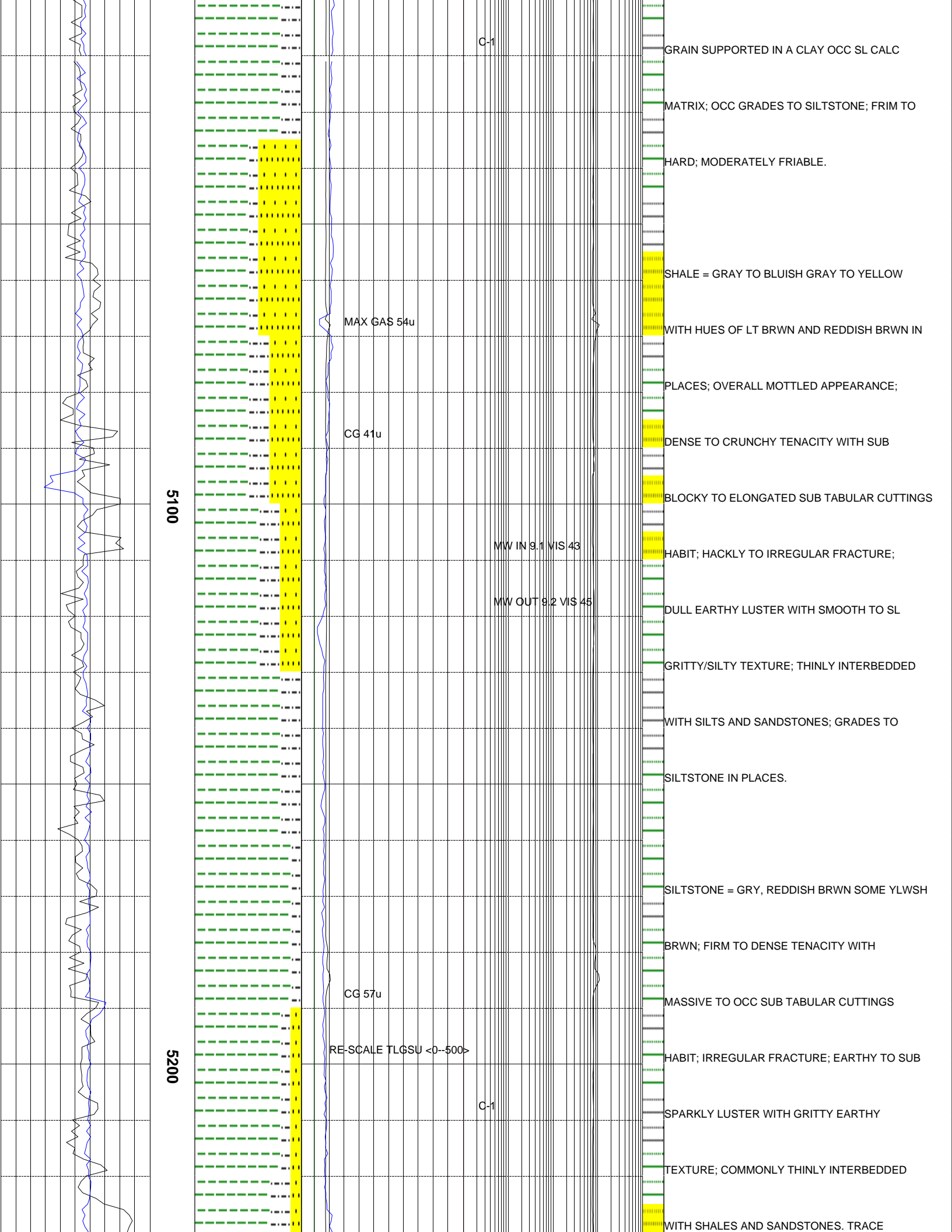


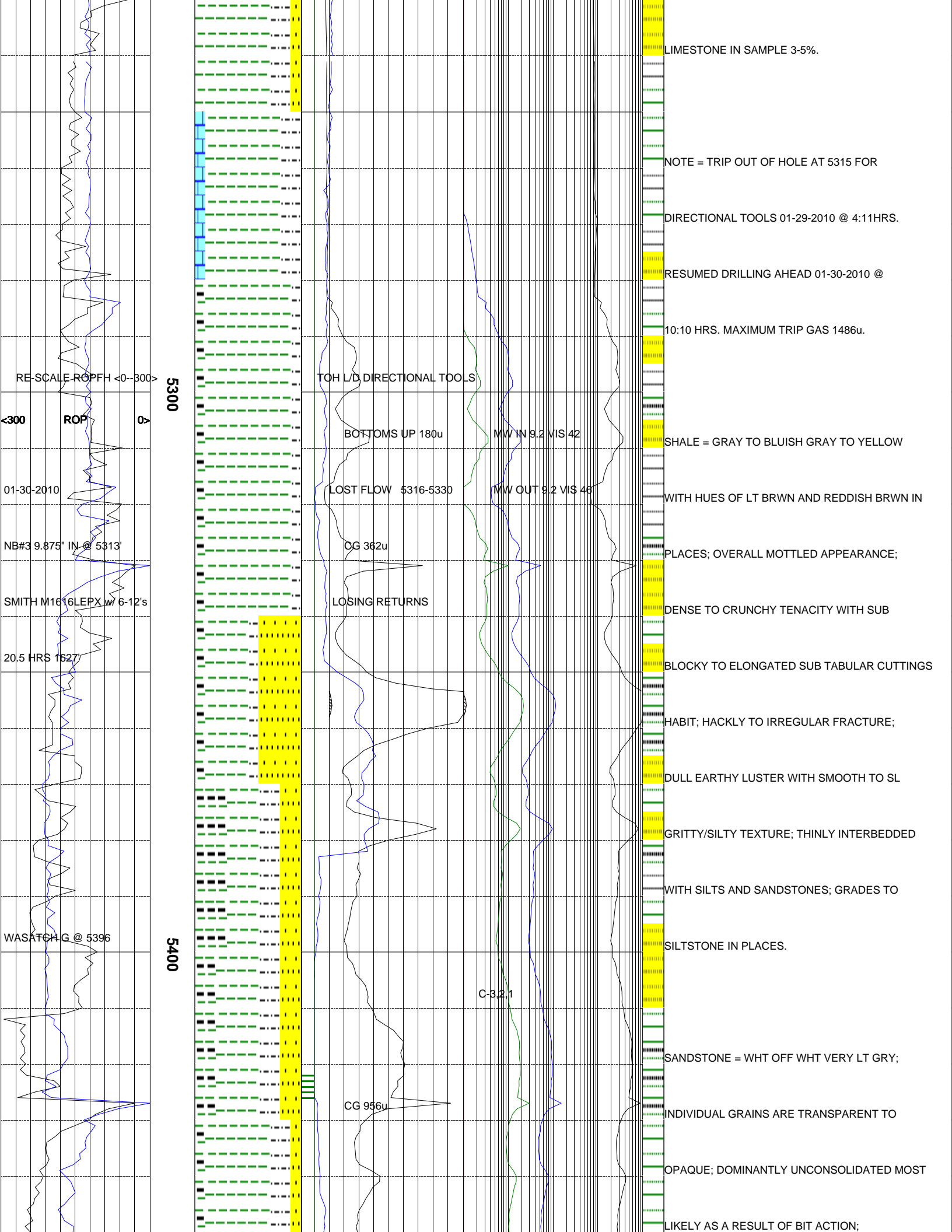


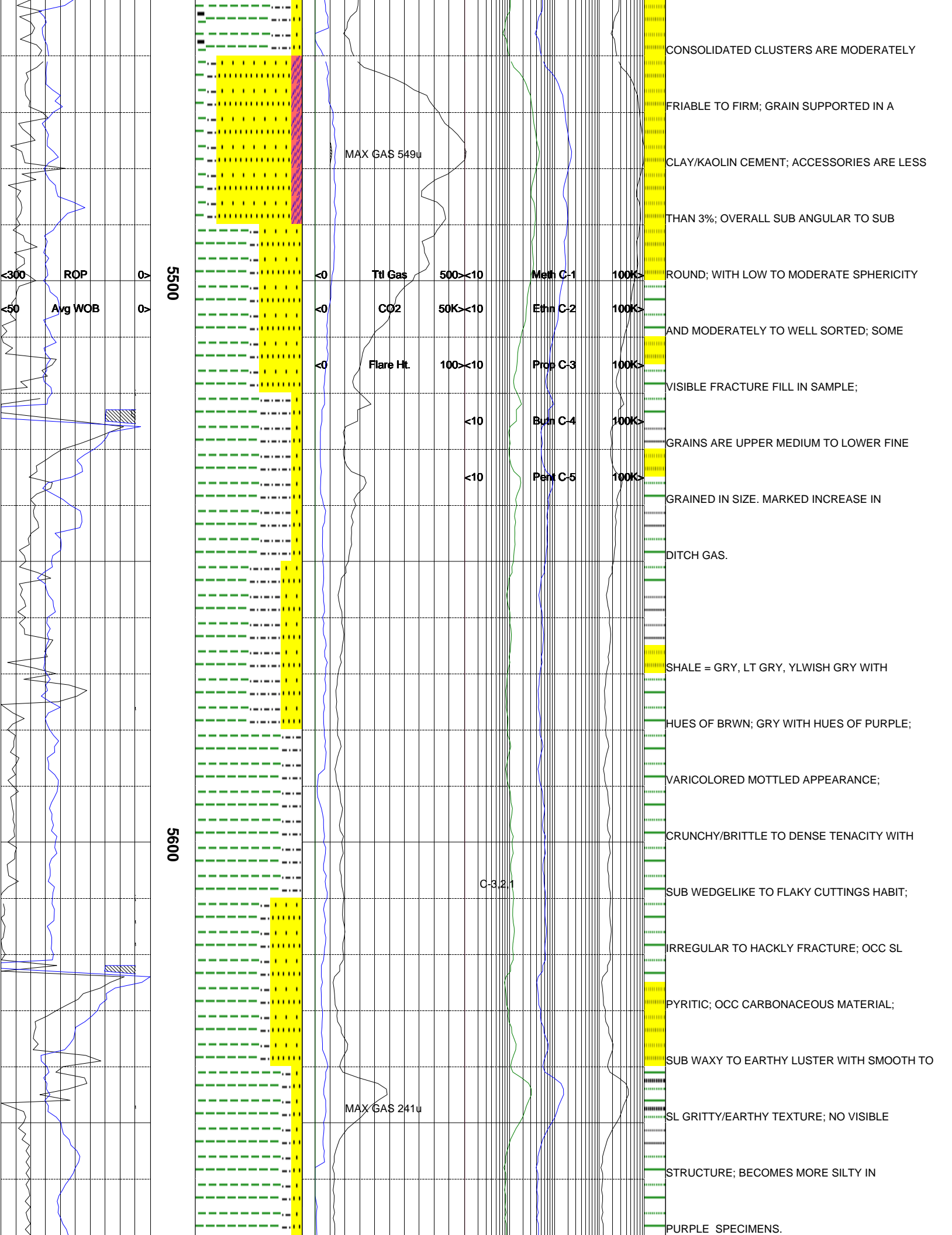


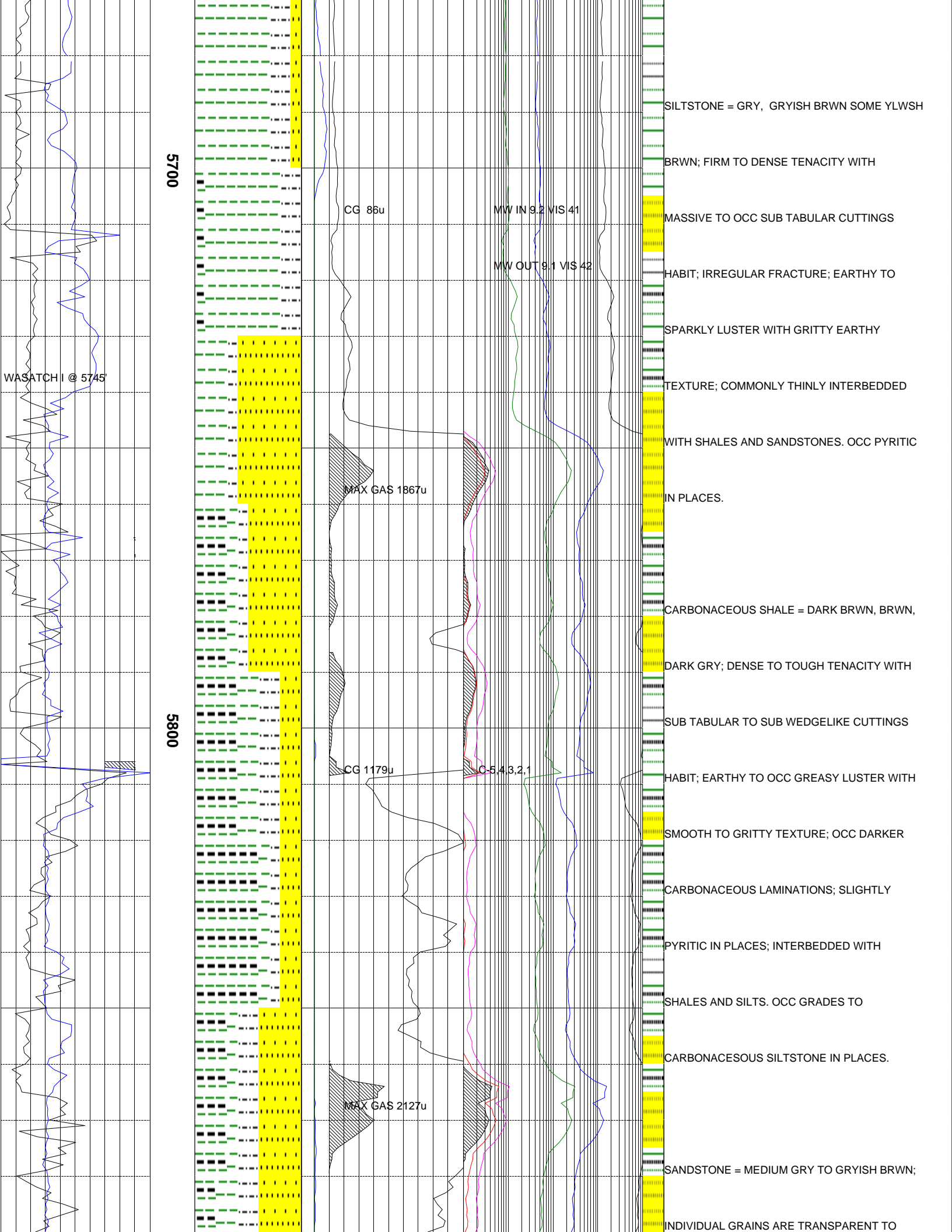


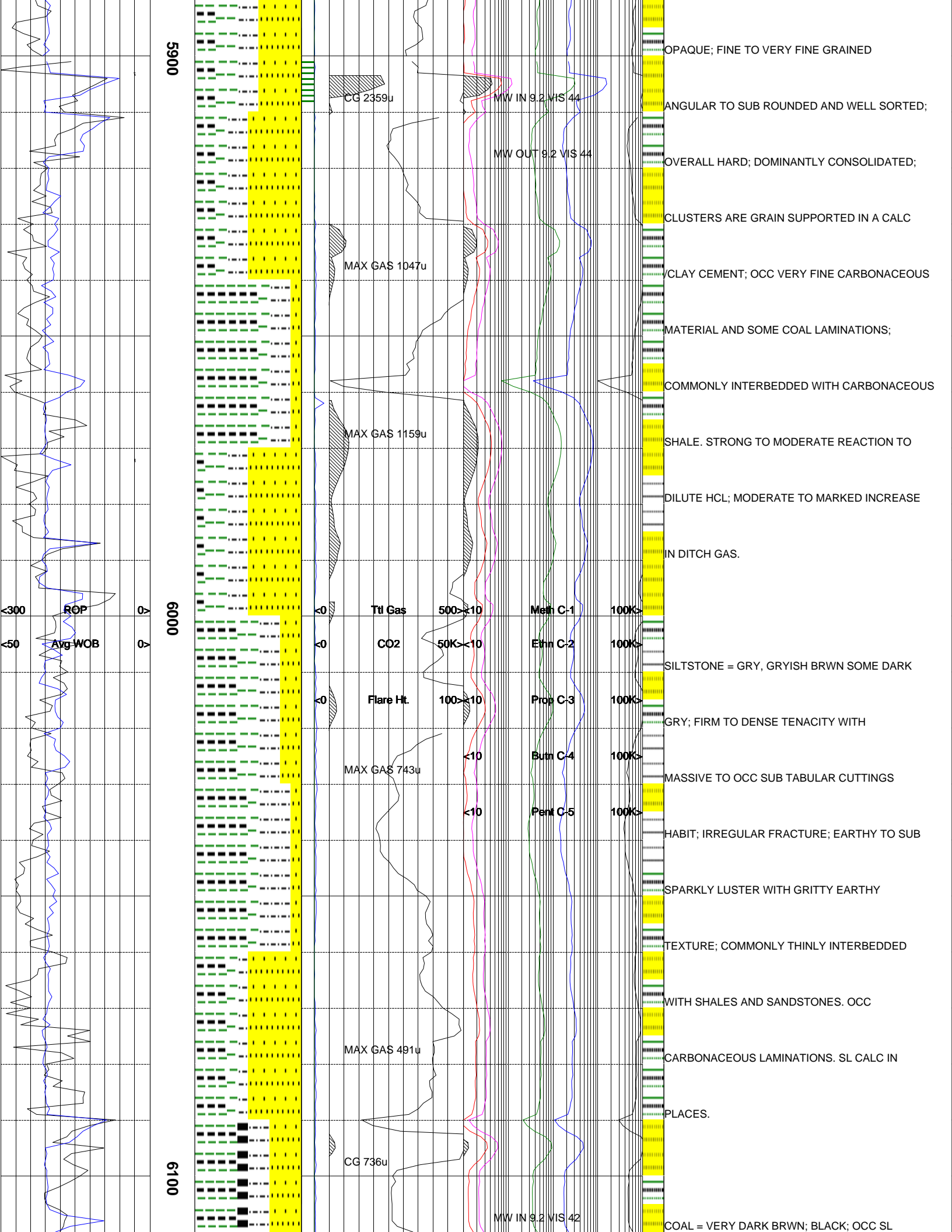


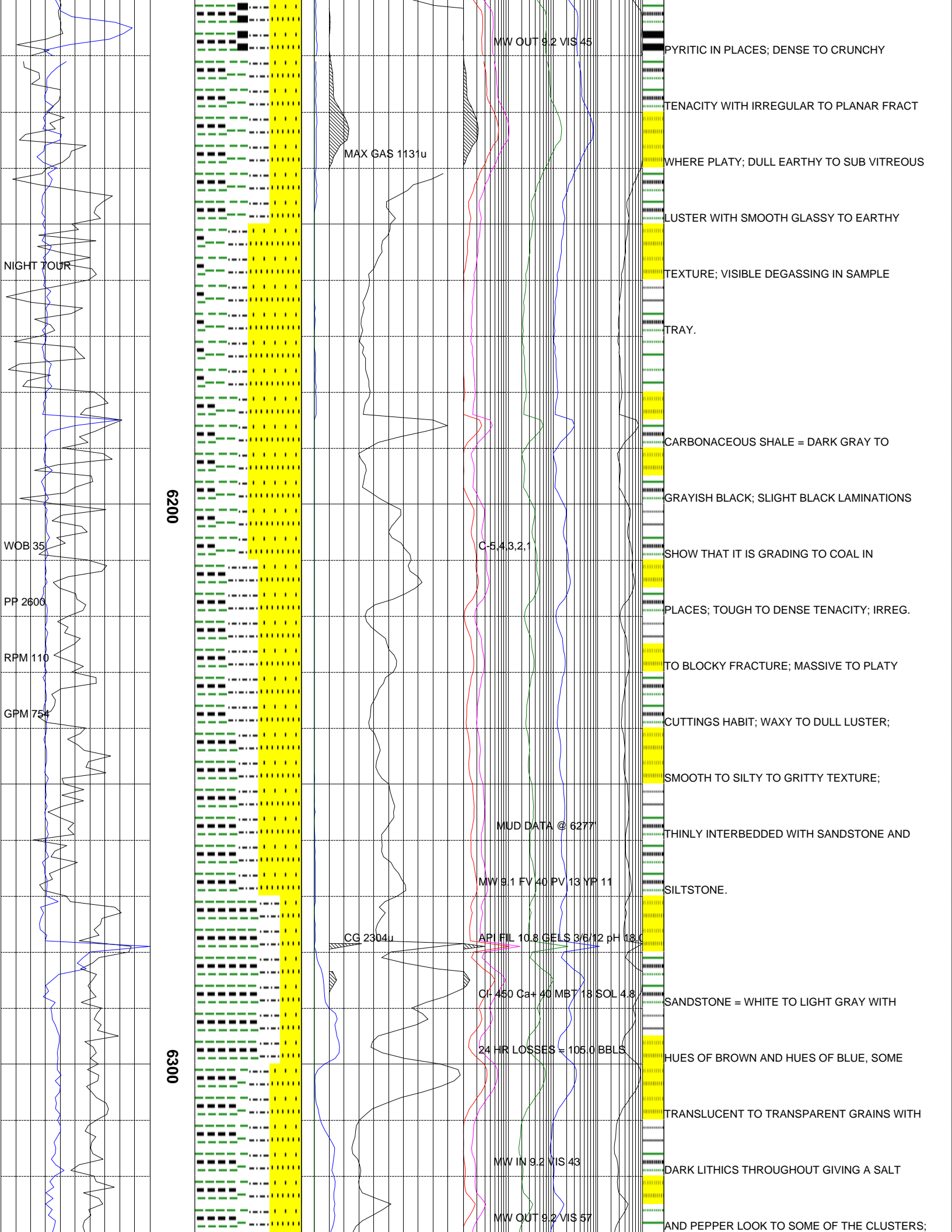


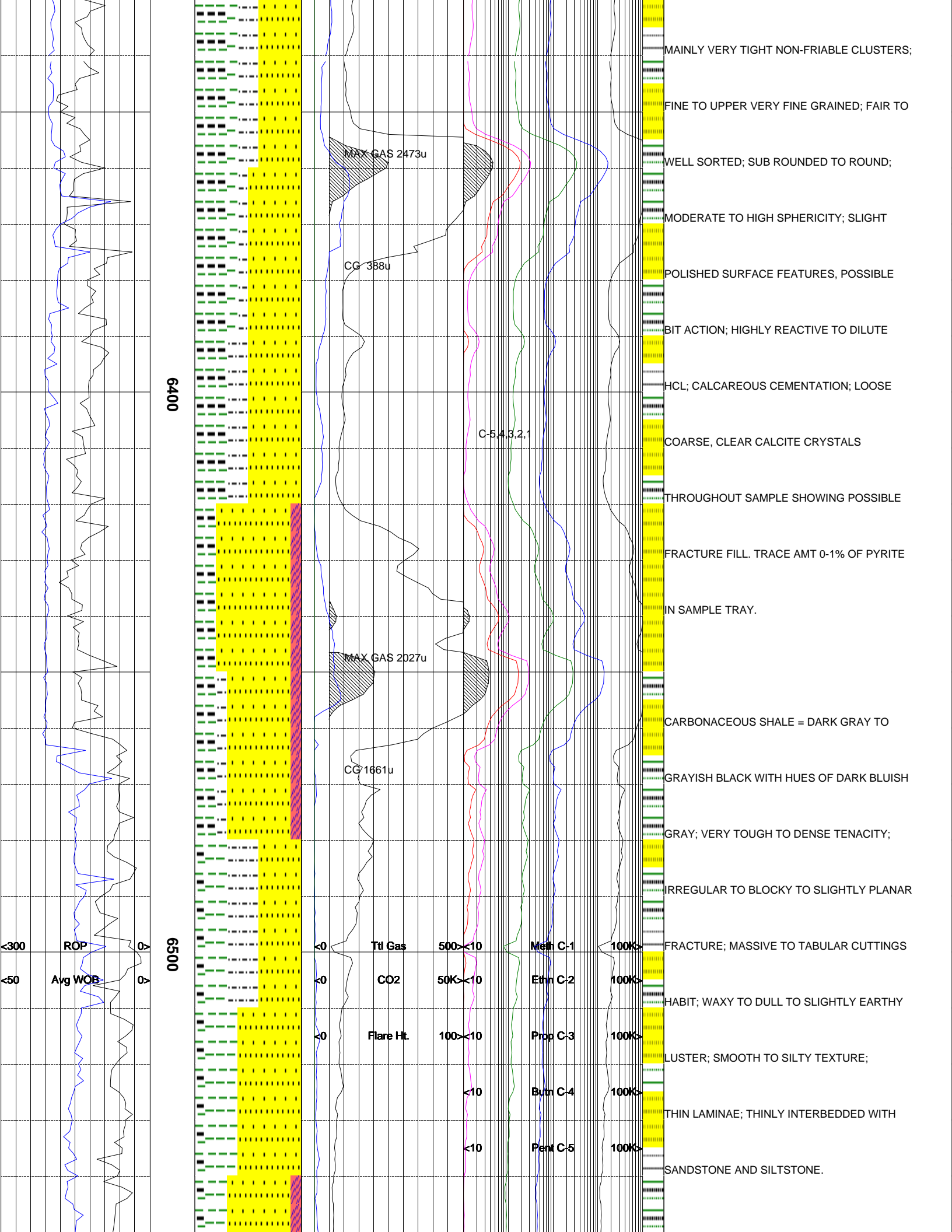


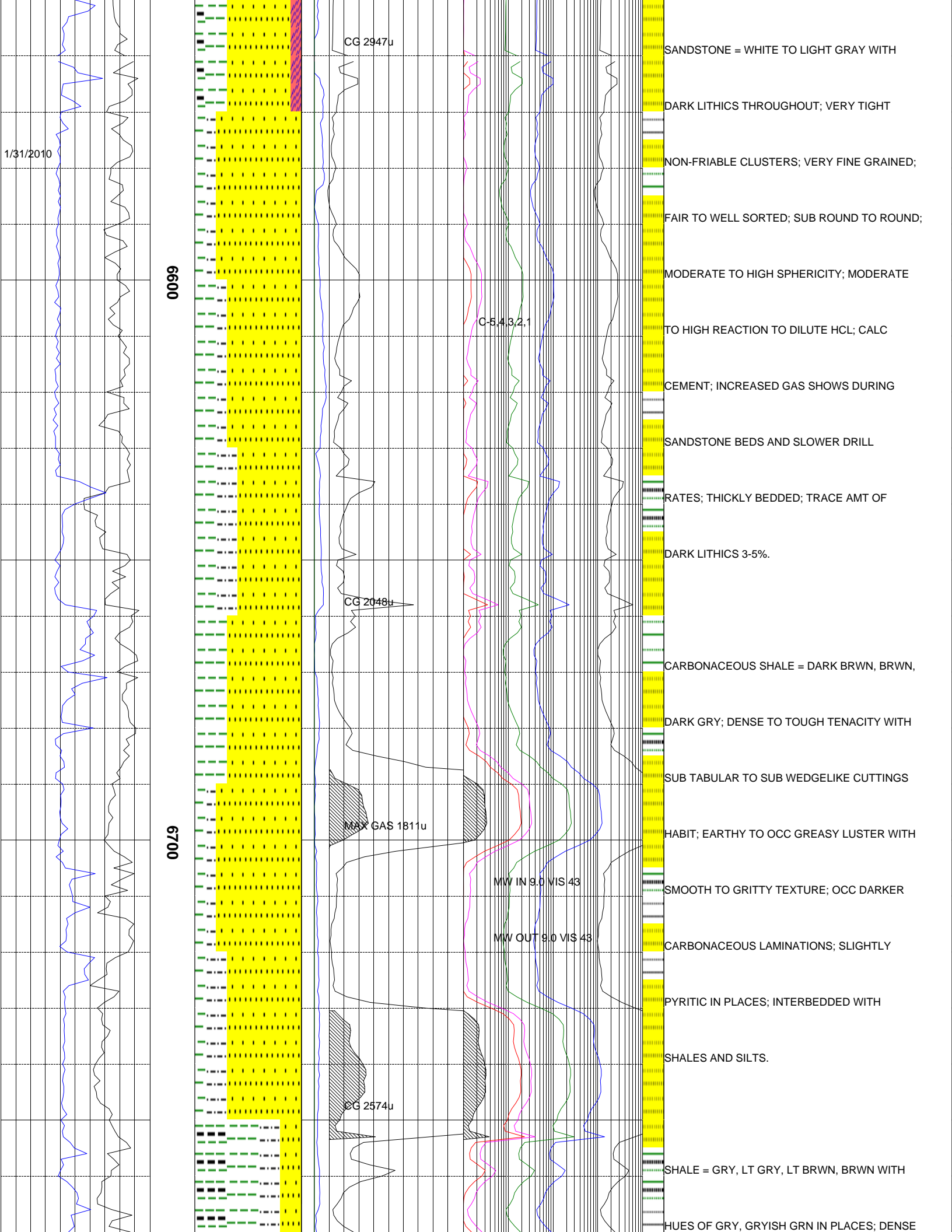


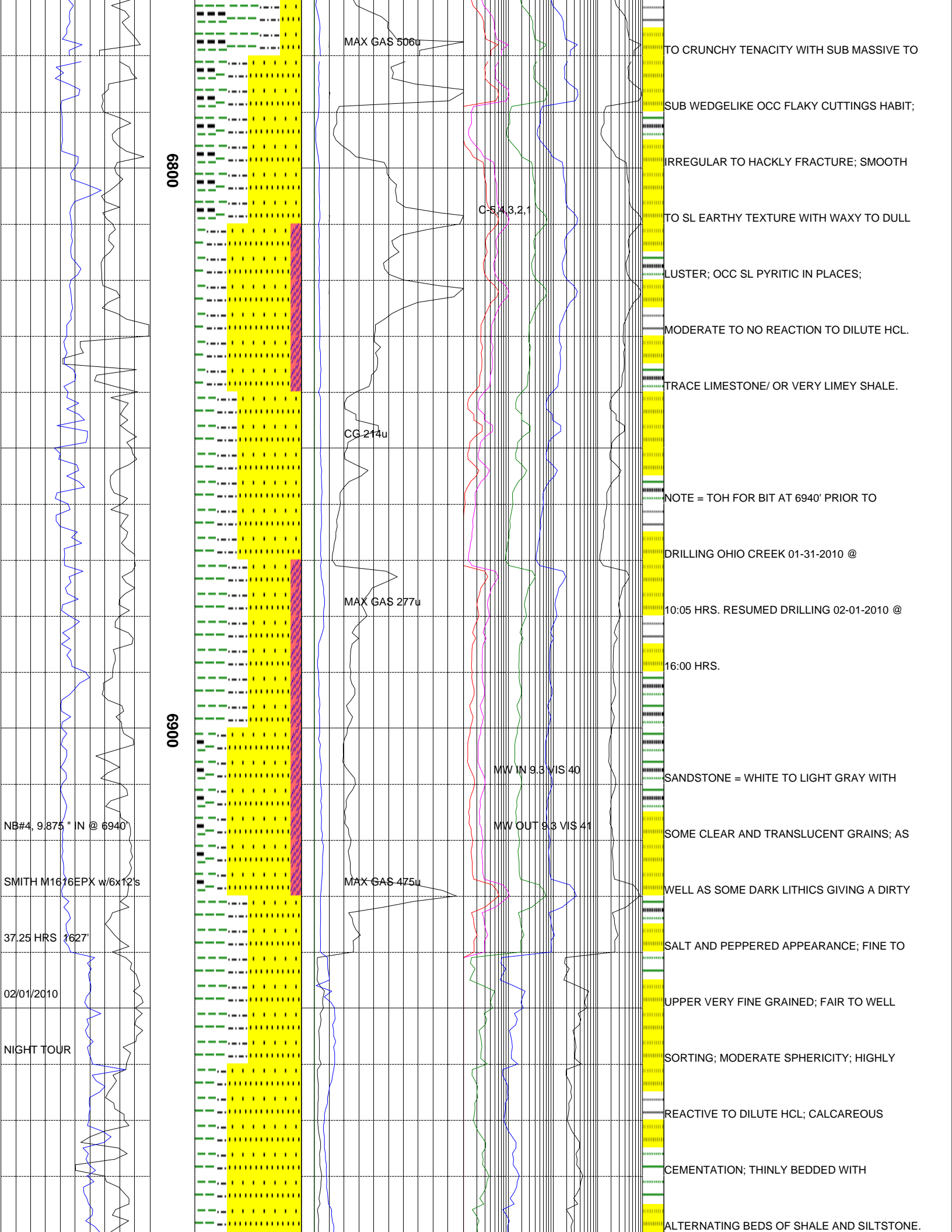












0089

0069

MAX GAS 506u

C-543.2.1

CG-214u

MAX GAS 277u

MW IN 9.3 VIS 40

MW OUT 9.3 VIS 41

MAX GAS 475u

NB#4, 9.875" IN @ 6940'

SMITH M1616EPX w/6x12's

37.25 HRS 1627'

02/01/2010

NIGHT TOUR

TO CRUNCHY TENACITY WITH SUB MASSIVE TO

SUB WEDGELIKE OCC FLAKY CUTTINGS HABIT;

IRREGULAR TO HACKLY FRACTURE; SMOOTH

TO SL EARTHY TEXTURE WITH WAXY TO DULL

CLUSTER; OCC SL PYRITIC IN PLACES;

MODERATE TO NO REACTION TO DILUTE HCL.

TRACE LIMESTONE/ OR VERY LIMEY SHALE.

NOTE = TOH FOR BIT AT 6940' PRIOR TO

DRILLING OHIO CREEK 01-31-2010 @

10:05 HRS. RESUMED DRILLING 02-01-2010 @

16:00 HRS.

SANDSTONE = WHITE TO LIGHT GRAY WITH

SOME CLEAR AND TRANSLUCENT GRAINS; AS

WELL AS SOME DARK LITHICS GIVING A DIRTY

SALT AND PEPPERED APPEARANCE; FINE TO

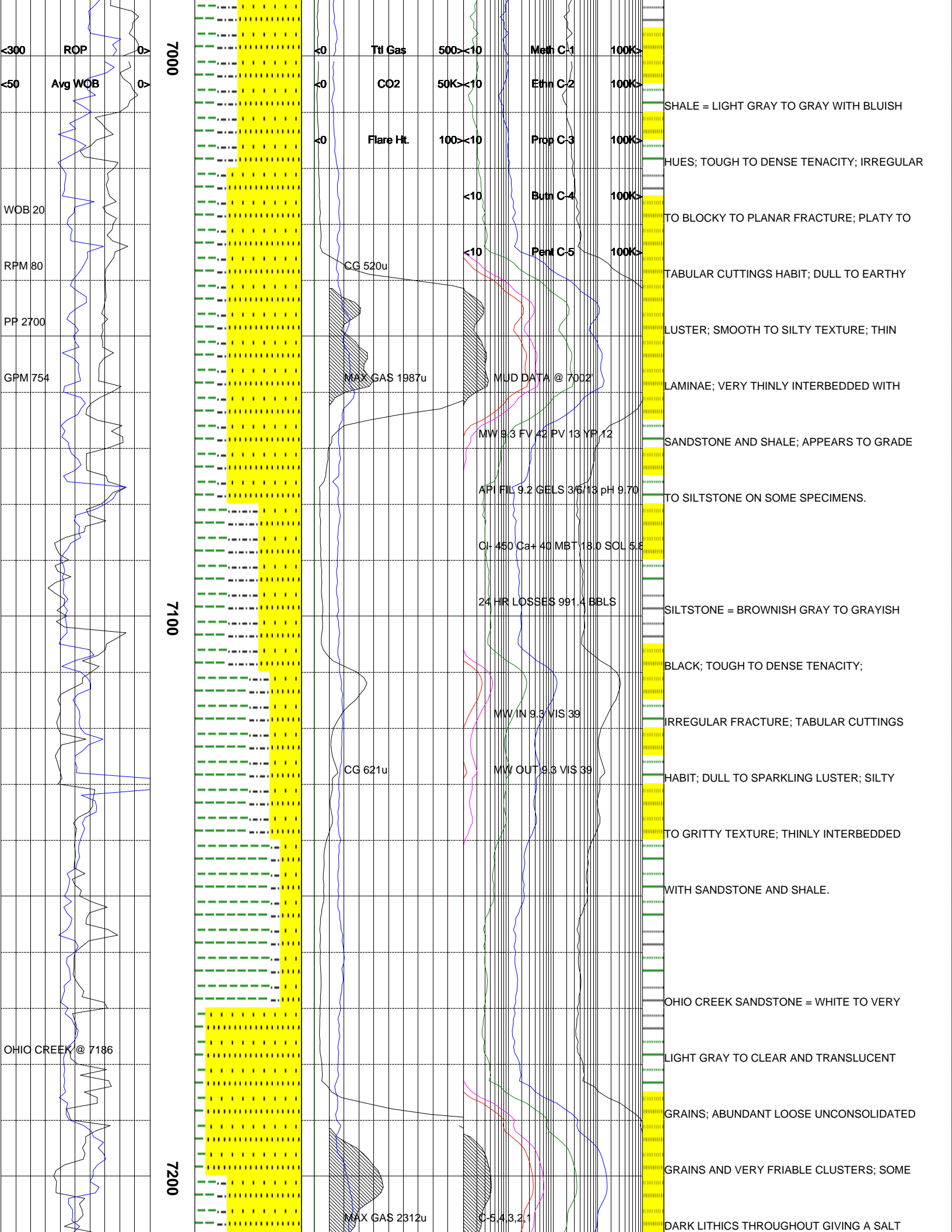
UPPER VERY FINE GRAINED; FAIR TO WELL

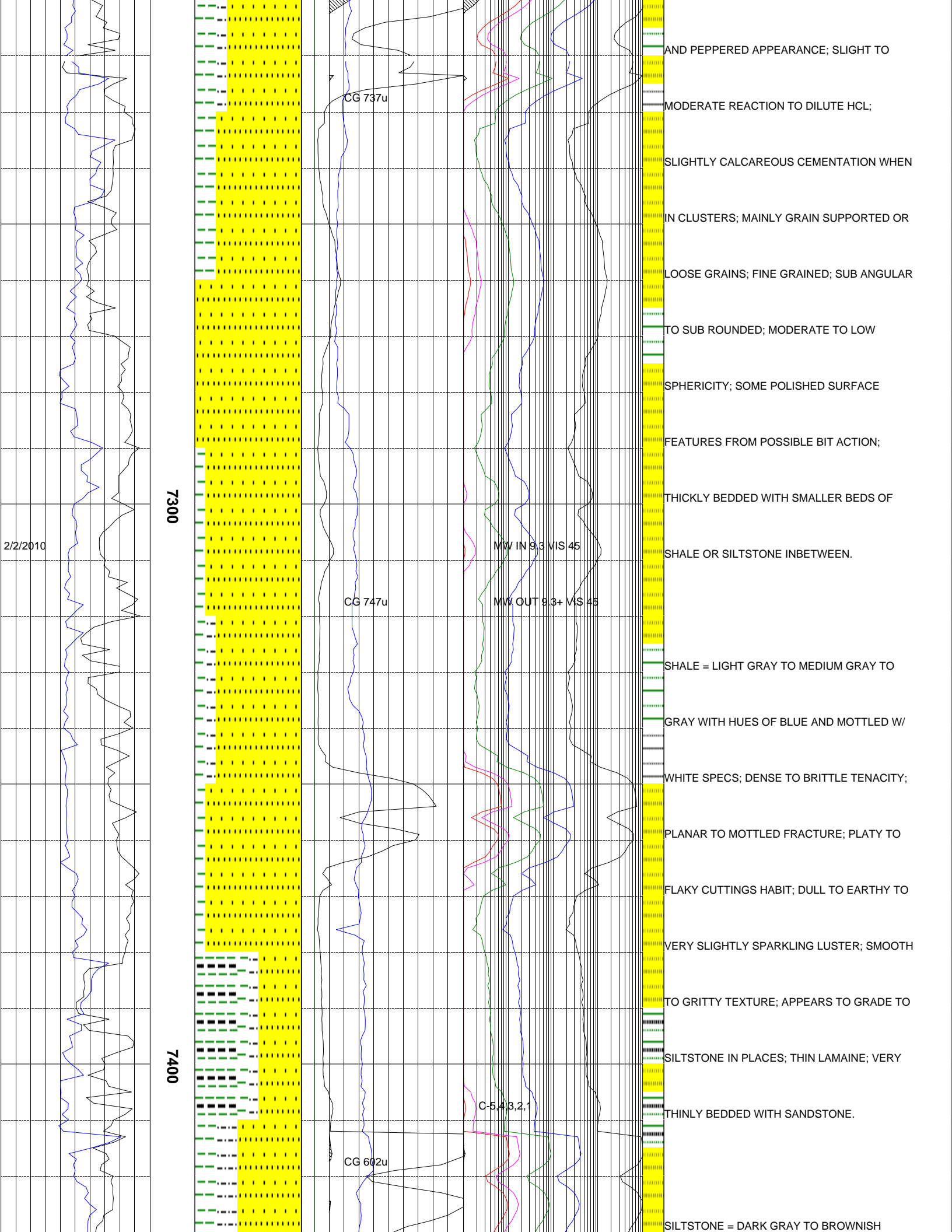
SORTING; MODERATE SPHERICITY; HIGHLY

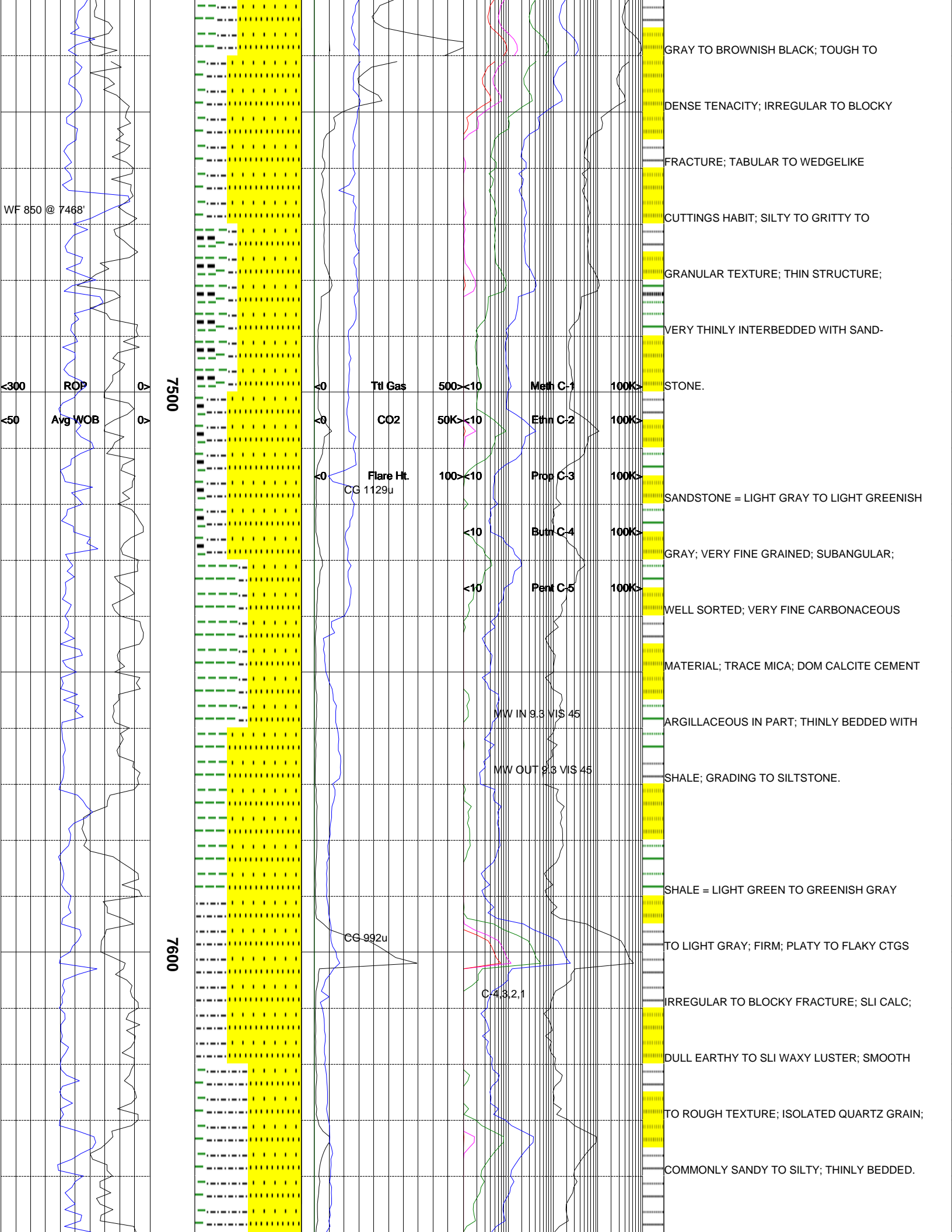
REACTIVE TO DILUTE HCL; CALCAREOUS

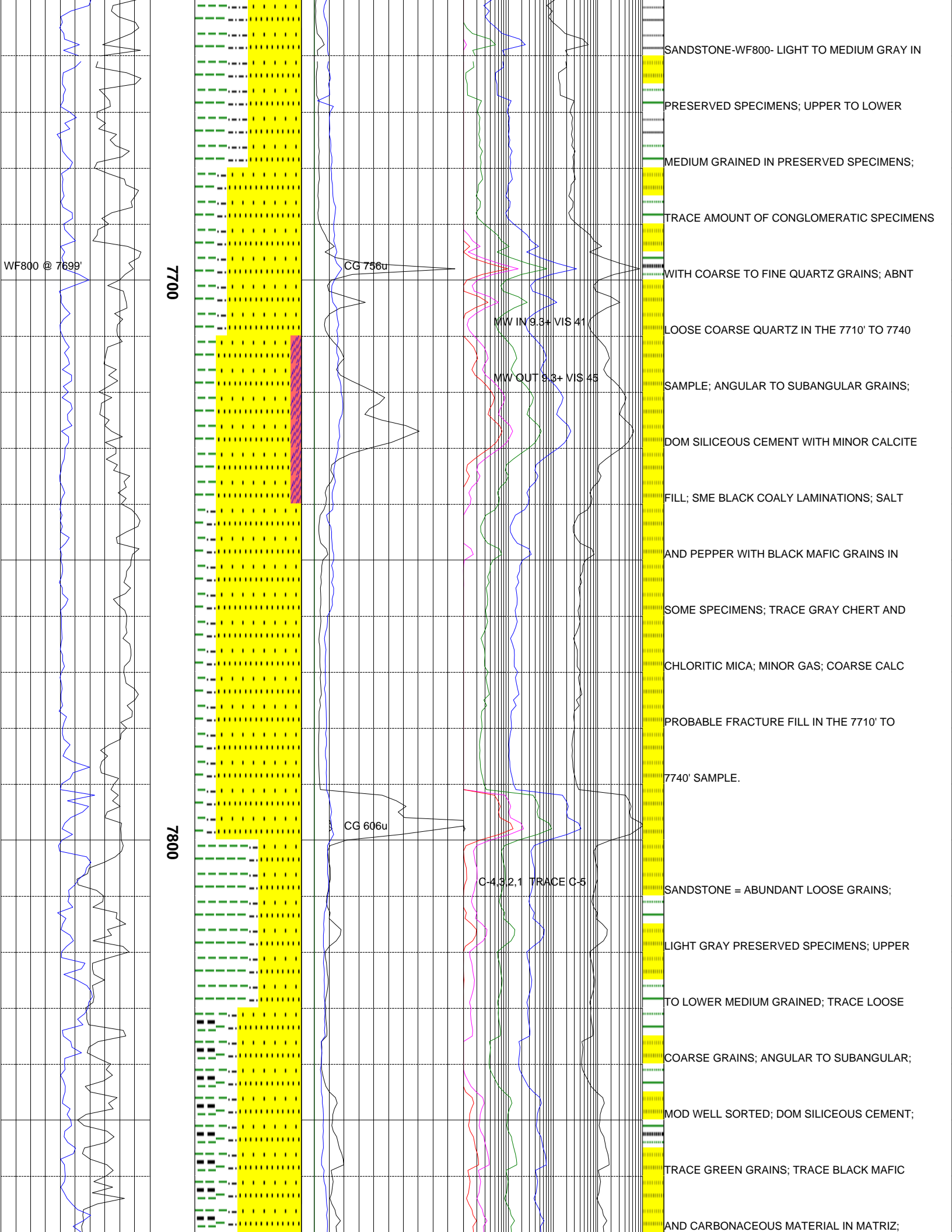
CEMENTATION; THINLY BEDDED WITH

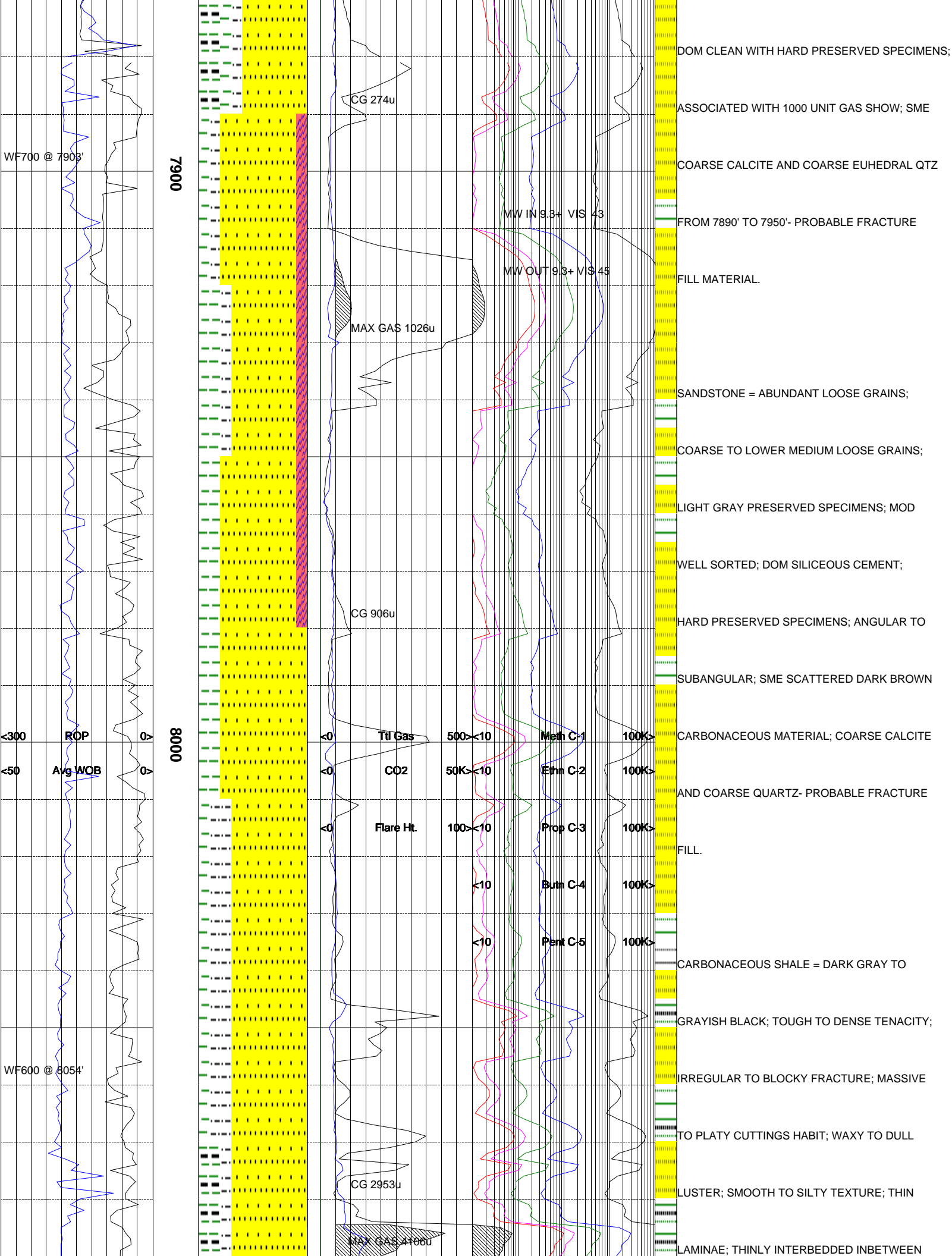
ALTERNATING BEDS OF SHALE AND SILTSTONE.

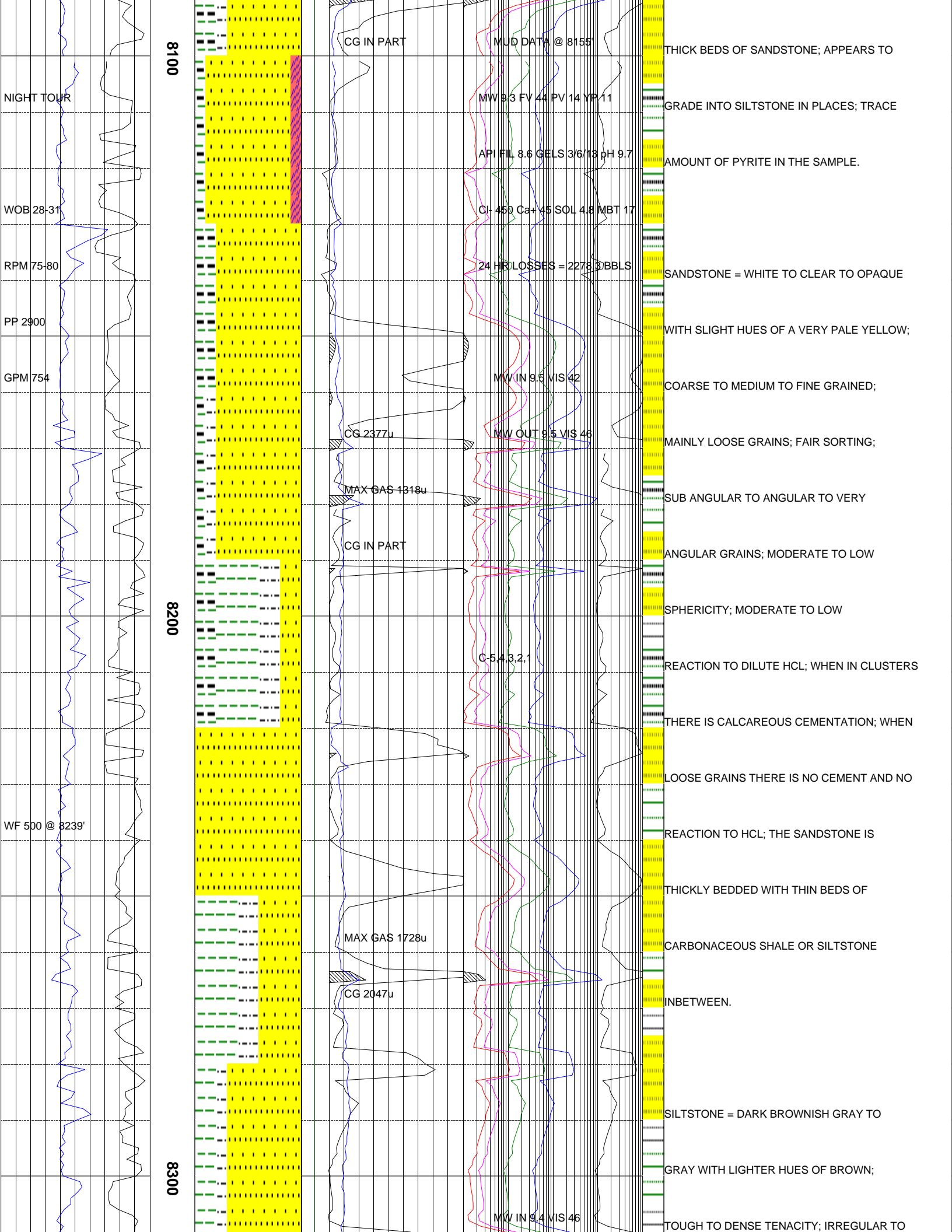


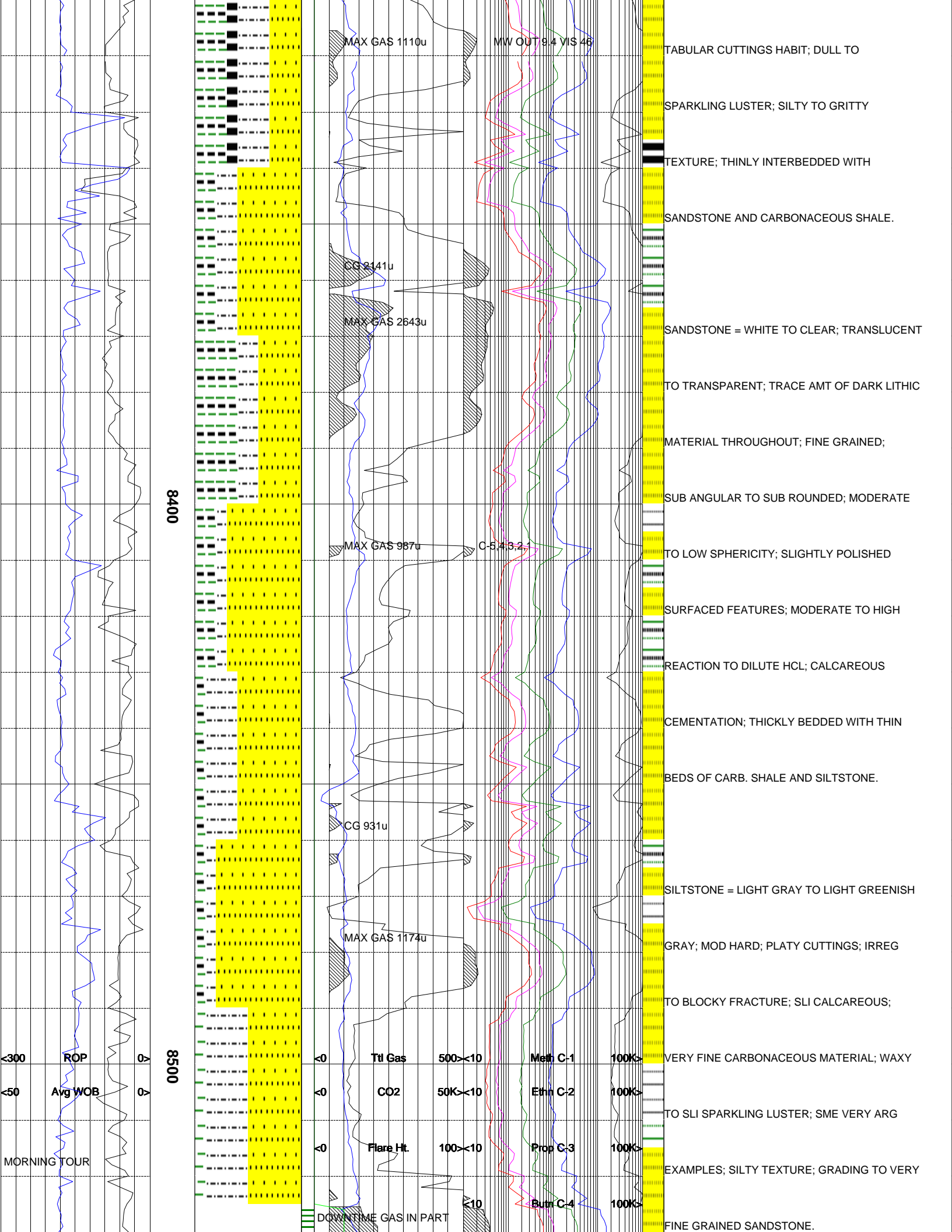


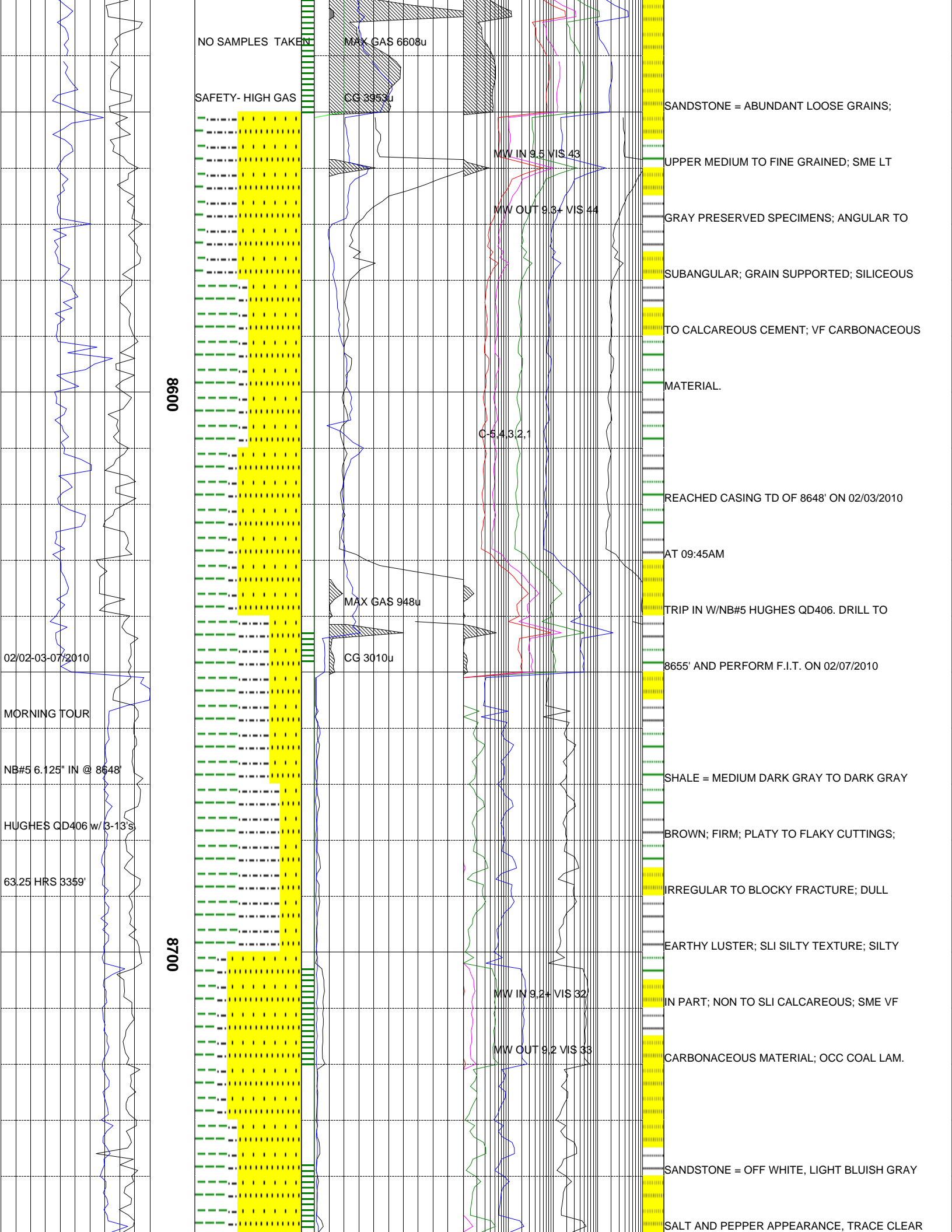


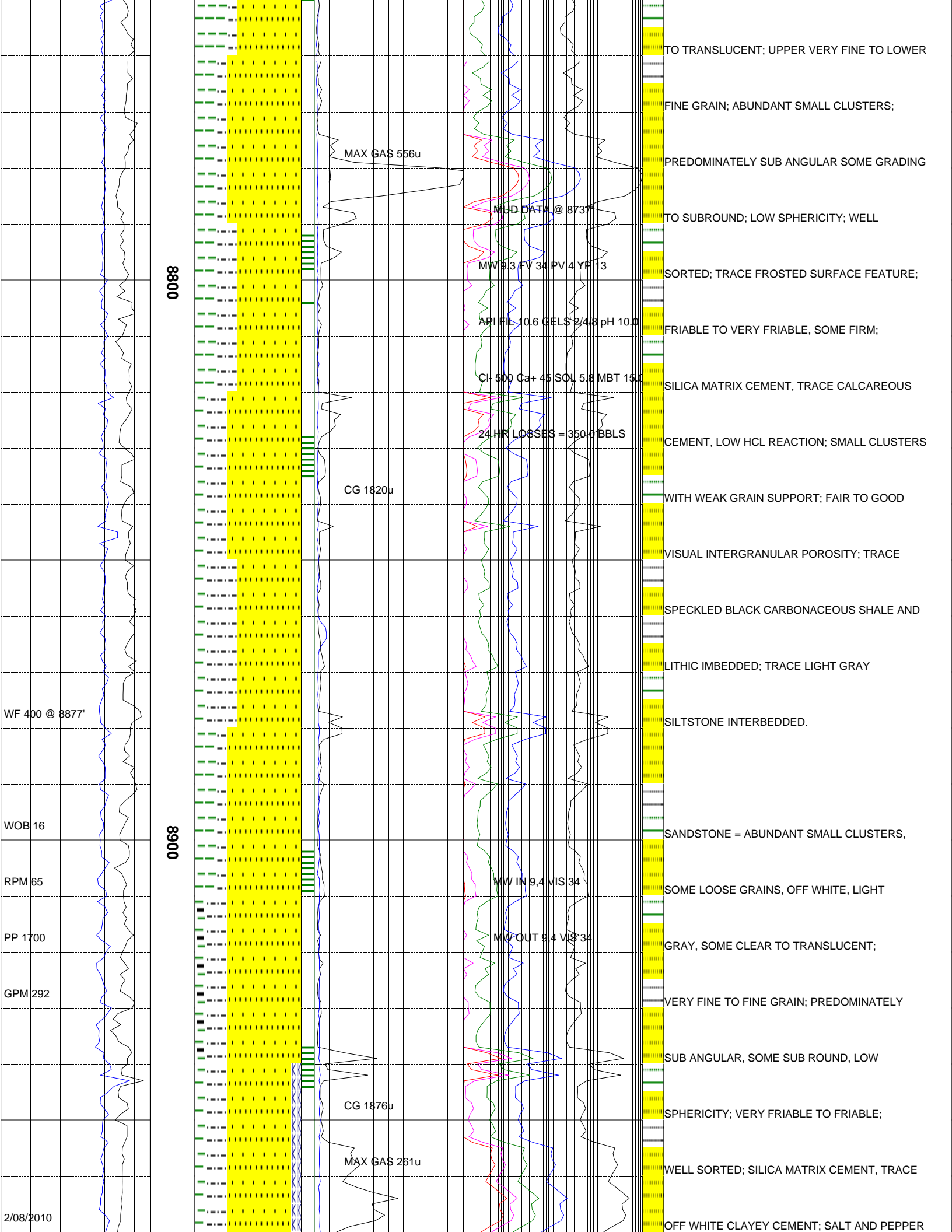


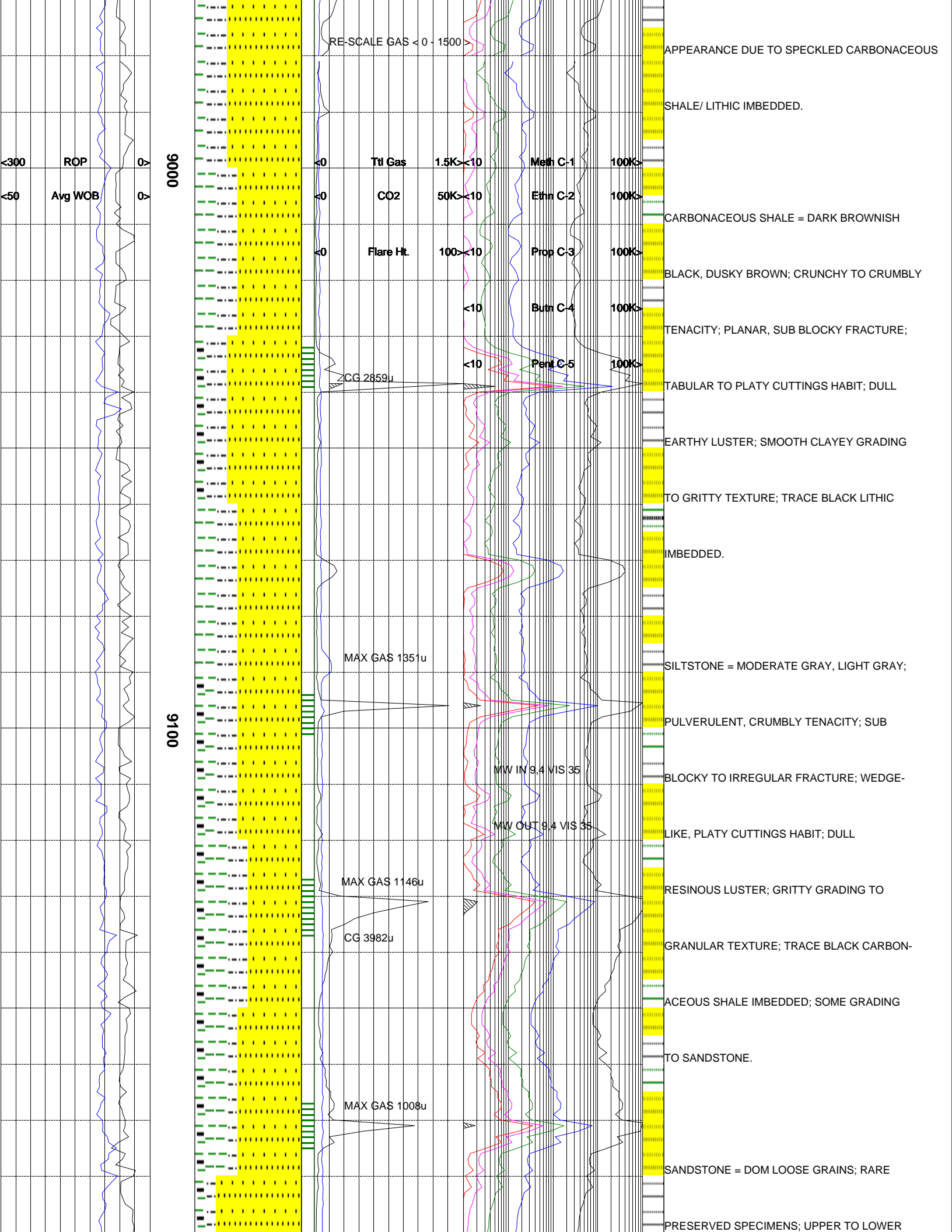


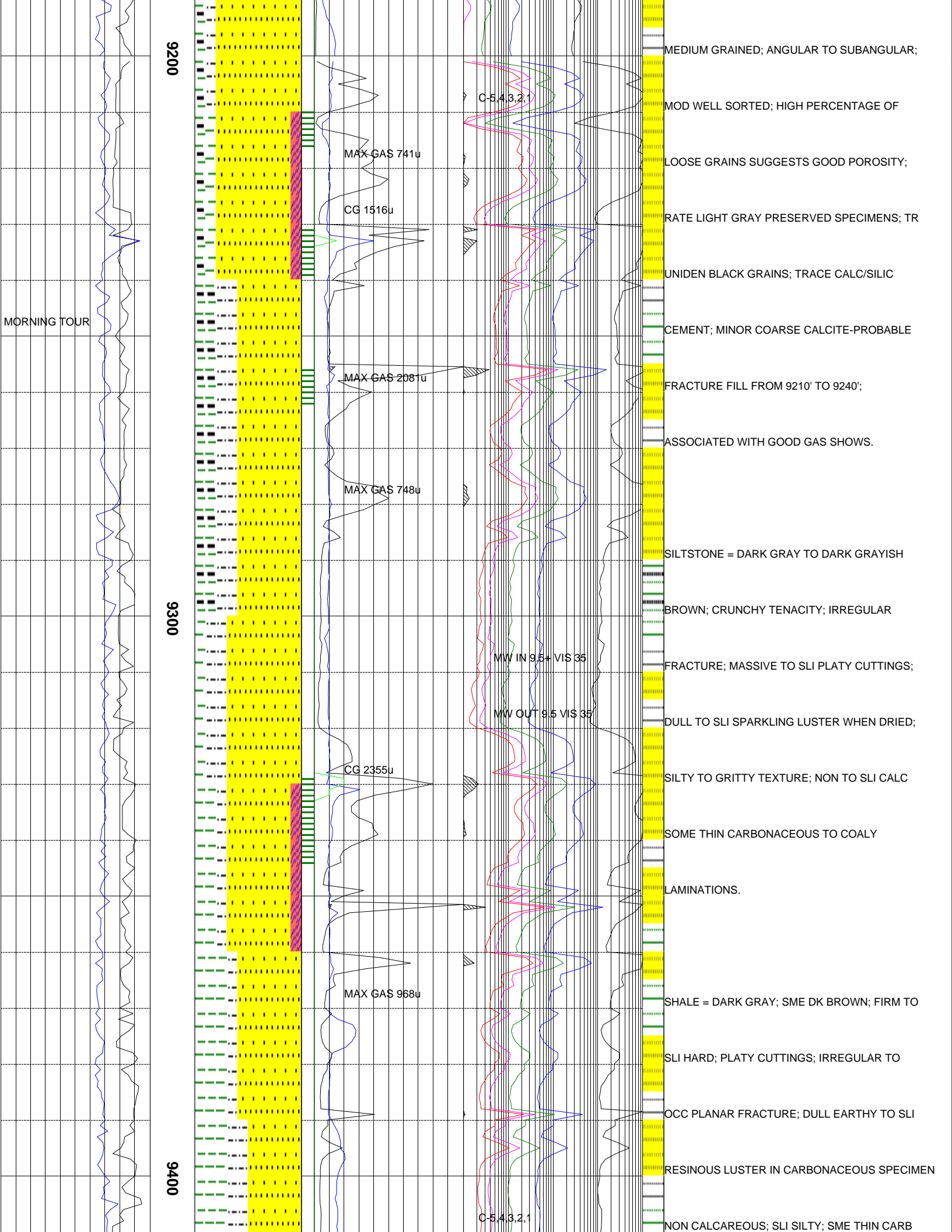












9200

9300

9400

MORNING TOUR

MAX GAS 741u

CG 1516u

MAX GAS 2081u

MAX GAS 748u

CG 2355u

MAX GAS 968u

C-5.4.3.2.1

MW IN 9.5+ VIS 35

MW OUT 9.5 VIS 35

C-5.4.3.2.1

MEDIUM GRAINED; ANGULAR TO SUBANGULAR;

MOD WELL SORTED; HIGH PERCENTAGE OF

LOOSE GRAINS SUGGESTS GOOD POROSITY;

RATE LIGHT GRAY PRESERVED SPECIMENS; TR

UNIDEN BLACK GRAINS; TRACE CALC/SILIC

CEMENT; MINOR COARSE CALCITE-PROBABLE

FRACTURE FILL FROM 9210' TO 9240';

ASSOCIATED WITH GOOD GAS SHOWS.

SILTSTONE = DARK GRAY TO DARK GRAYISH

BROWN; CRUNCHY TENACITY; IRREGULAR

FRACTURE; MASSIVE TO SLI PLATY CUTTINGS;

DULL TO SLI SPARKLING LUSTER WHEN DRIED;

SILTY TO GRITTY TEXTURE; NON TO SLI CALC

SOME THIN CARBONACEOUS TO COALY

LAMINATIONS.

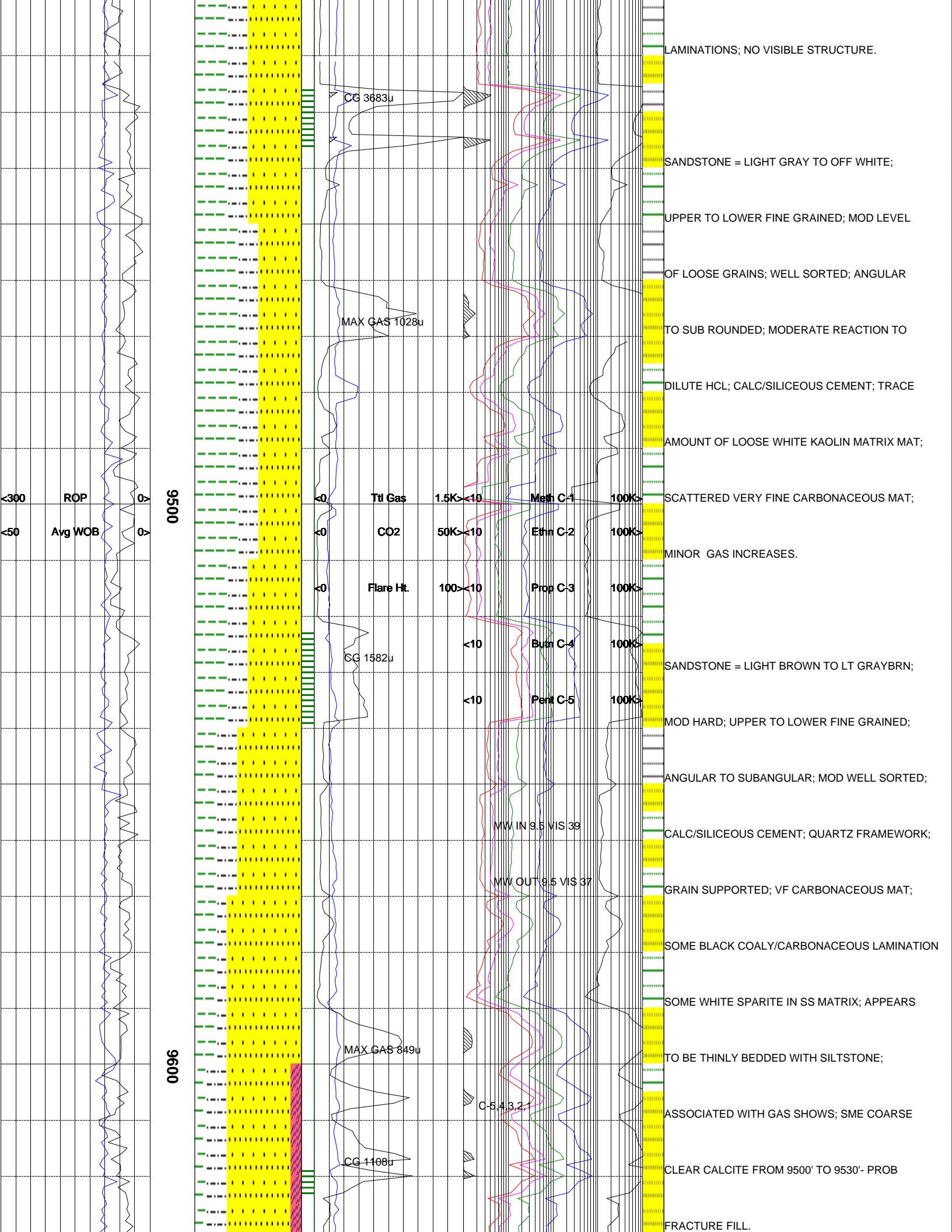
SHALE = DARK GRAY; SME DK BROWN; FIRM TO

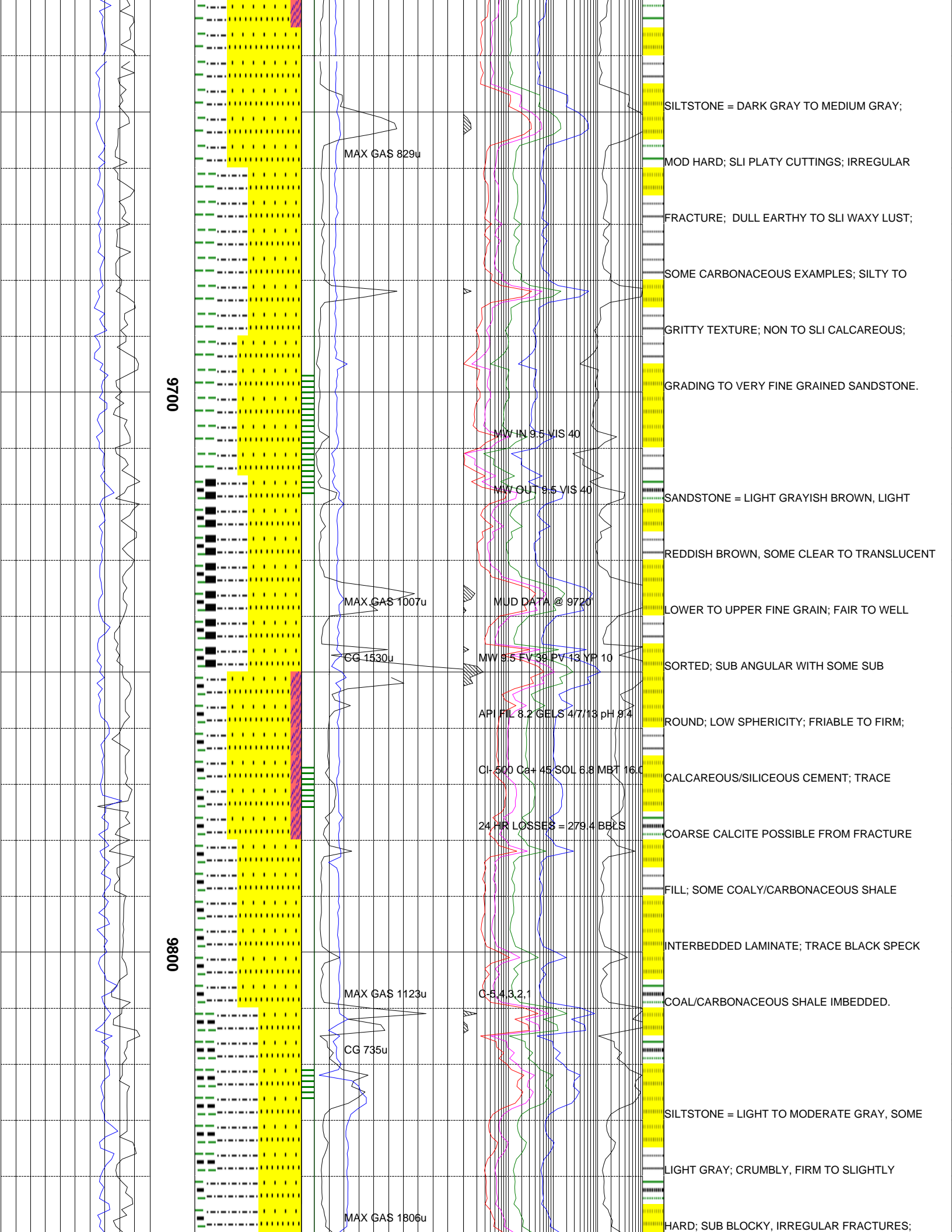
SLI HARD; PLATY CUTTINGS; IRREGULAR TO

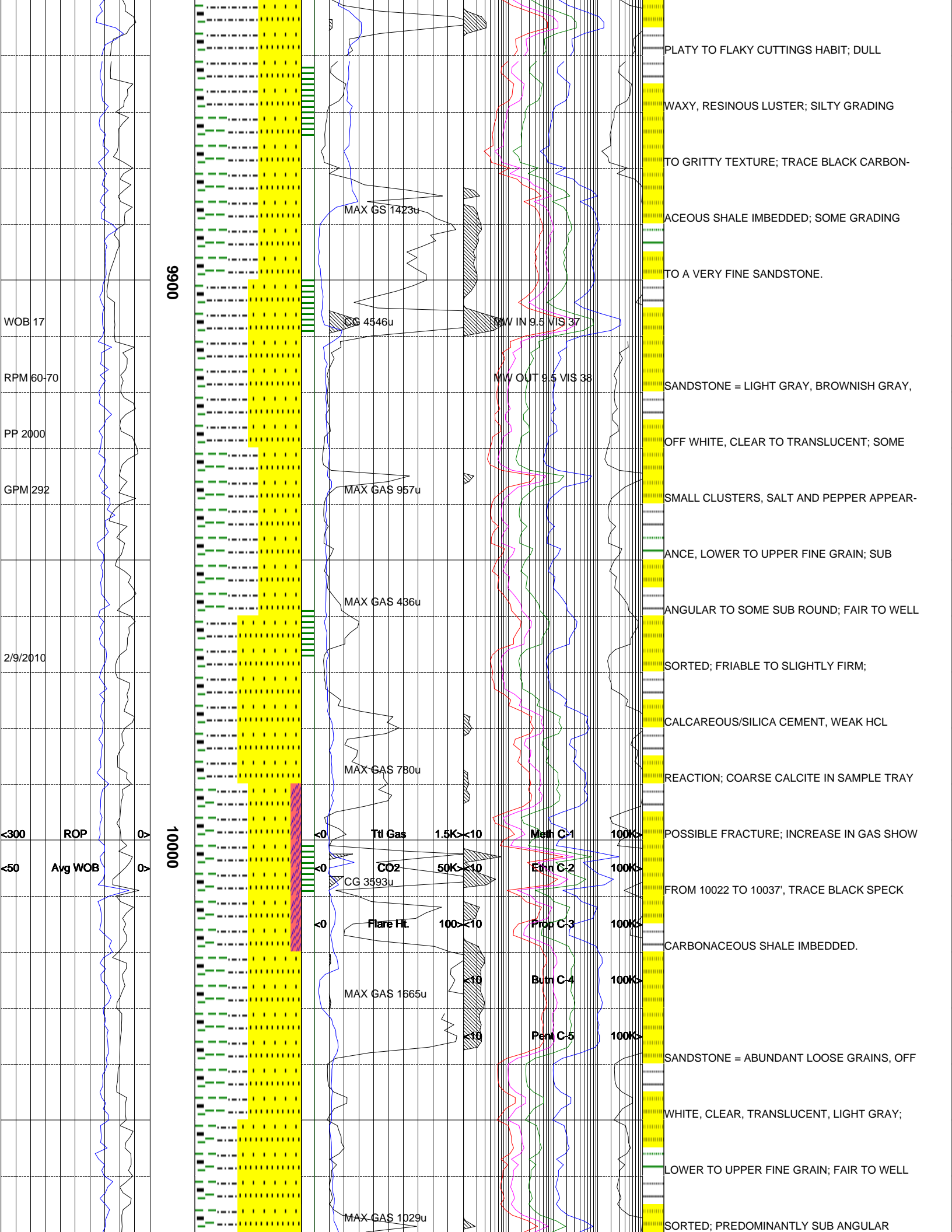
OCC PLANAR FRACTURE; DULL EARTHY TO SLI

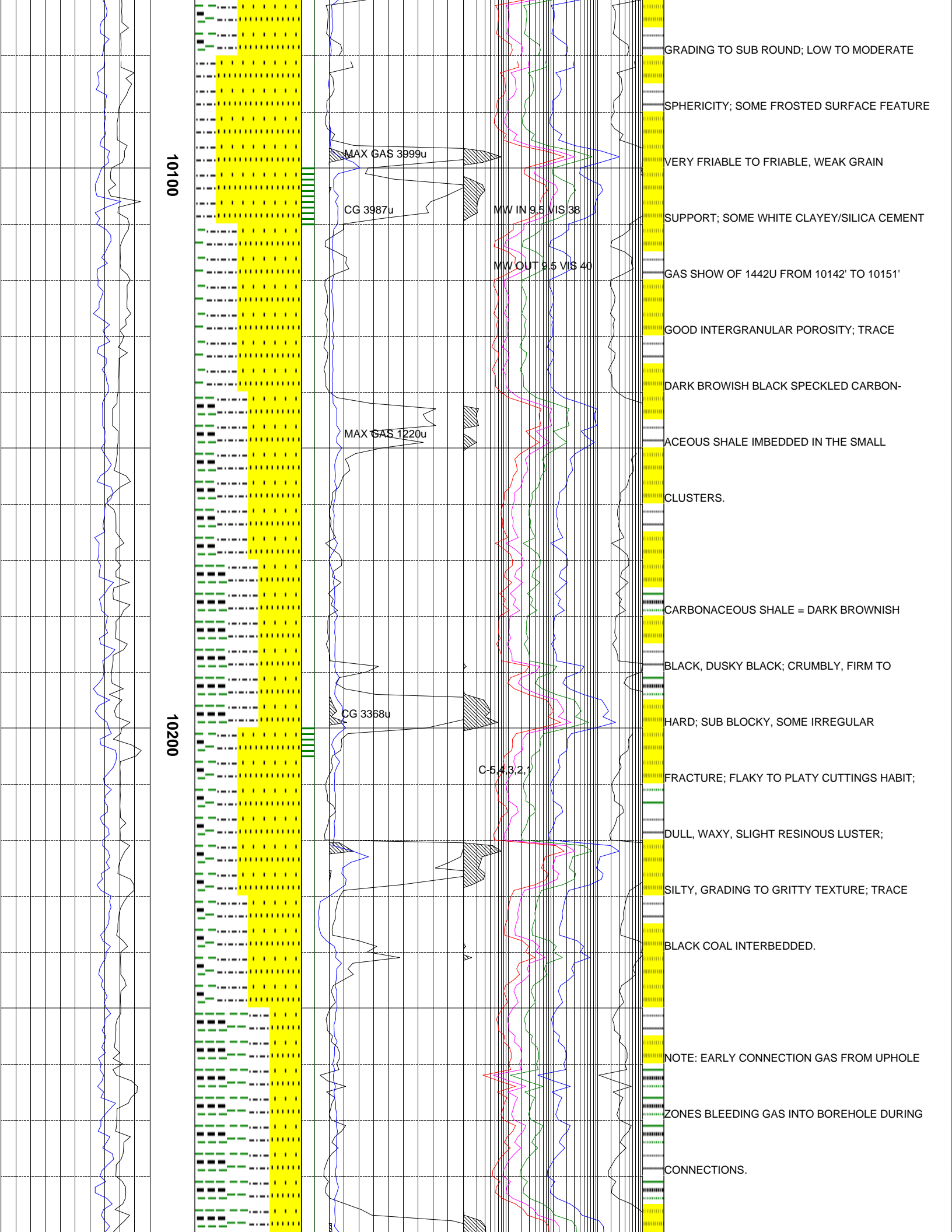
RESINOUS LUSTER IN CARBONACEOUS SPECIMEN

NON CALCAREOUS; SLI SILTY; SME THIN CARB









10100

10200

MAX GAS 3999u

CG 3987u

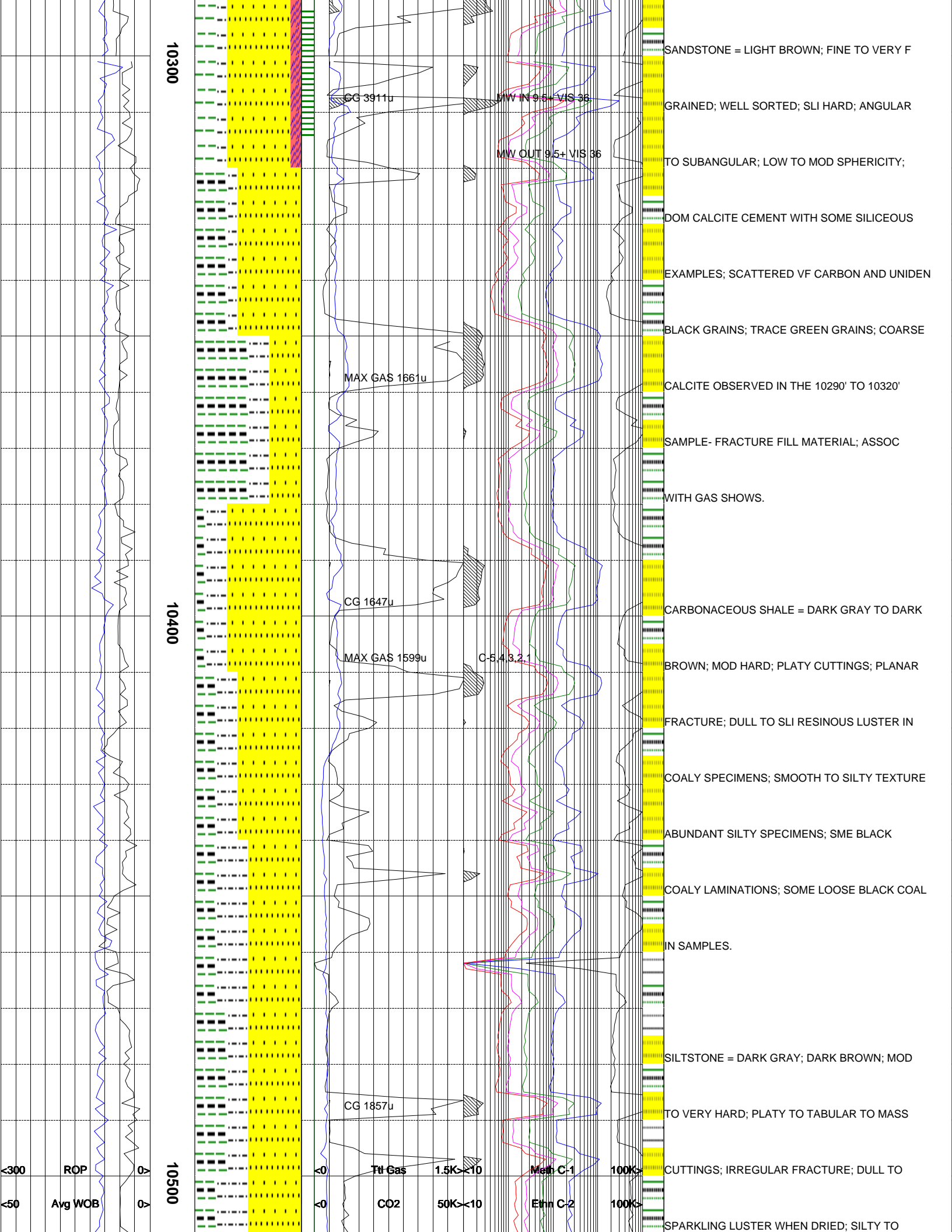
MW IN 9.5 VIS 38

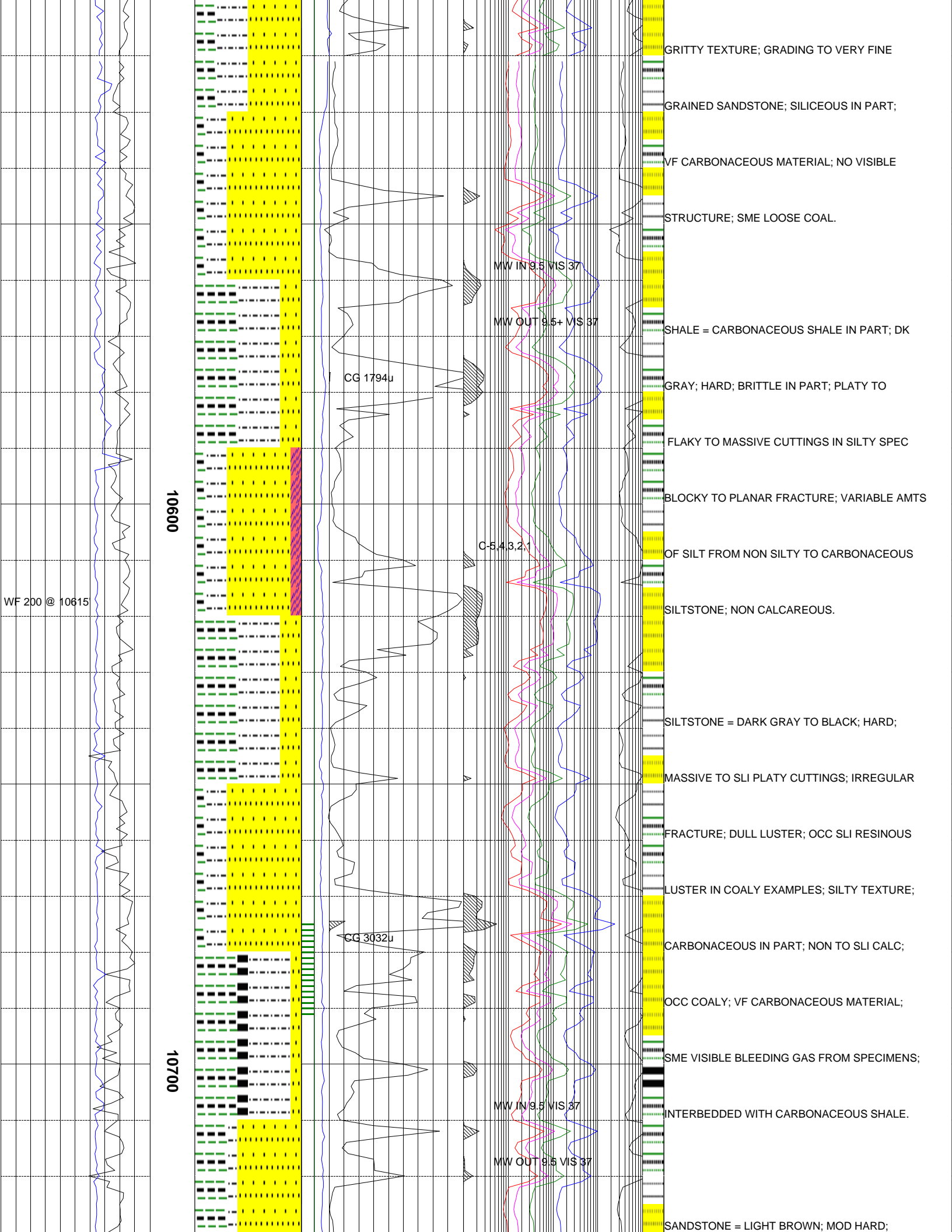
MW OUT 9.5 VIS 40

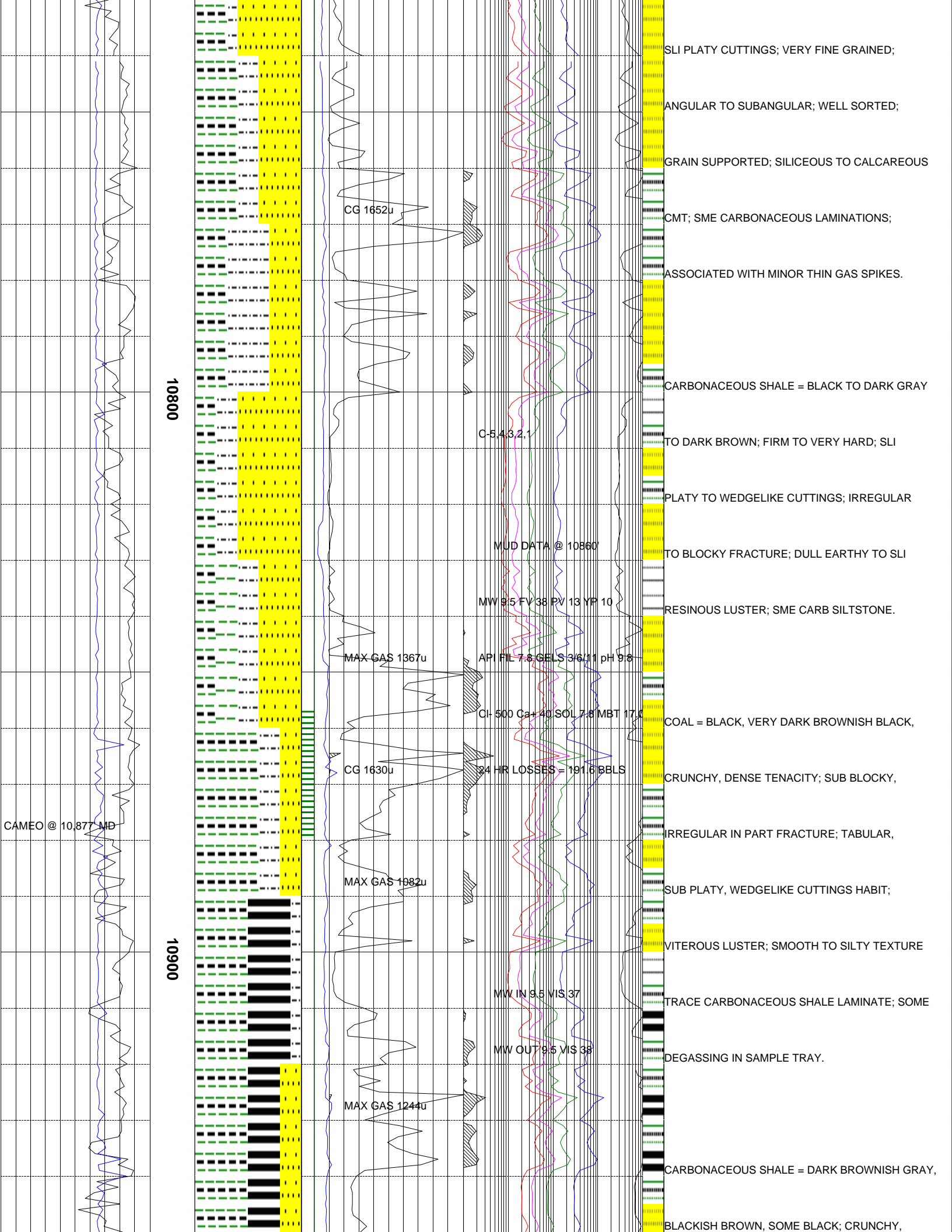
MAX GAS 1220u

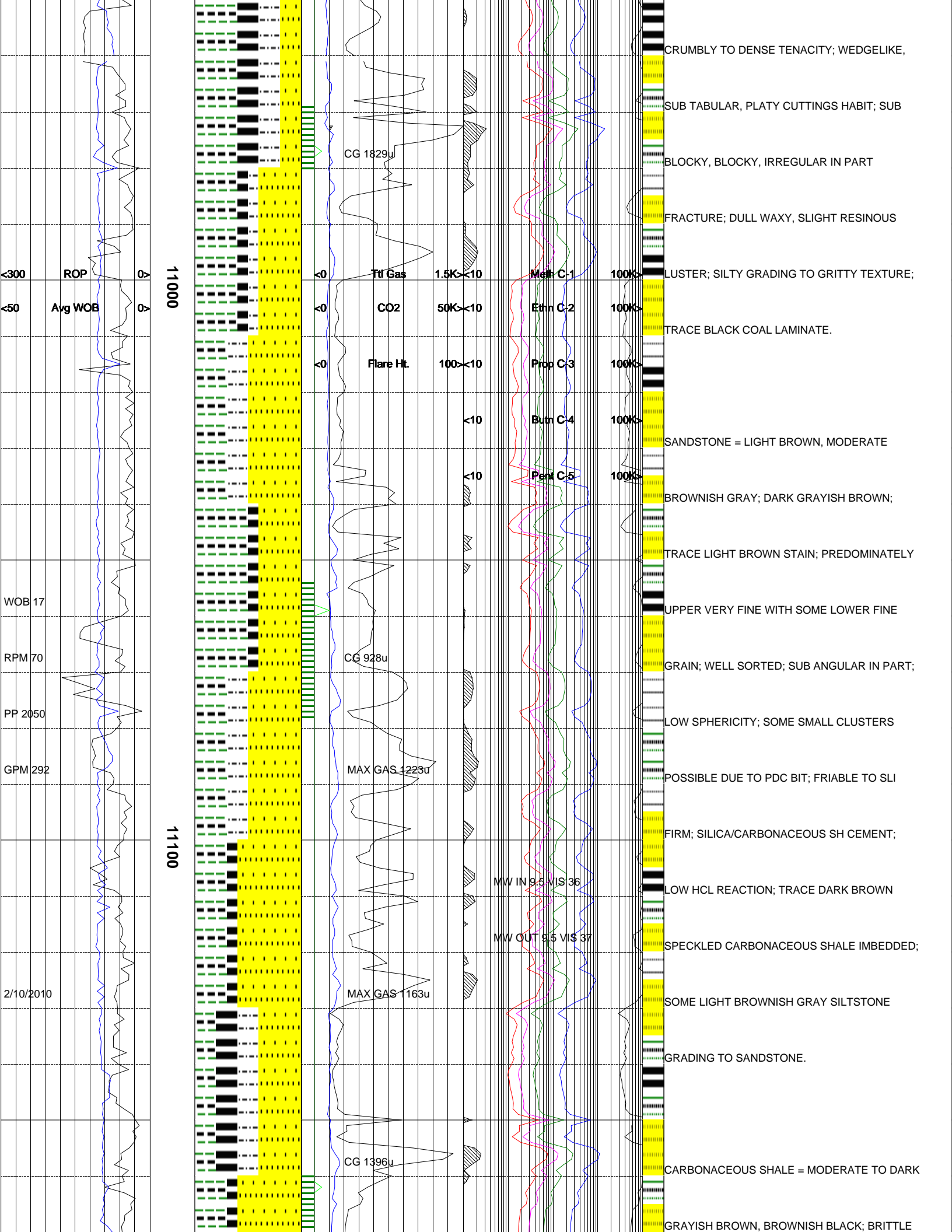
CG 3368u

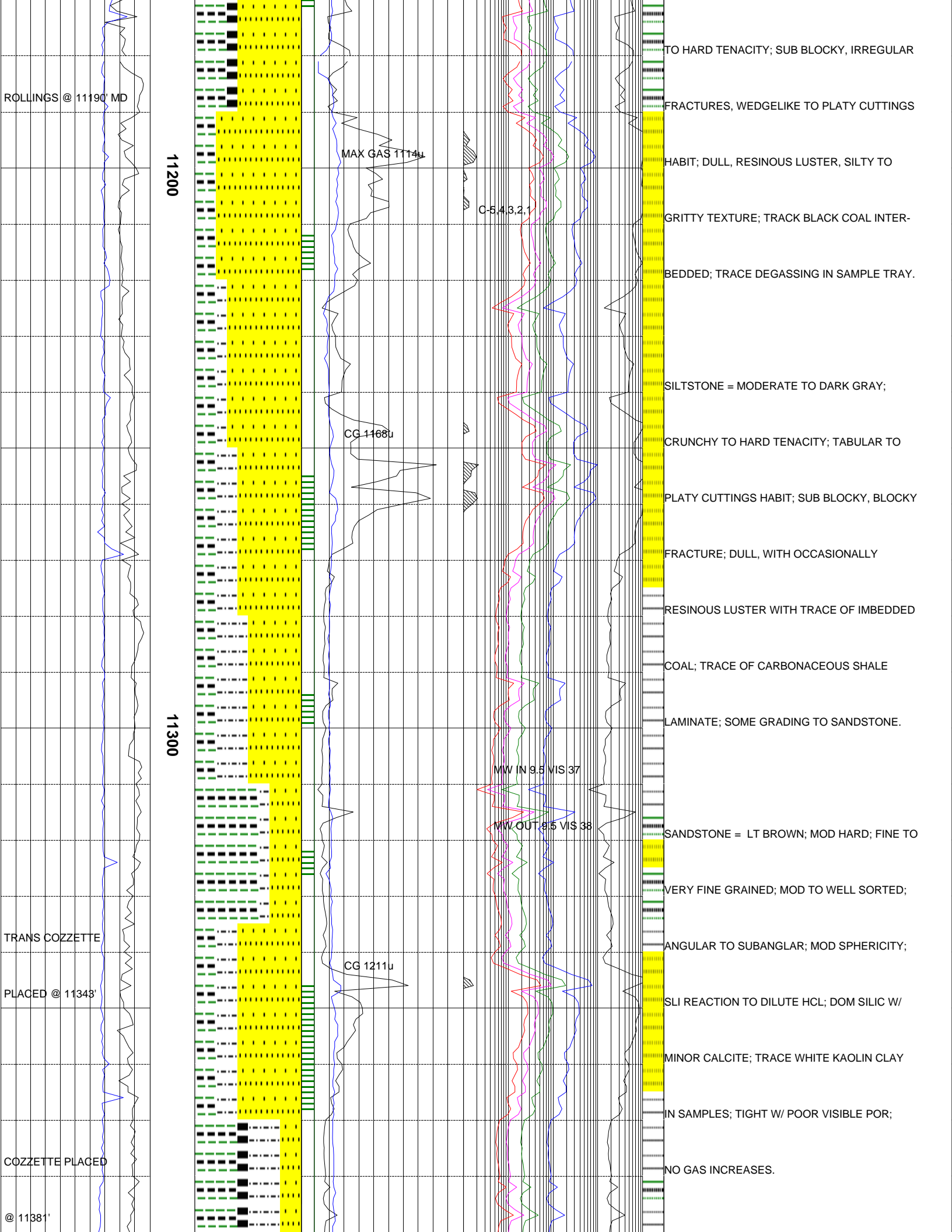
C-5.43.2.1

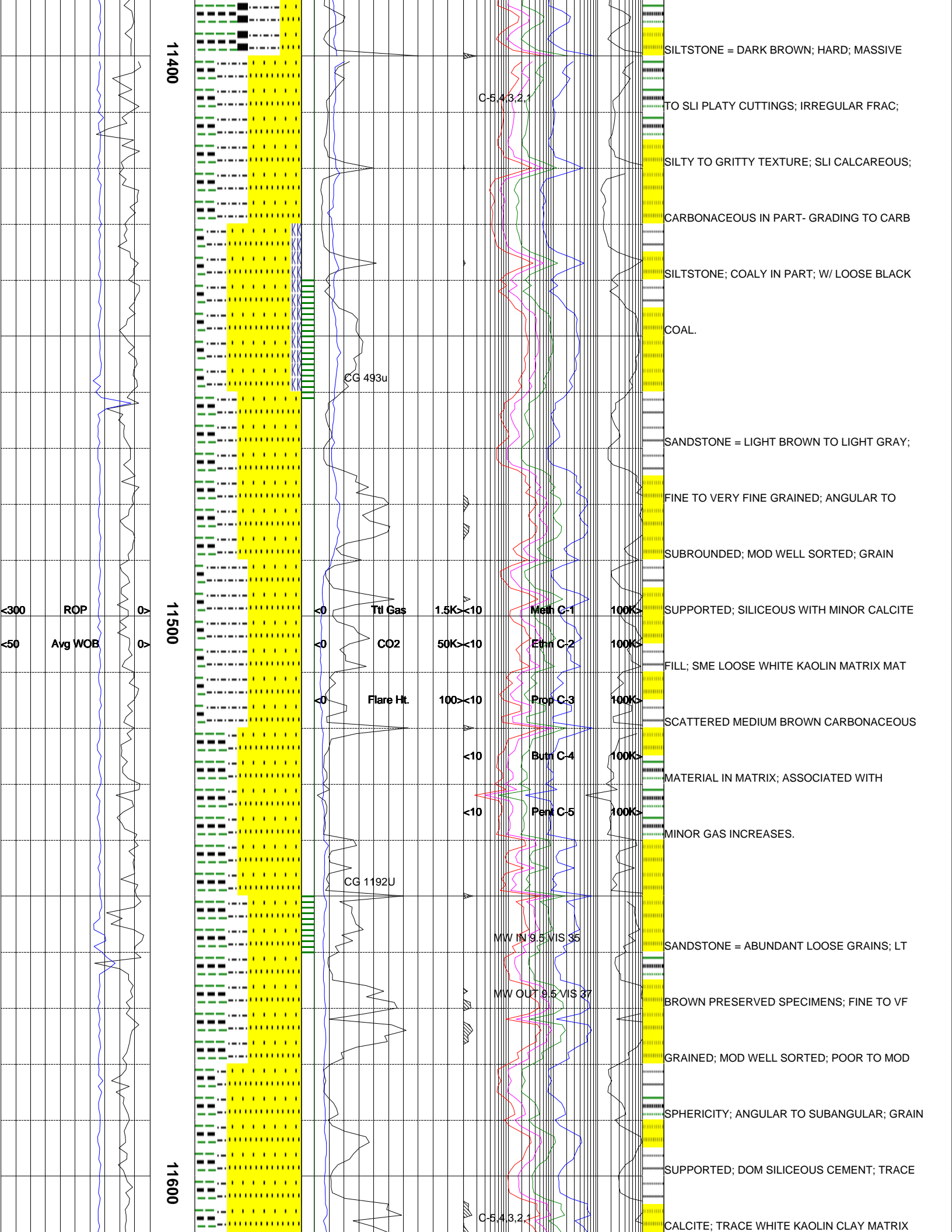


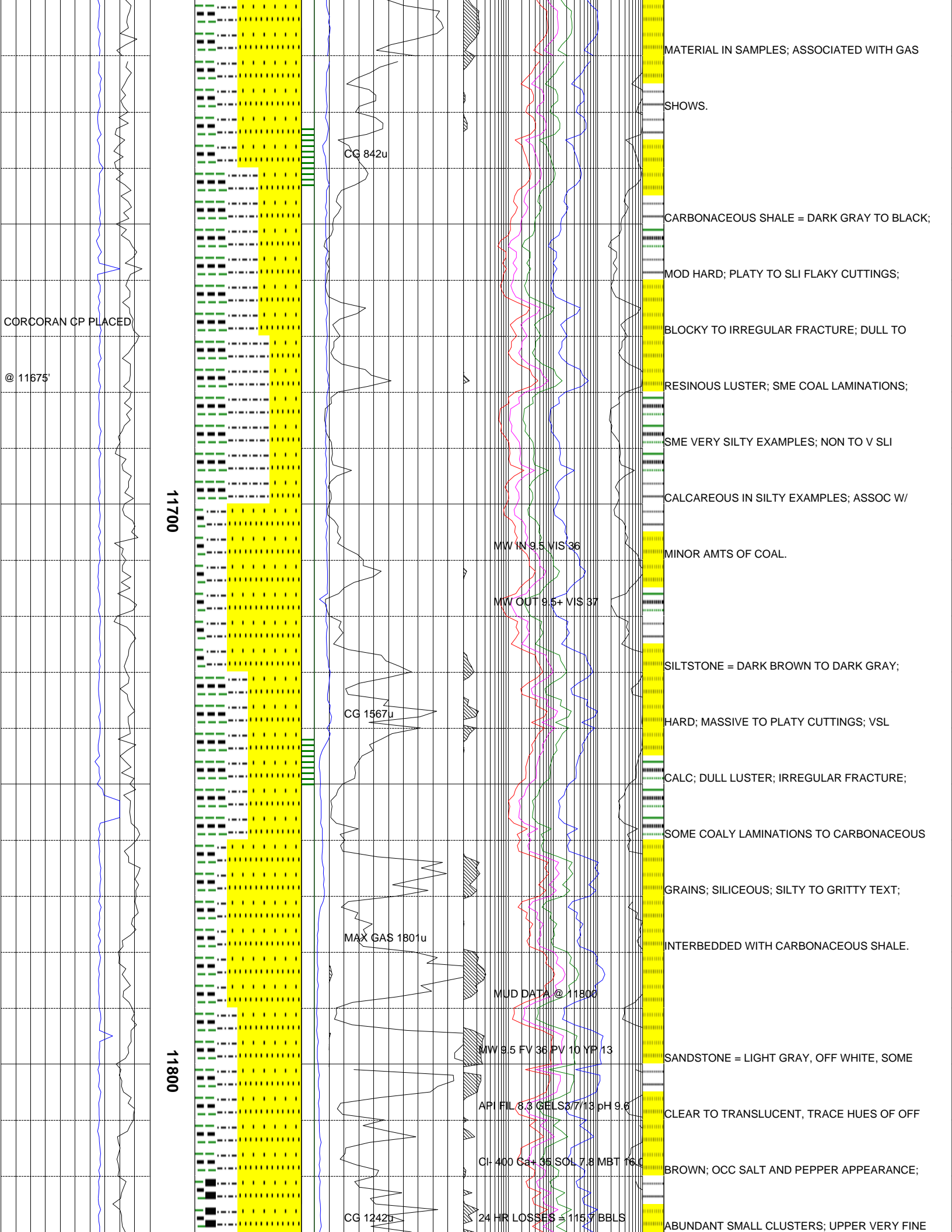


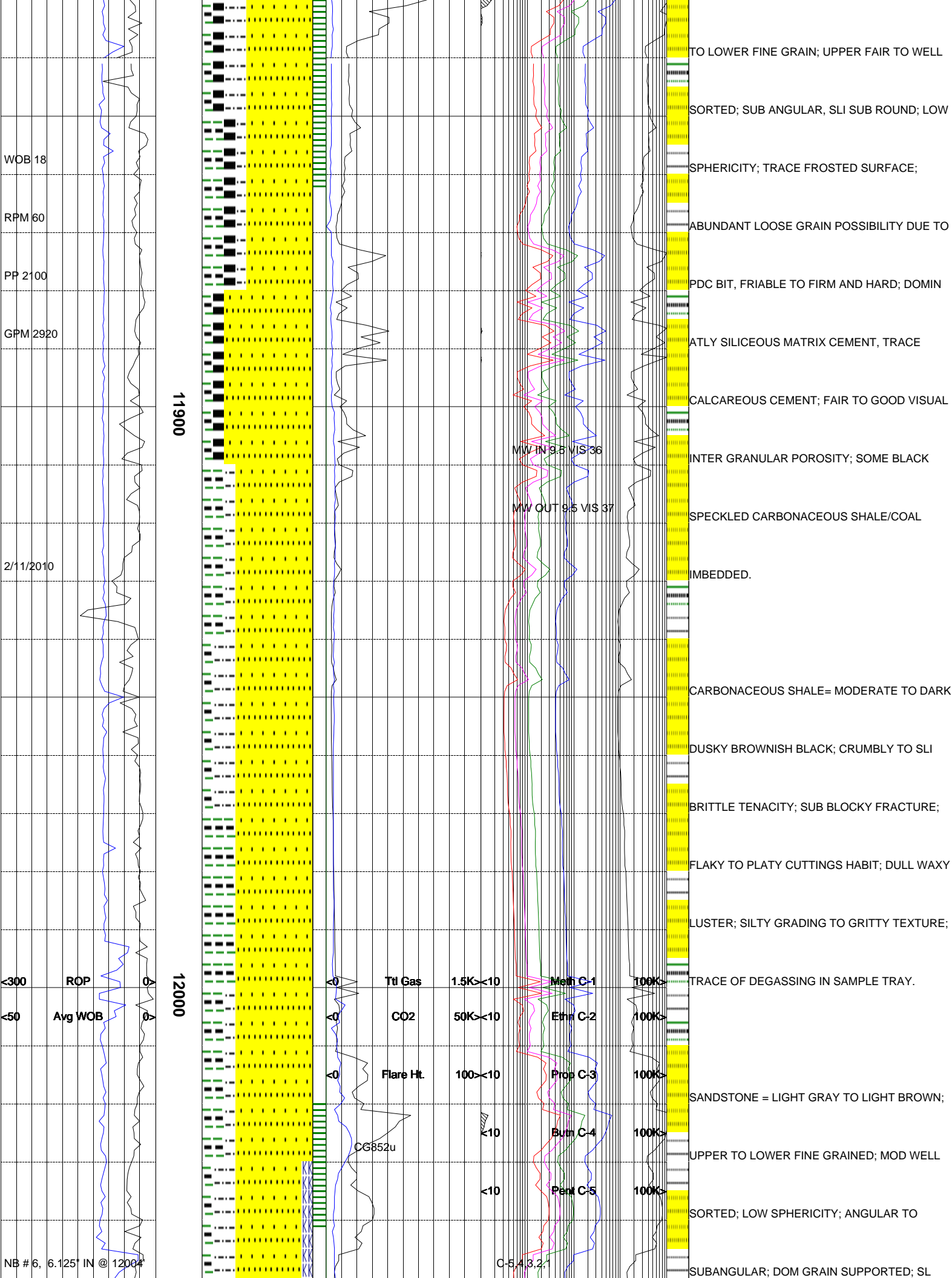


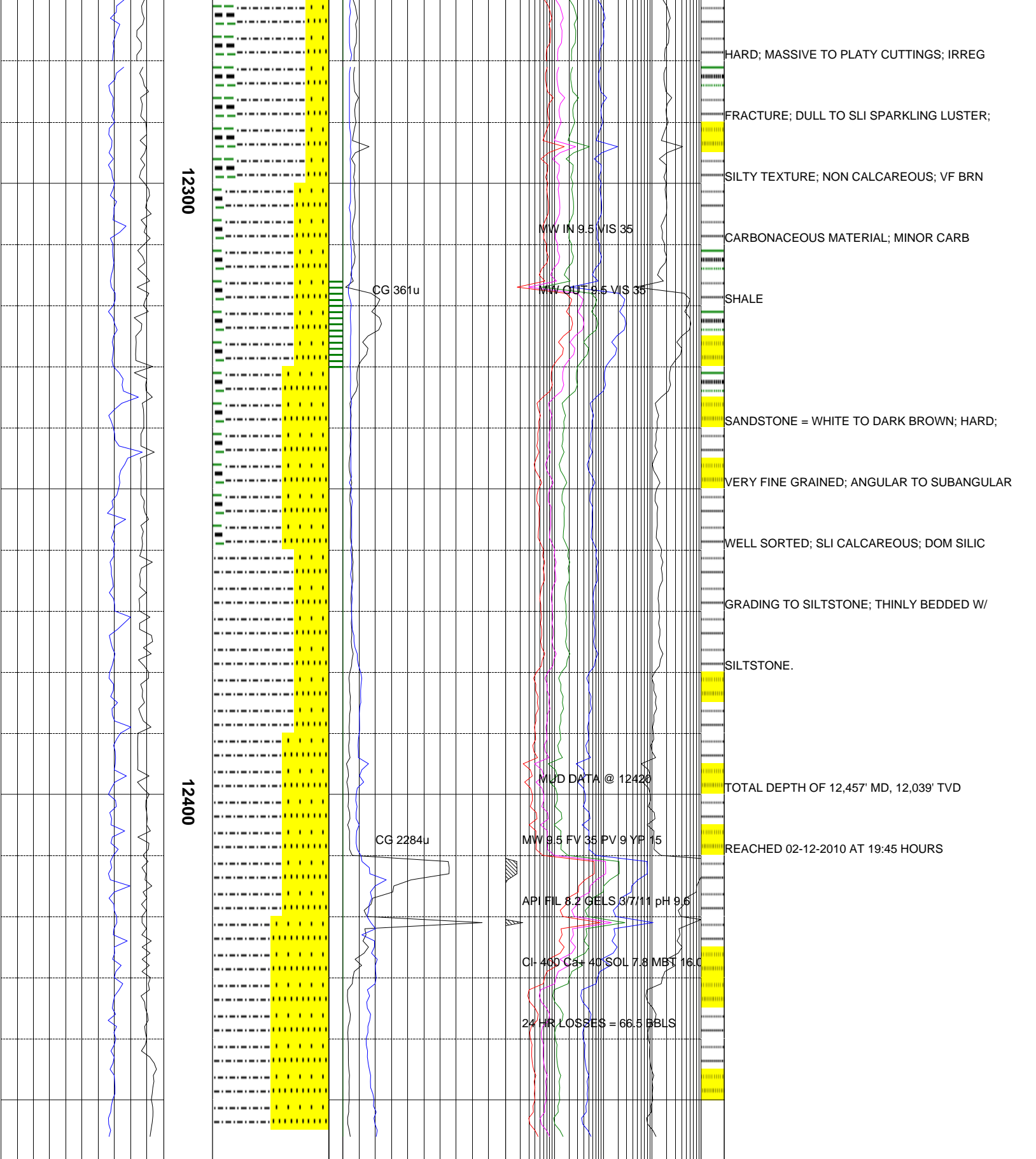












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