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MUDLOG MD

COMPANY	EXXON MOBIL
WELL	PCU 197-34B8
FIELD	PICEANCE CREEK
REGION	ROCKY MOUNTAINS
COORDINATES	39.915659000 108.261198000
ELEVATION	6,649.1'
COUNTY, STATE	RIO BLANCO, CO
API INDEX	05-103-11082-00
SPUD DATE	12/13/2008
CONTRACTOR	H_P
CO. REP.	S.GUYOTE/W.GARNER
RIG/TYPE	# 320/FLEX 4S+
LOGGING UNIT	MLU # 032
GEOLOGISTS	J.KEEVAN C.RECORD/C.PIERCE
ADD. PERSONS	M.PIPER/B. HICKS T.WALKER
CO. GEOLOGIST	CHRIS ALBA

LOG INTERVAL

DEPTHS:	4,000'	TO	12,645'
DATES:	9/30/2009	TO	12/28/2009
SCALE:	5"=100'		

CASING DATA

15"	AT	150'
10.75"	AT	3,976'
7"	AT	8,794'

AT

HOLE SIZE

14.75"	TO	4,000'
9.875"	TO	8,806'
6.125"	TO	12,645'
	TO	

MUD TYPES

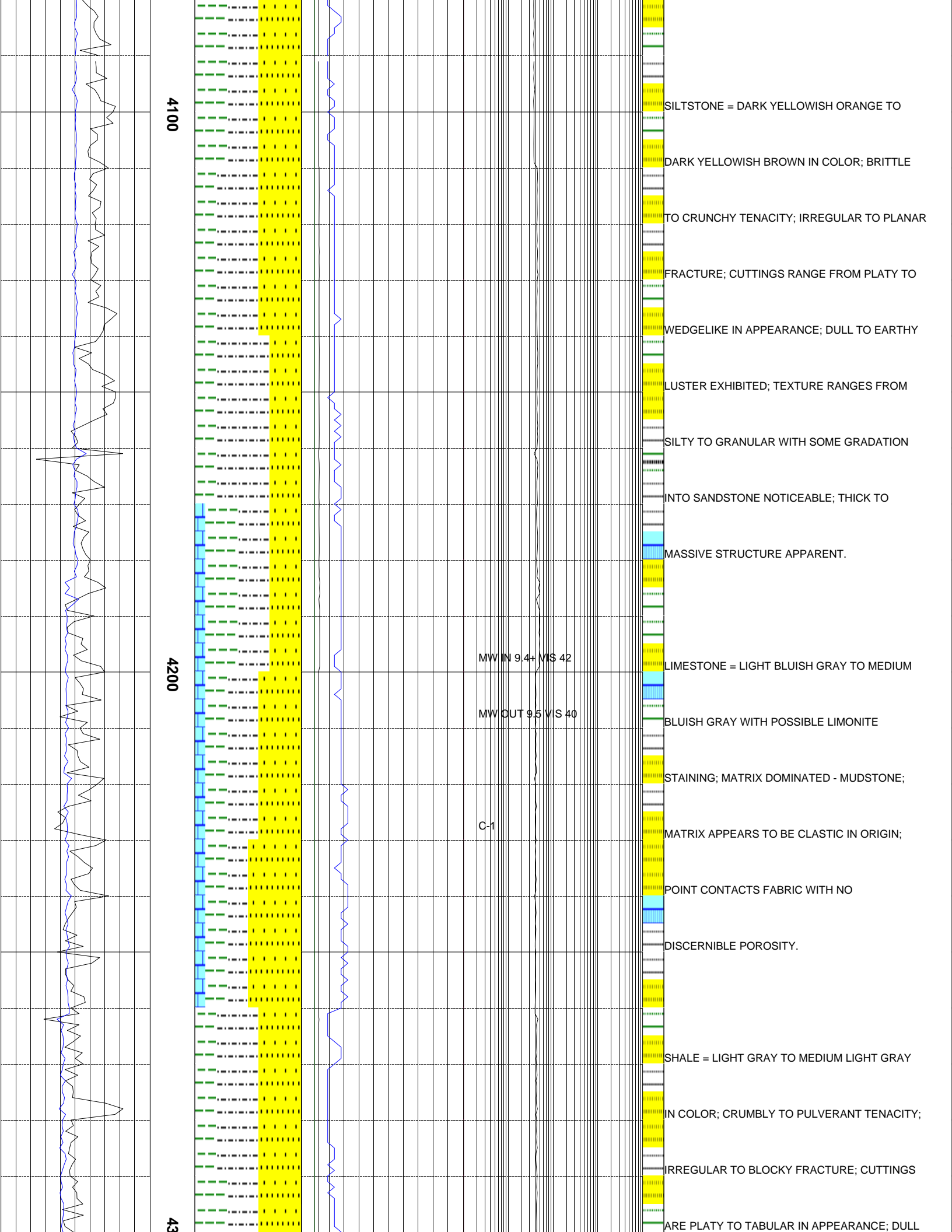
LSND	TO	12,645'
	TO	
	TO	
	TO	

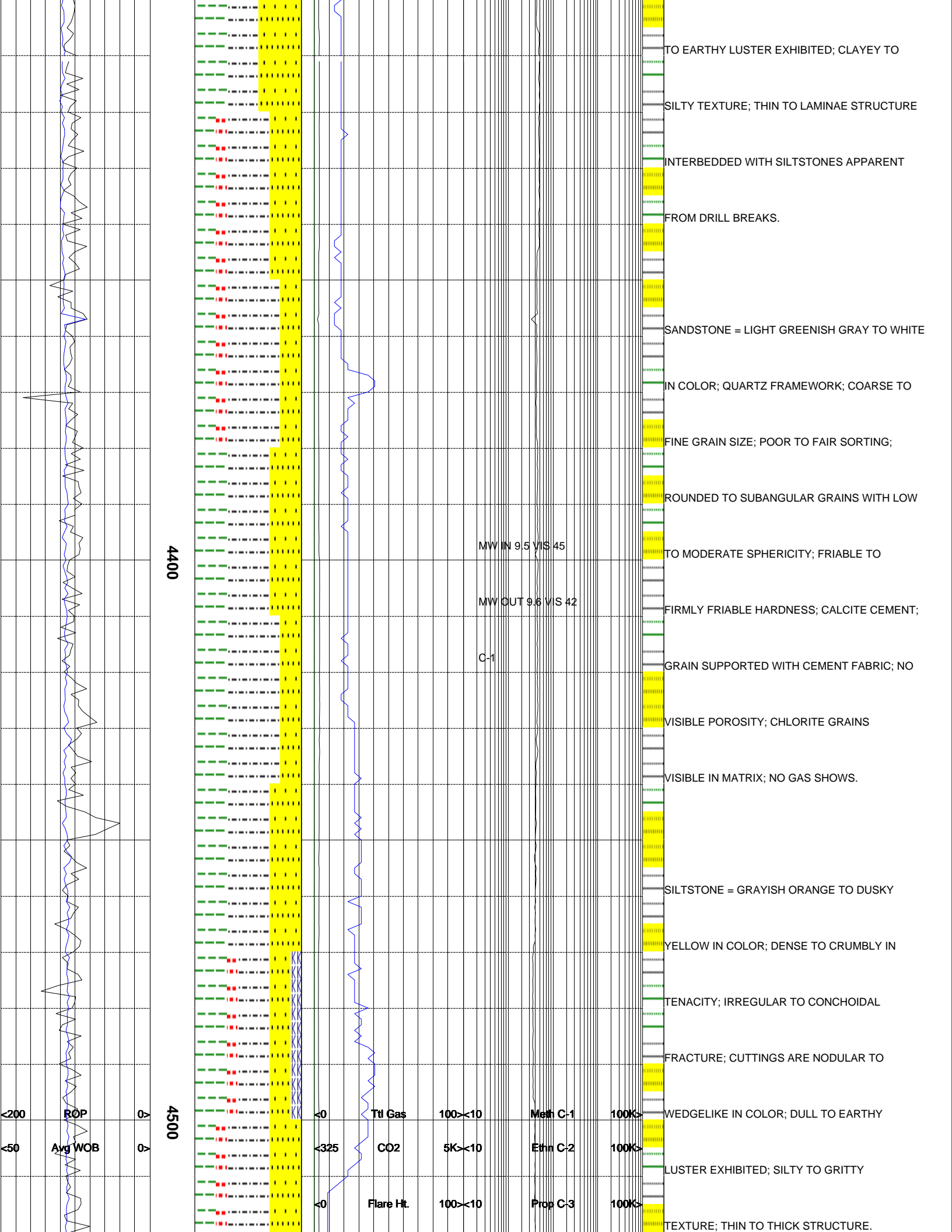
ABBREVIATIONS

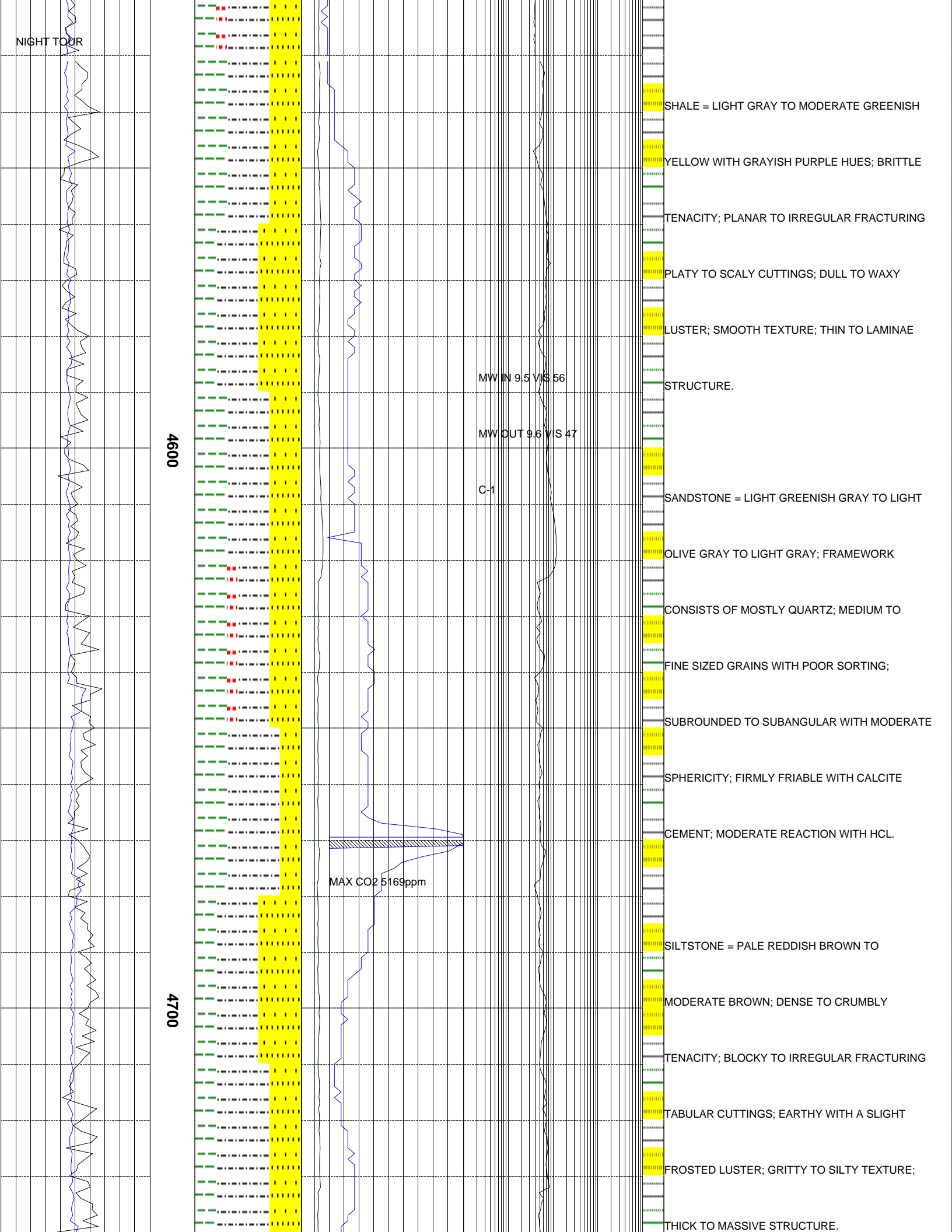
NB NEWBIT	PV PLASTIC VISCOSITY	LC LOST CIRCULATION
RRB RERUN BIT	YP YIELD POINT	CO CIRCULATE OUT
CB CORE BIT	FL FLUID LOSS	NR NO RETURNS
WOB WEIGHT ON BIT	CL PPM CLORIDE ION	TG TRIP GAS
RPM ROTARY REV/MIN	Rm MUD RESISTIVITY	SG SURVEY GAS
PP PUMP PRESSURE	Rmf FILTRATE RESISTIVITY	WG WIPER GAS
SPM STROKES/MIN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

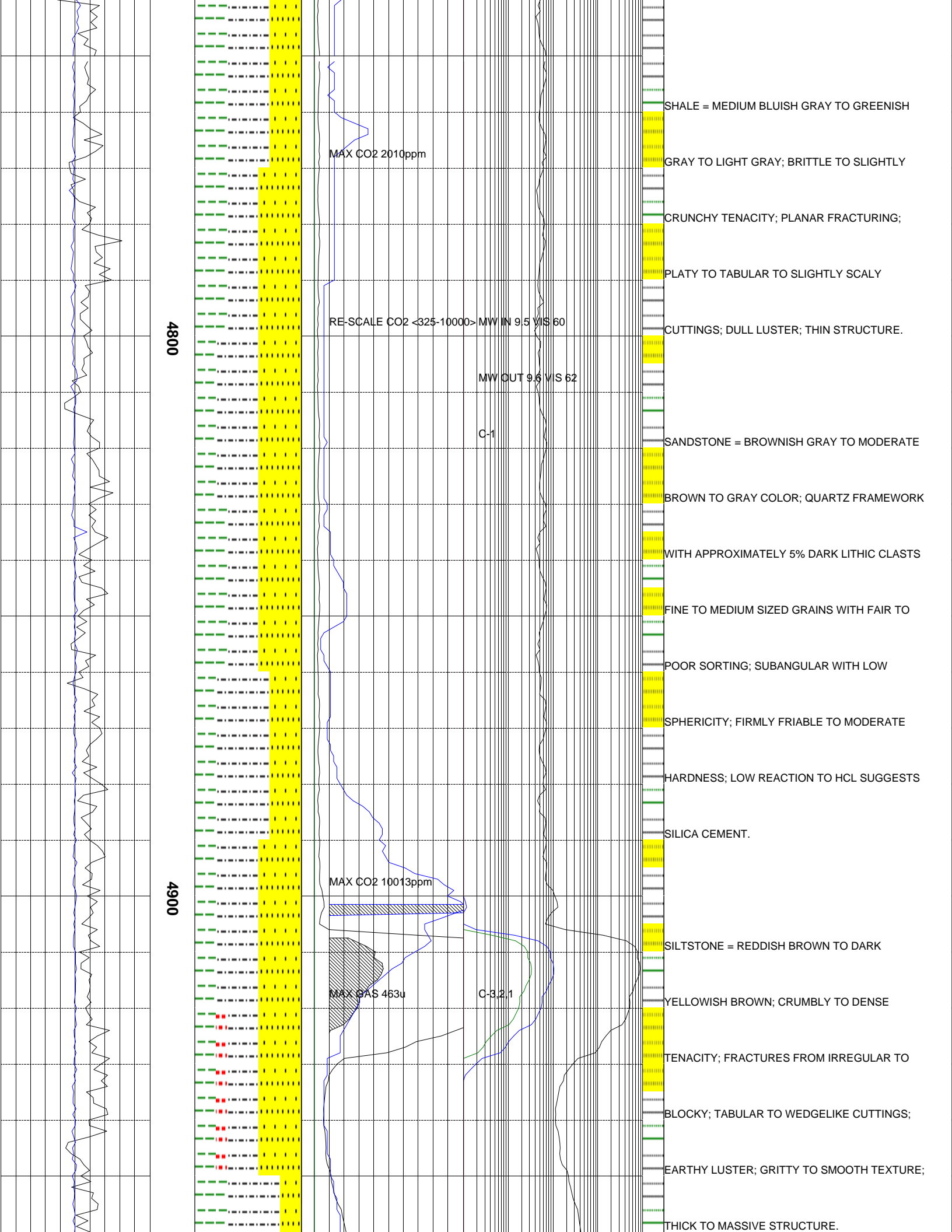
ALTERED ZONE	CHERT - GLASSY	FELSIC SILIC DIKE	MARL - CALC	SANDSTONE
ANDESITE	CHERT - PORCEL	FOSSIL	METAMORPHICS	SANDSTONE-TUFFACEOUS
ANHYDRITE	CHERT - TIGER STRIPE	GABBRO	MUDSTONE	SERICITIZATION
BASALT	CHERT - UNDIFF	GLASSY TUFF	OBSIDIAN	SERPENTINE
BENTONITE	CLAY	GRANITE	PALEOSOL	SHALE
BIOTITIZATION	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	

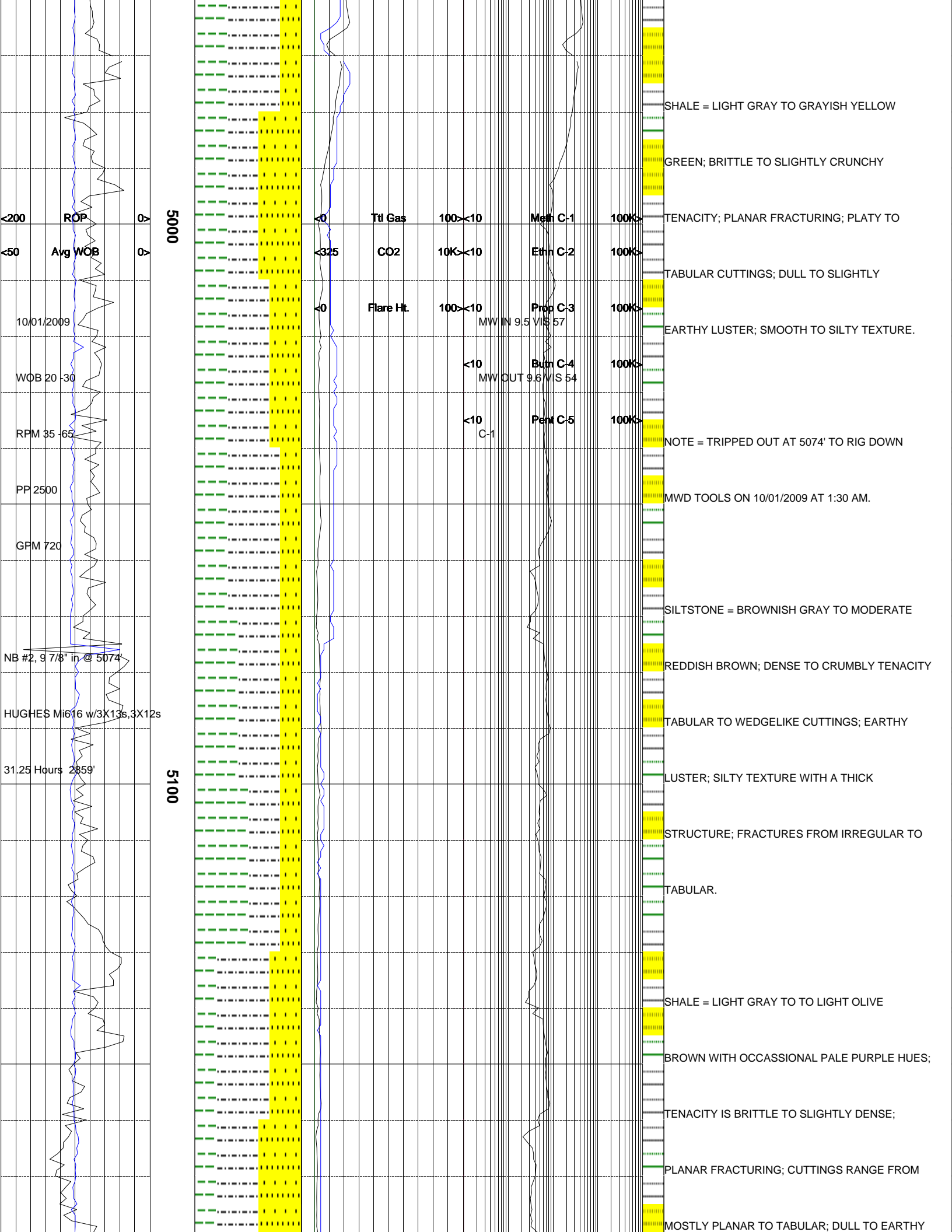
EXXON MOBIL				PCU 197-34B8				12/29/2009				
<div><200ROP0></div> <div>ft/hr</div> <div><50Avg WOB0></div> <div>klbs</div>			Depth	Lithology	<div><0Ttl Gas500></div> <div><325CO210K></div> <div><0Flare Ht.100></div>			<div><10Meth C-1100K></div> <div><10Ethn C-2100K></div> <div><10Prop C-3100K></div> <div><10Butn C-4100K></div> <div><10Pent C-5100K></div>			Interp. Lith	Remarks
					MGs							
			3900								EPOCH WELL SERVICES COMMENCED	
NB # 1, 9 7/8" in @ 4000'			4000								MUDLOGGING ON THE EXXONMOBIL PCU	
HUGHES 5047X w/3X18s,3X12s											197-34B8 WELL ON 09/30/2009 AT 4000' MD.	
<div><200ROP0></div> <div><50Avg WOB0></div> <div>18 Hours 1074'</div>					<div><0Ttl Gas100></div> <div><325CO25K></div> <div><0Flare Ht.100></div>			<div>Meth C-1100K></div> <div>Ethn C-2100K></div> <div>Prop C-3100K></div> <div>Butn C-4100K></div> <div>Pent C-5100K></div>				SANDSTONE = YELLOWISH GRAY TO WHITE IN COLOR; QUARTZ FRAMEWORK; MEDIUM TO FINE GRAIN SIZE; FAIR TO WELL SORTING; GRAINS ARE ROUNDED TO SUBANGULAR WITH MODERATE TO HIGH SPHERICITY; SAMPLE IS FRIABLE TO MODERATELY HARD; CALCITE CEMENT; NO VISIBLE BEDDING; NO VISIBLE VOIDS; NO GAS SHOWS FROM THIS SANDSTONE.

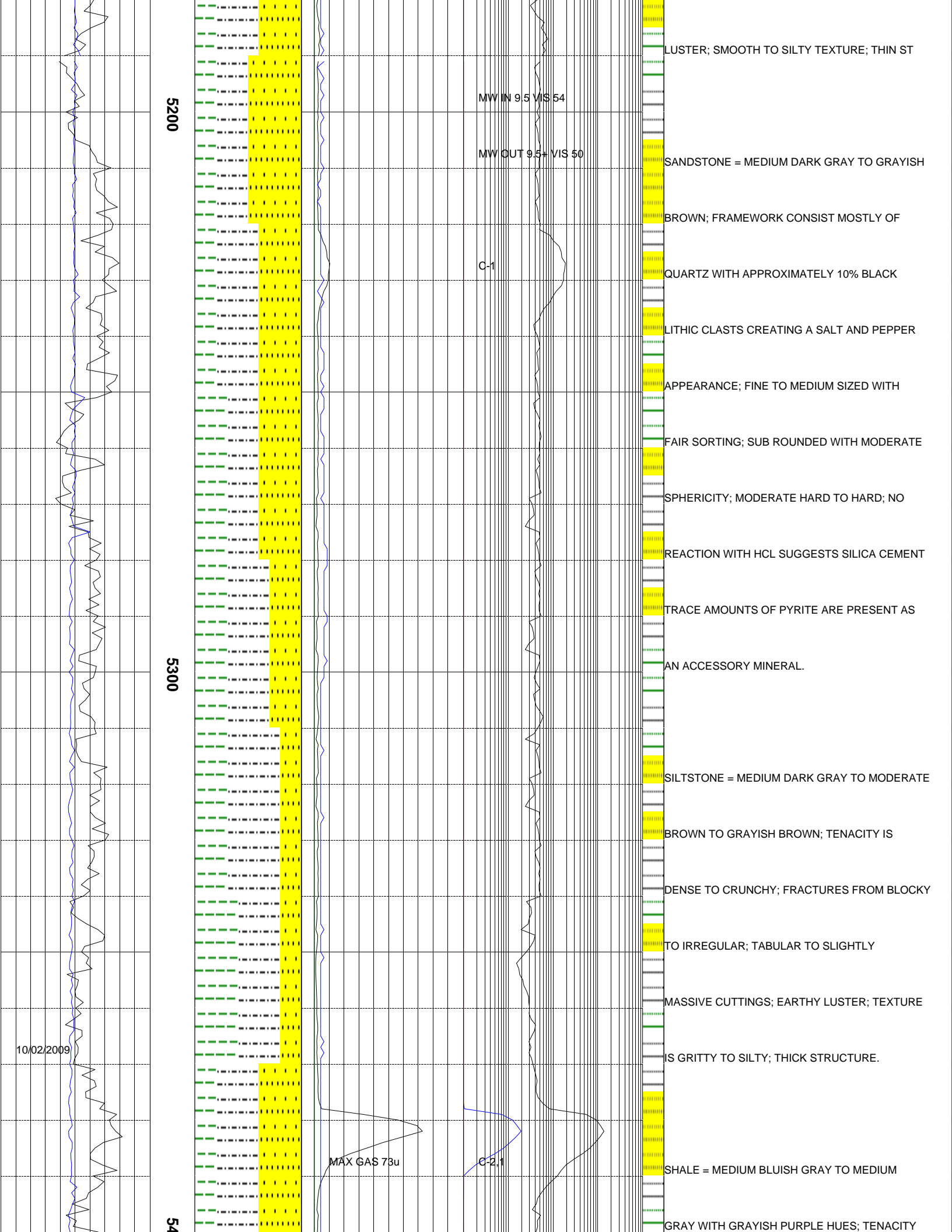












5200

5300

54

MW IN 9.5 VIS 54

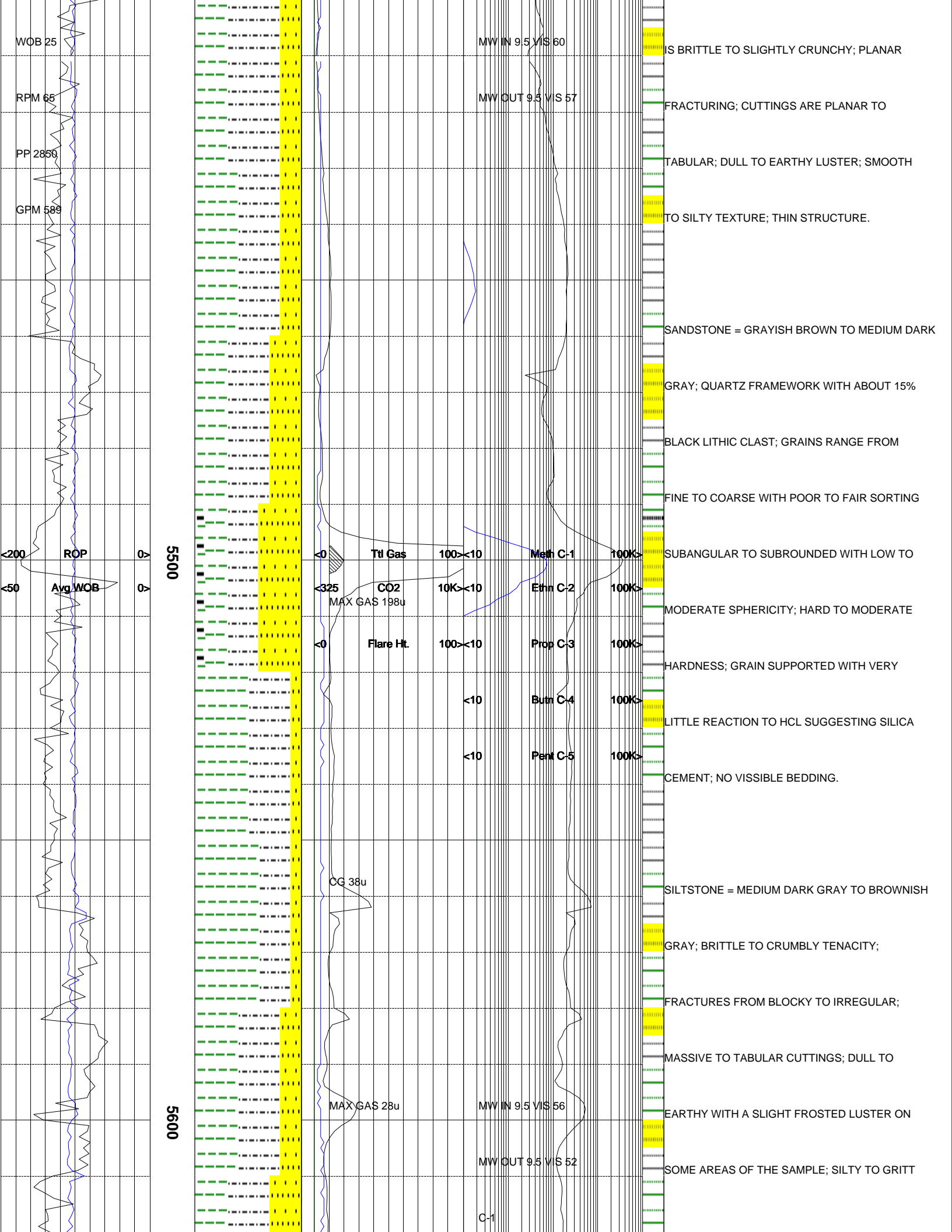
MW OUT 9.5+ VIS 50

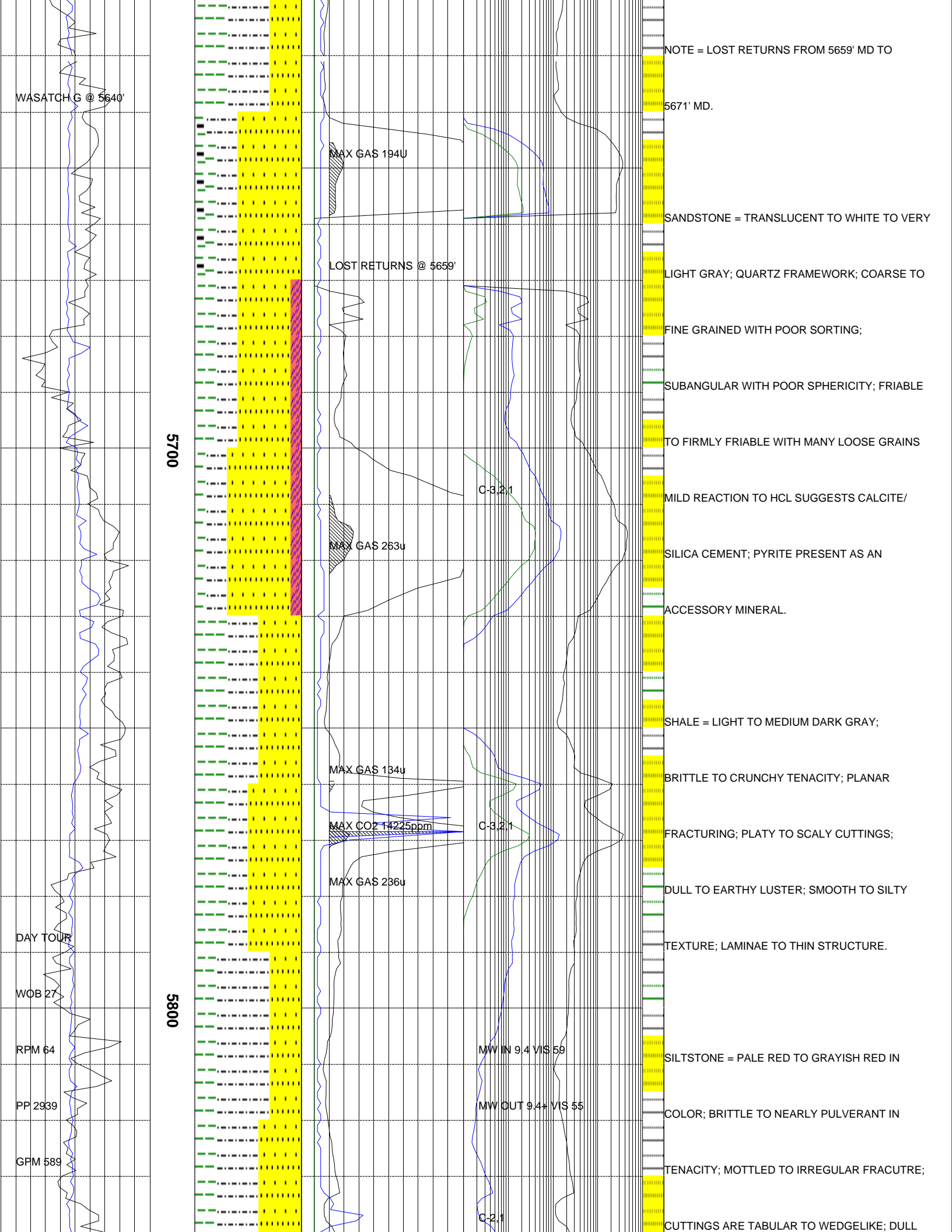
C-1

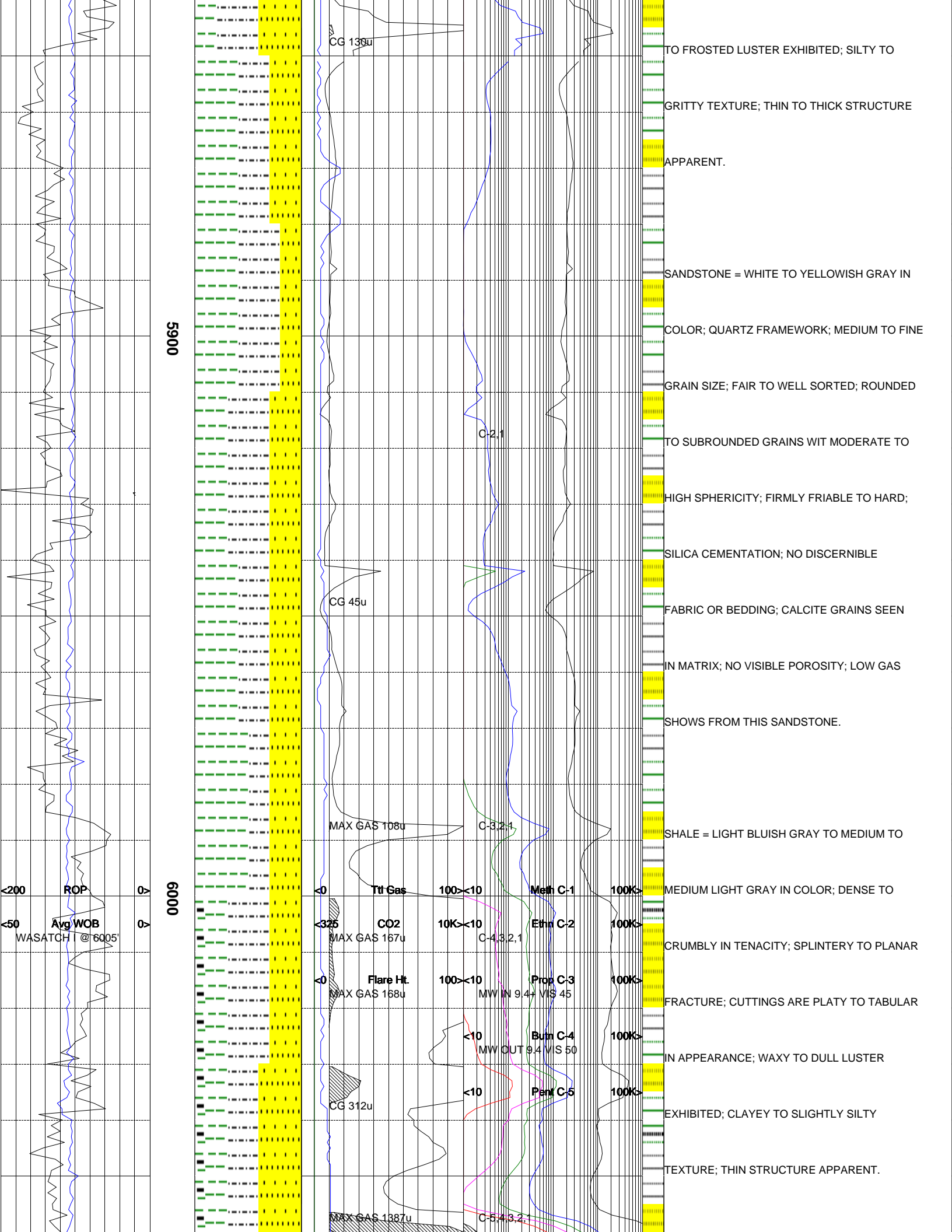
C-2.1

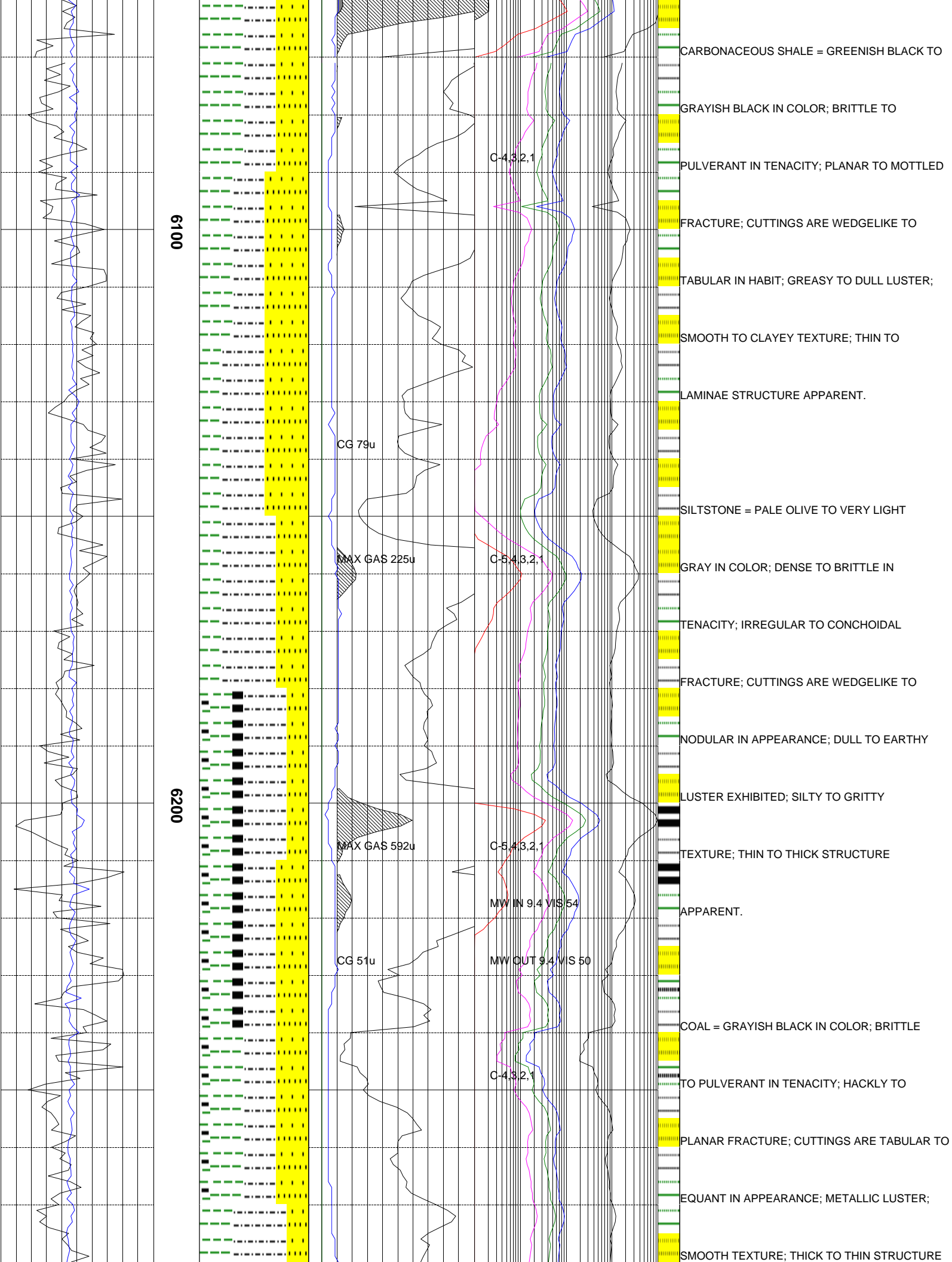
MAX GAS 73u

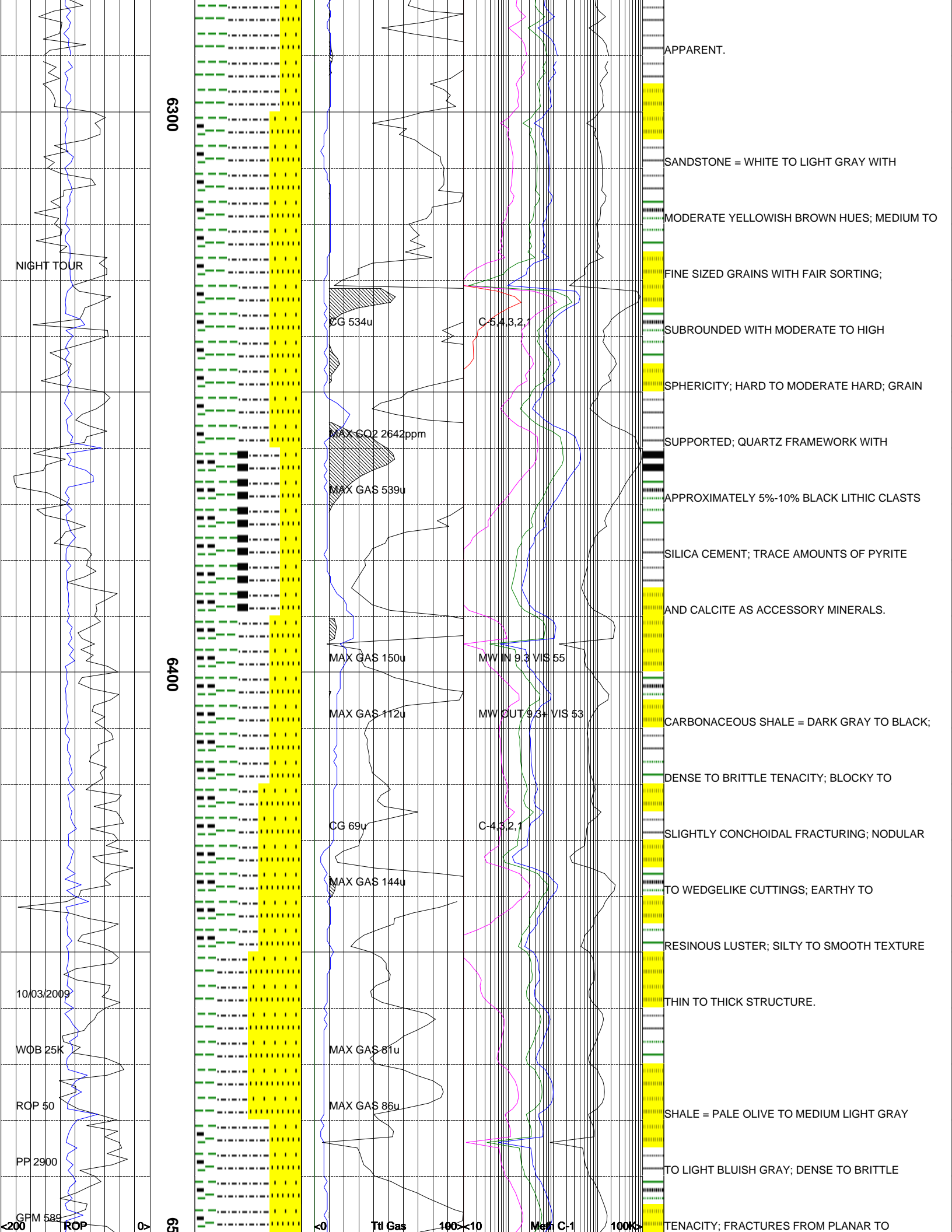
10/02/2009

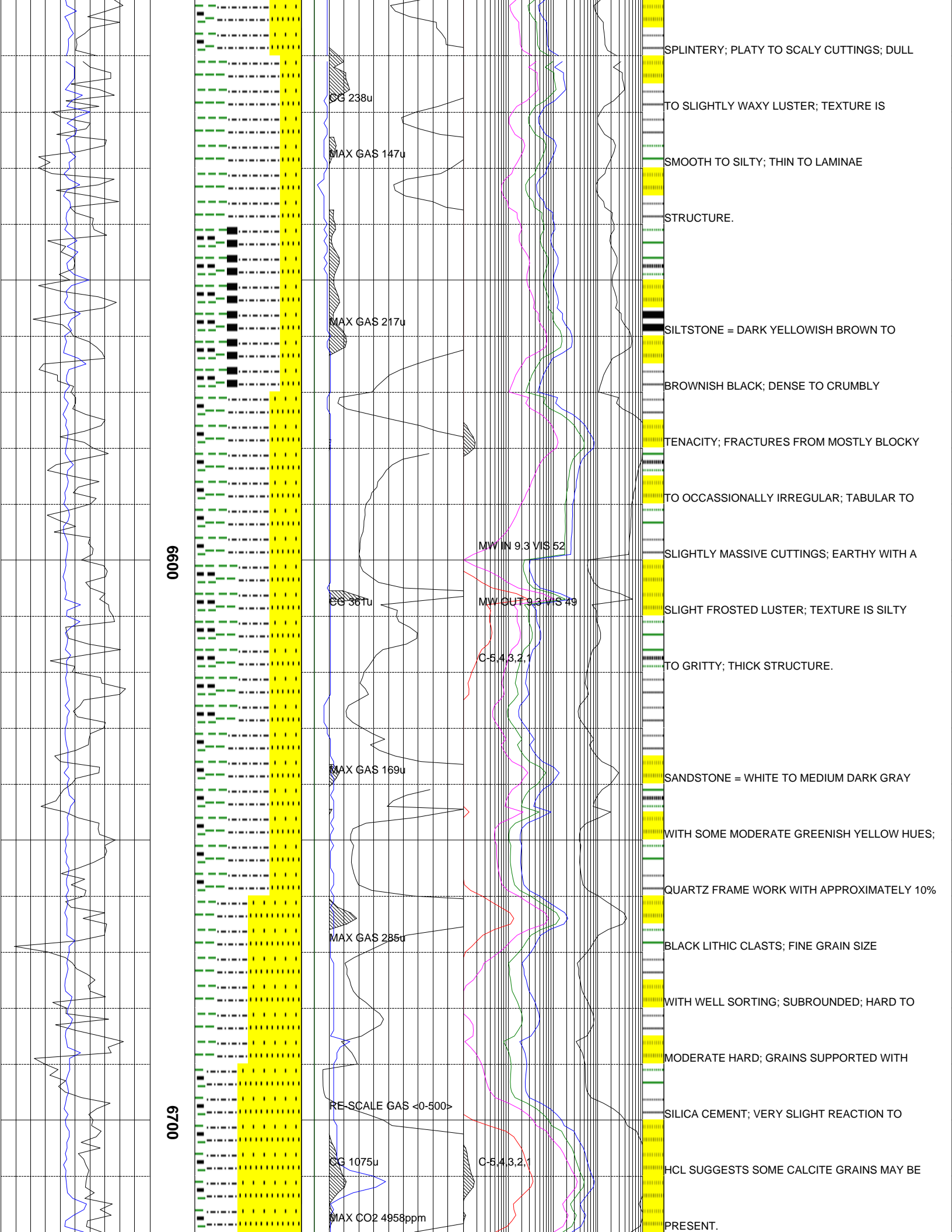


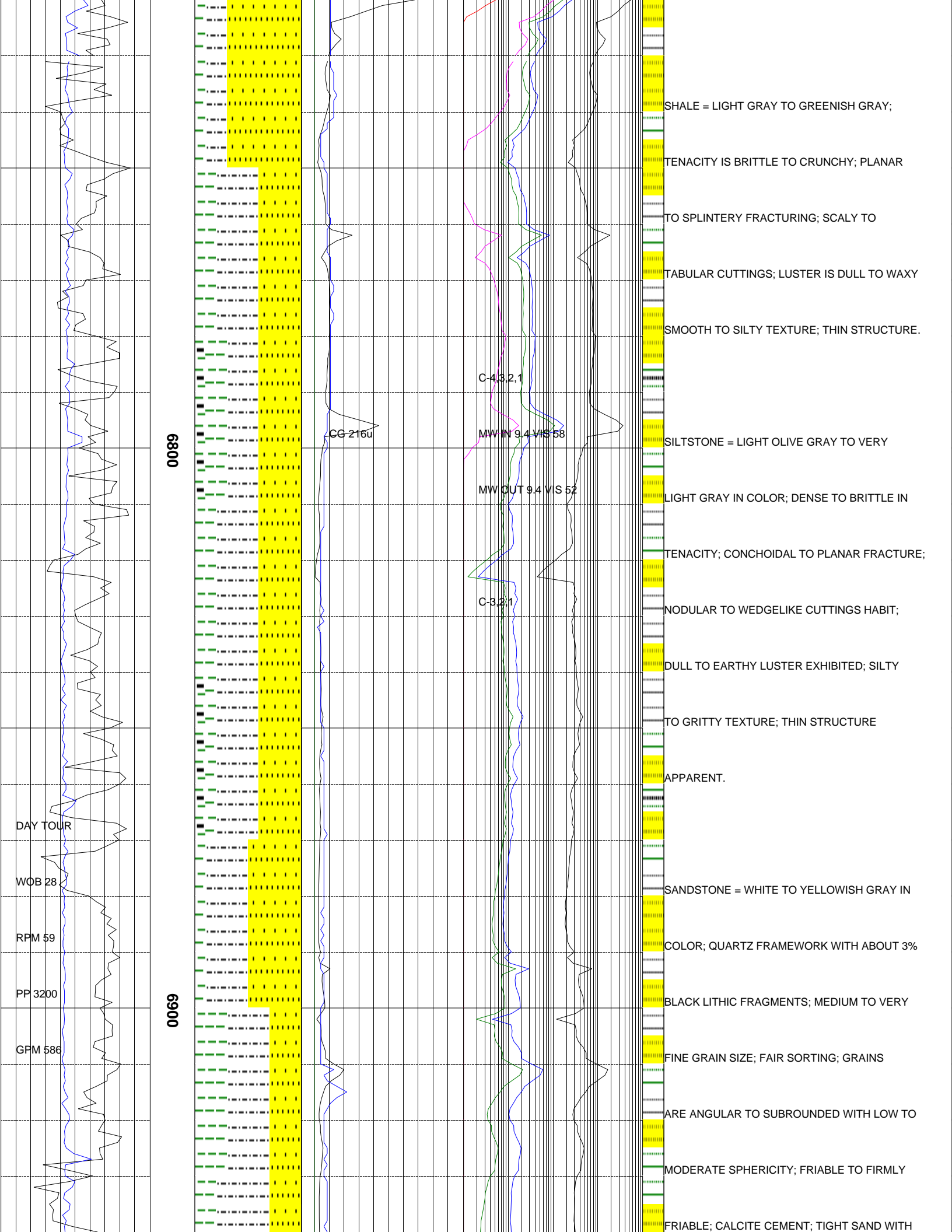


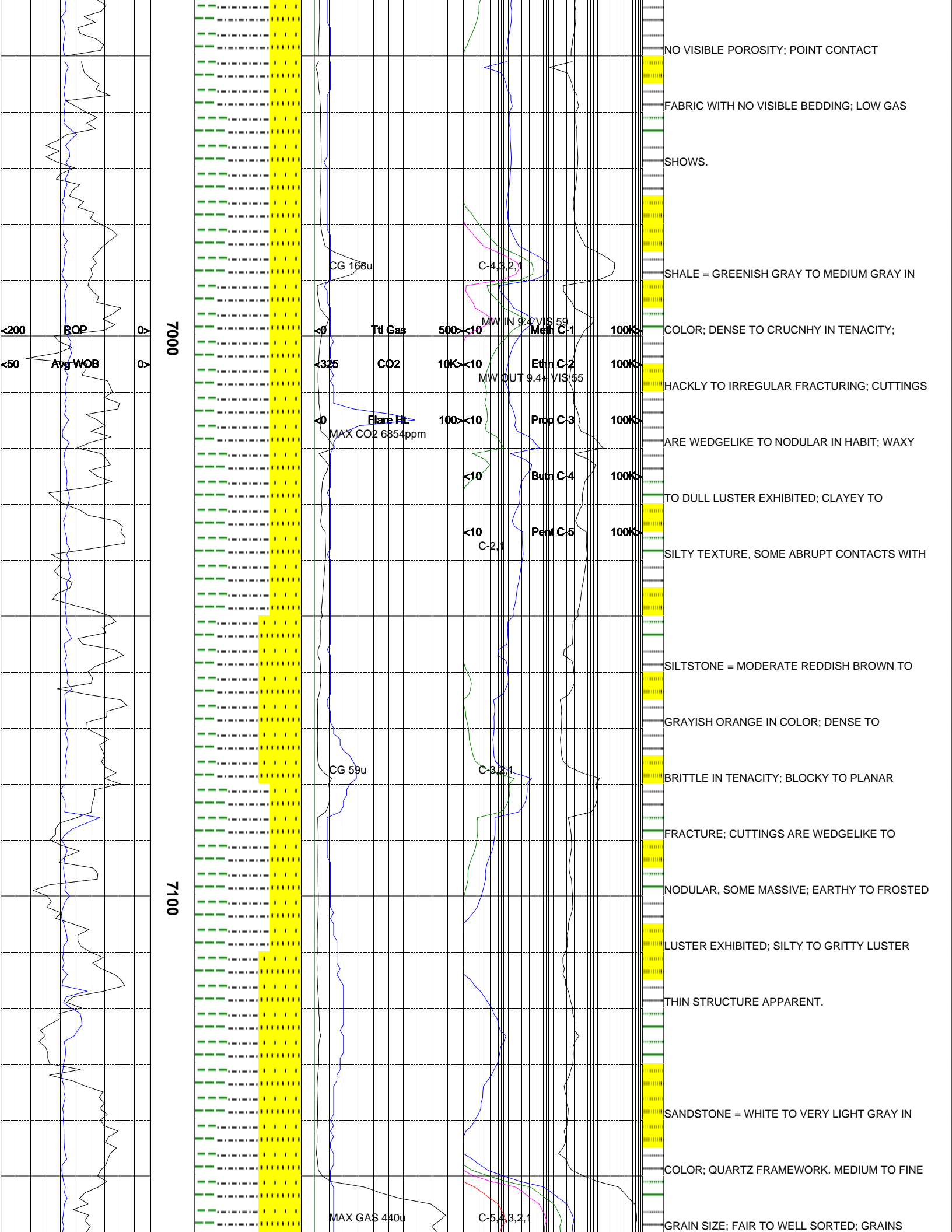


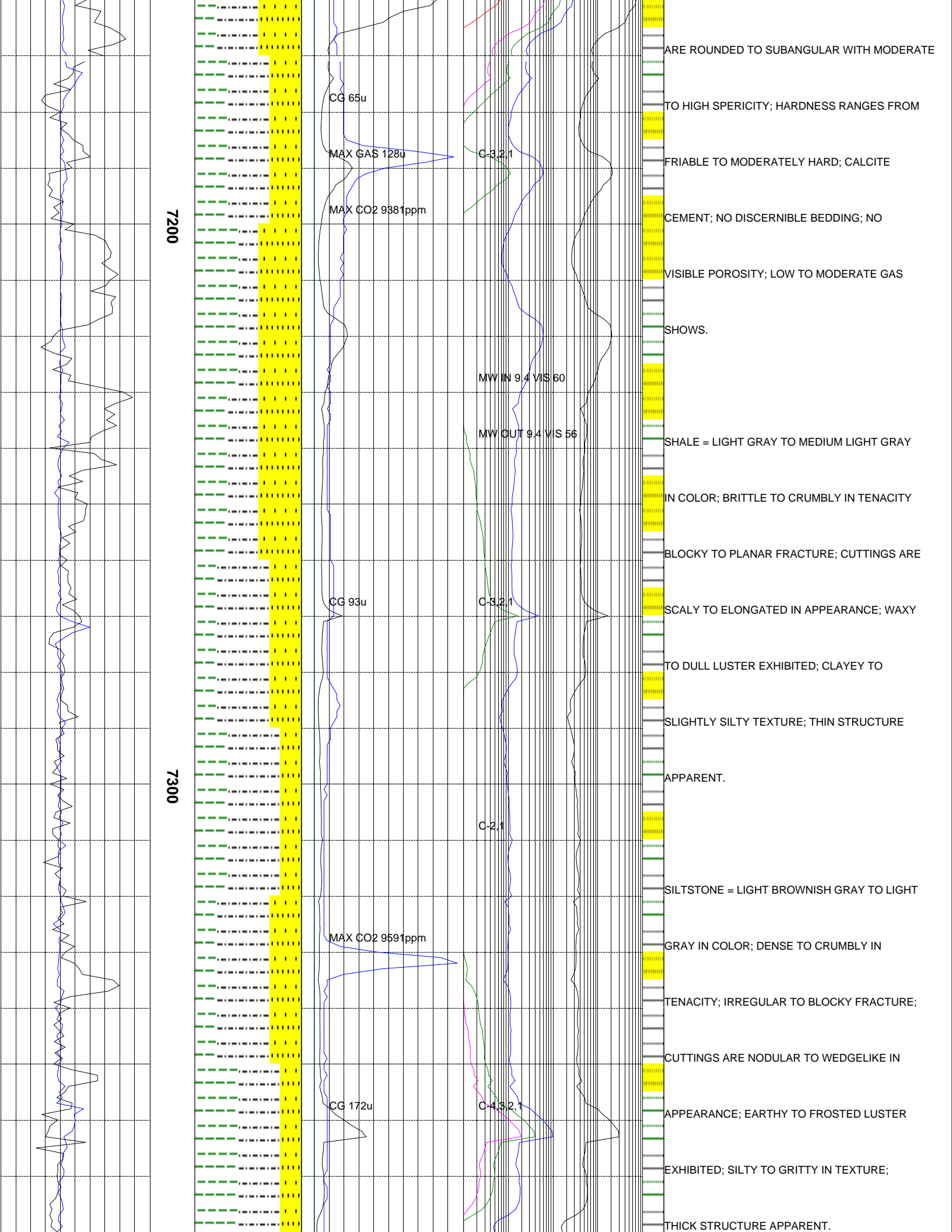












7200

7300

CG 65u

MAX GAS 128u

MAX CO2 9381ppm

CG 93u

MAX CO2 9591ppm

CG 172u

MW IN 9.4 V/S 60

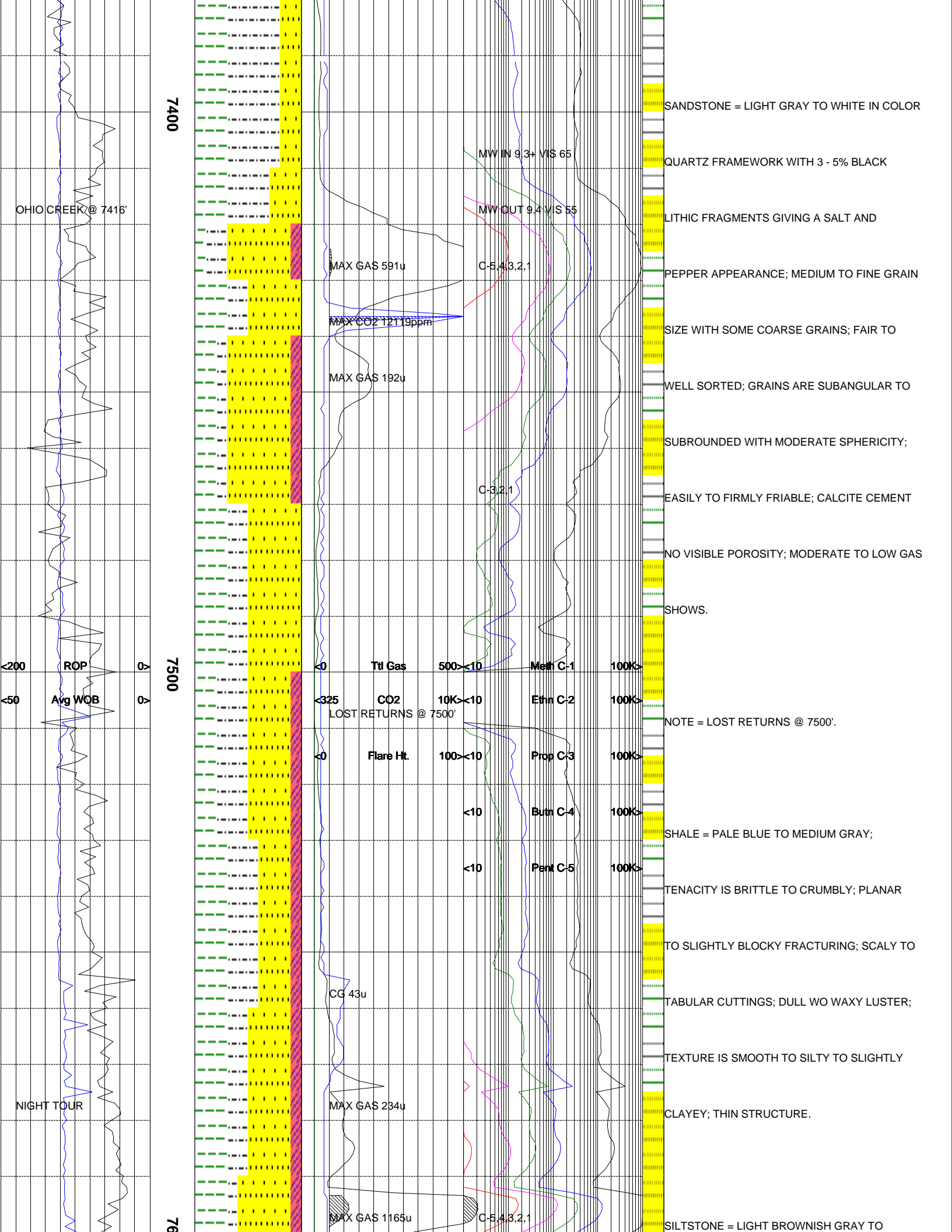
MW OUT 9.4 V/S 56

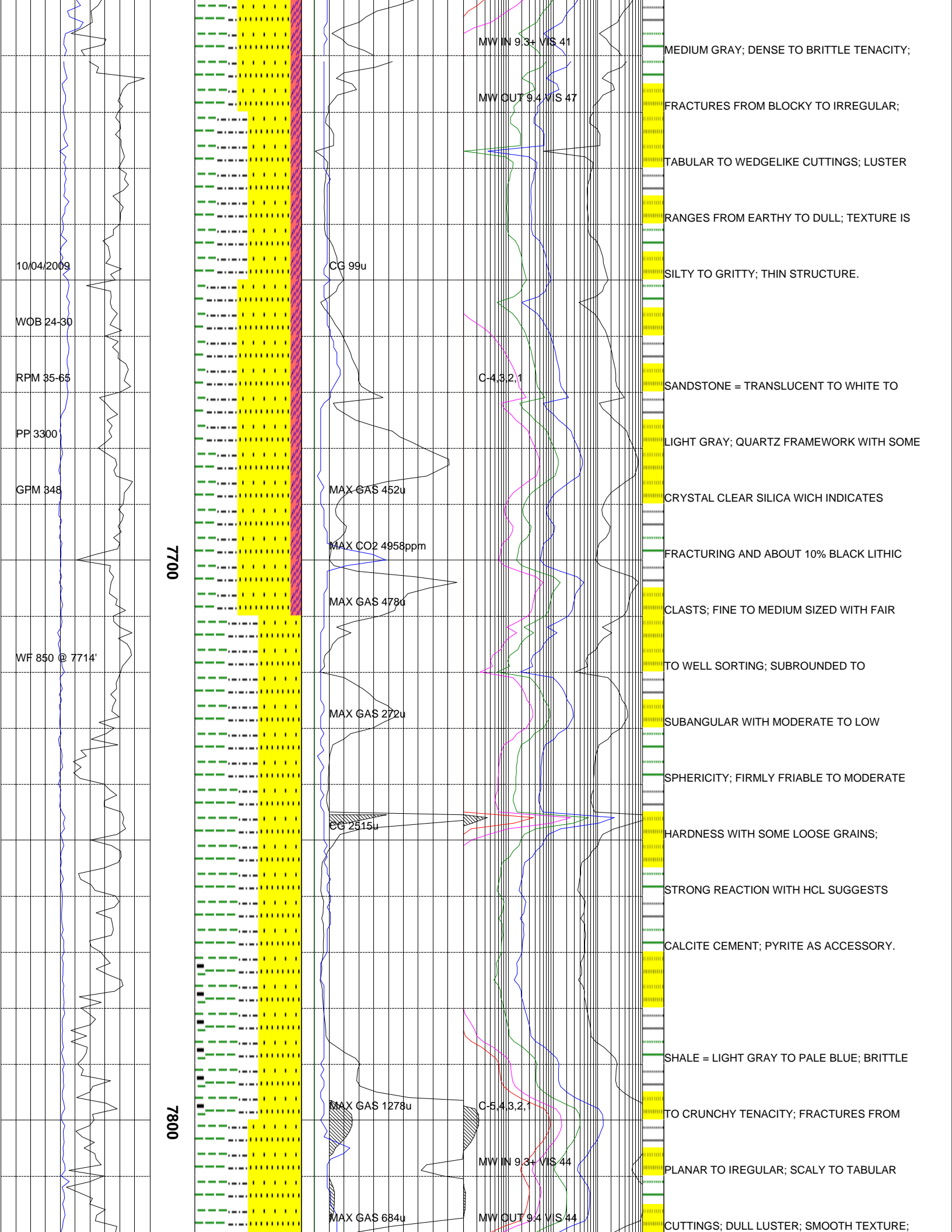
C-3.2.1

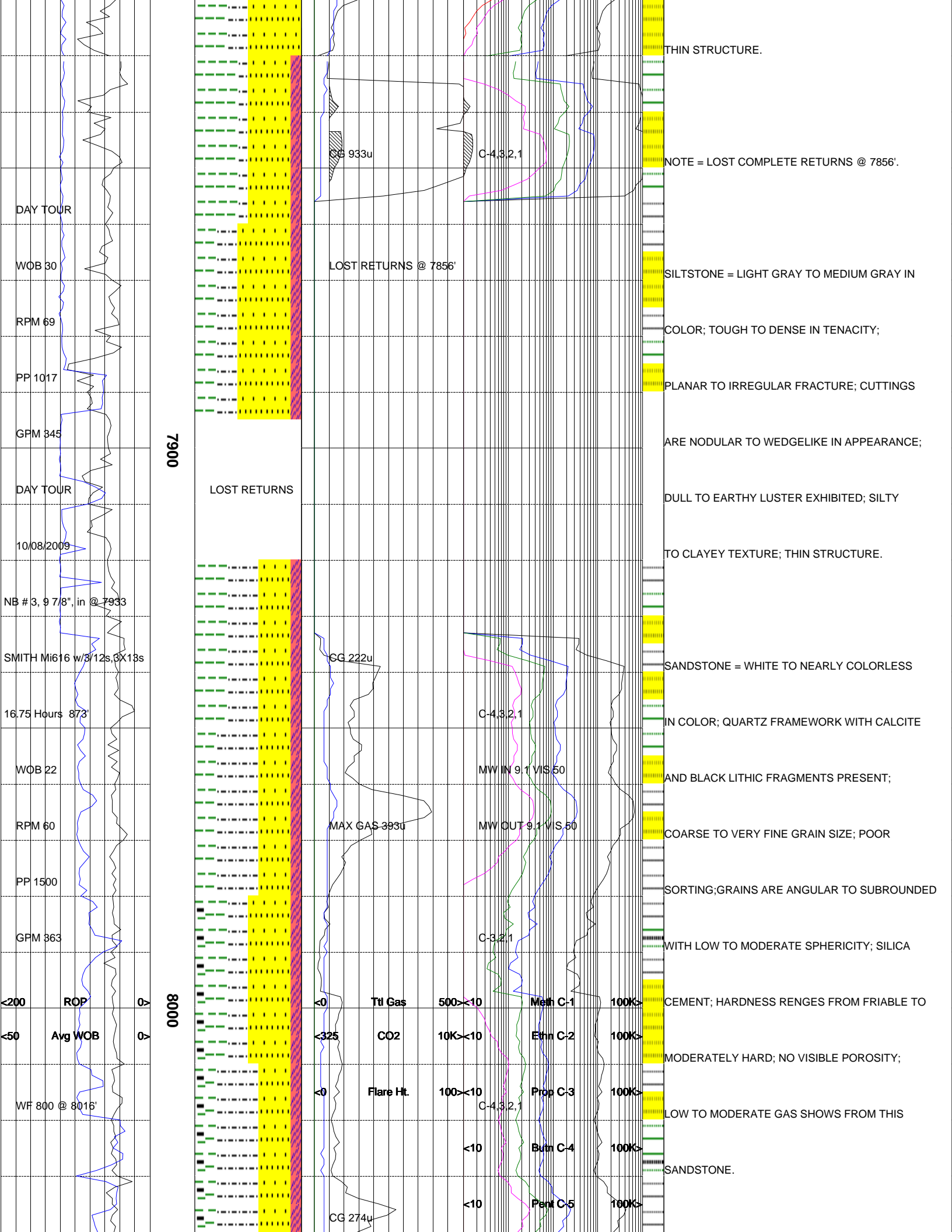
C-2.1

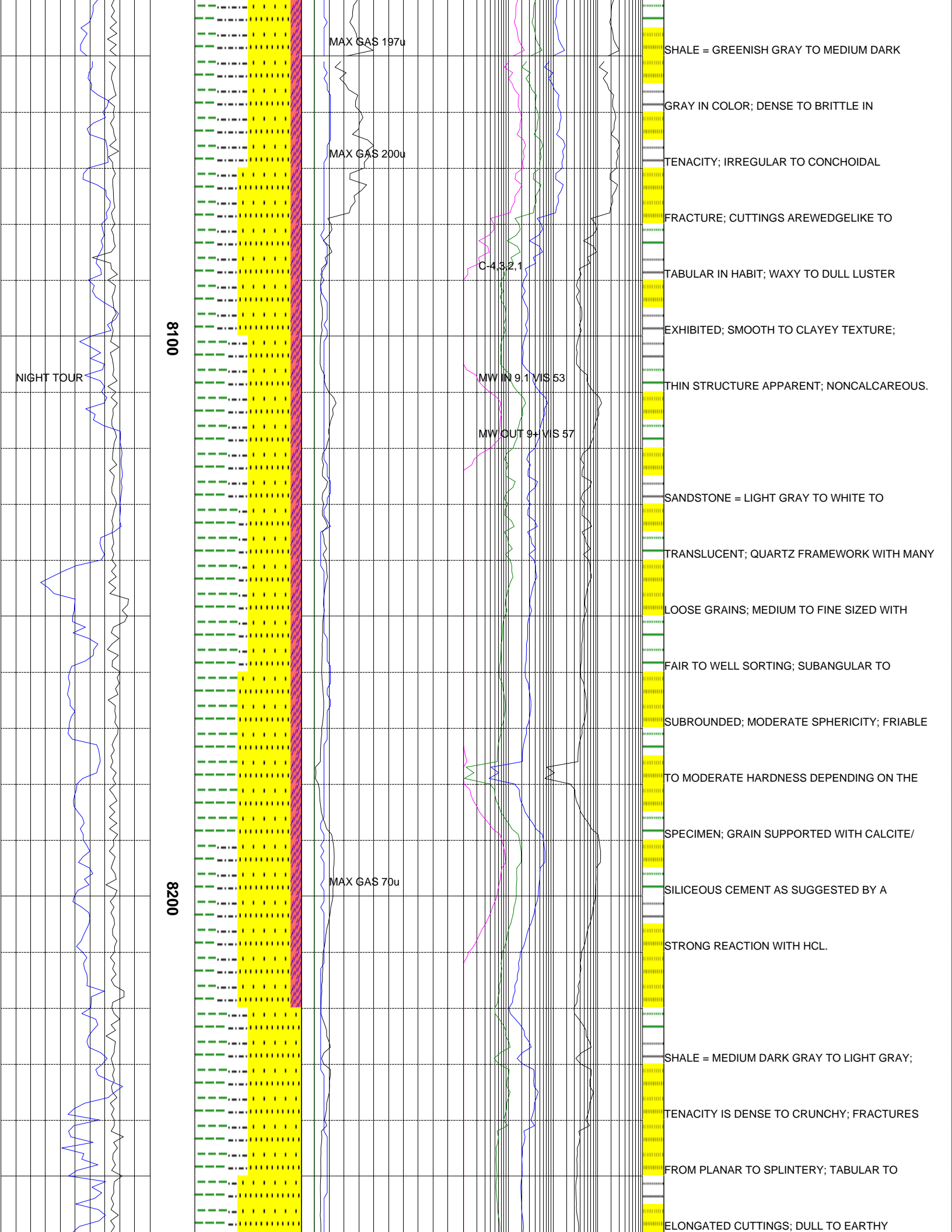
C-4.3.2.1

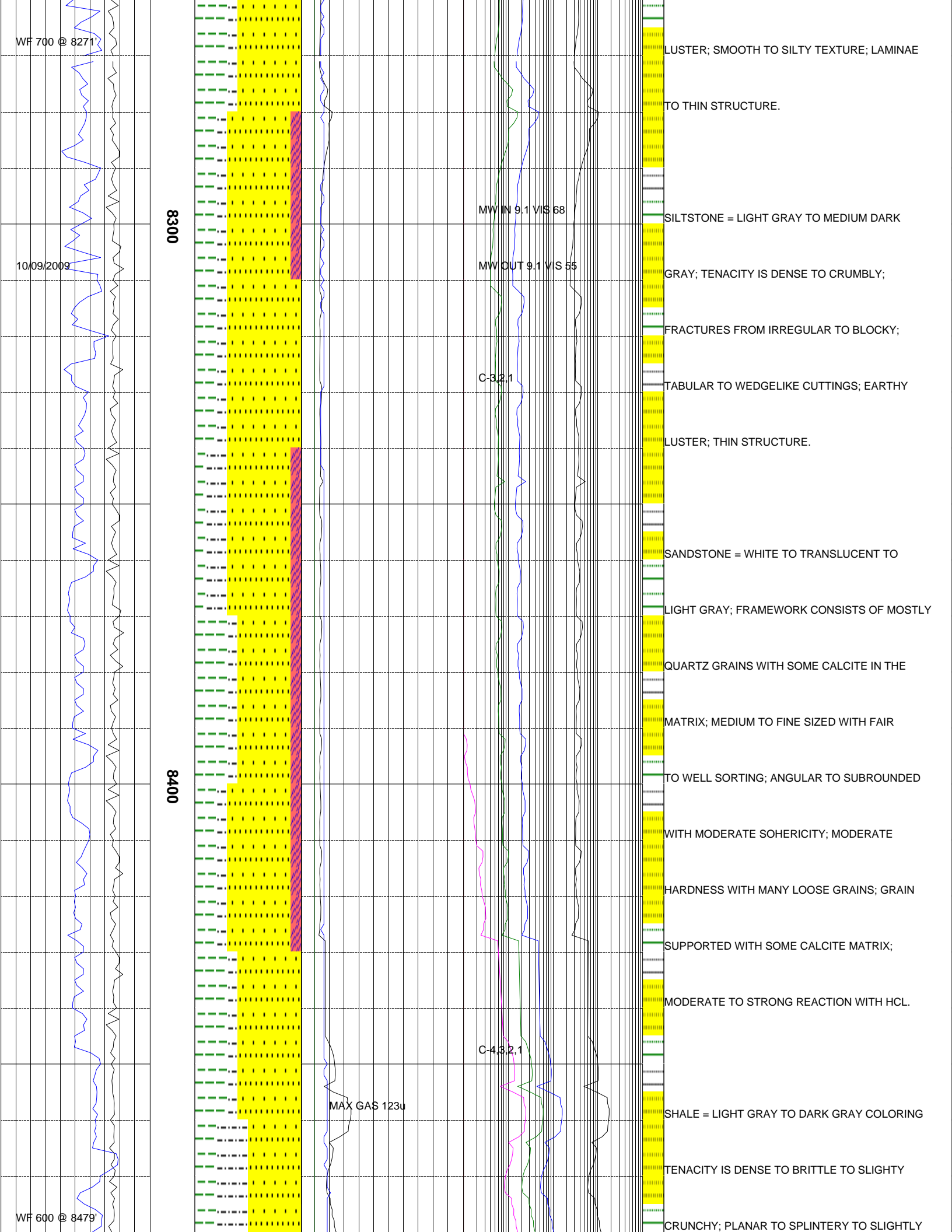
ARE ROUNDED TO SUBANGULAR WITH MODERATE
TO HIGH SPERICITY; HARDNESS RANGES FROM
FRIABLE TO MODERATELY HARD; CALCITE
CEMENT; NO DISCERNIBLE BEDDING; NO
VISIBLE POROSITY; LOW TO MODERATE GAS
SHOWS.
SHALE = LIGHT GRAY TO MEDIUM LIGHT GRAY
IN COLOR; BRITTLE TO CRUMBLY IN TENACITY
BLOCKY TO PLANAR FRACTURE; CUTTINGS ARE
SCALY TO ELONGATED IN APPEARANCE; WAXY
TO DULL LUSTER EXHIBITED; CLAYEY TO
SLIGHTLY SILTY TEXTURE; THIN STRUCTURE
APPARENT.
SILTSTONE = LIGHT BROWNISH GRAY TO LIGHT
GRAY IN COLOR; DENSE TO CRUMBLY IN
TENACITY; IRREGULAR TO BLOCKY FRACTURE;
CUTTINGS ARE NODULAR TO WEDGELIKE IN
APPEARANCE; EARTHY TO FROSTED LUSTER
EXHIBITED; SILTY TO GRITTY IN TEXTURE;
THICK STRUCTURE APPARENT.

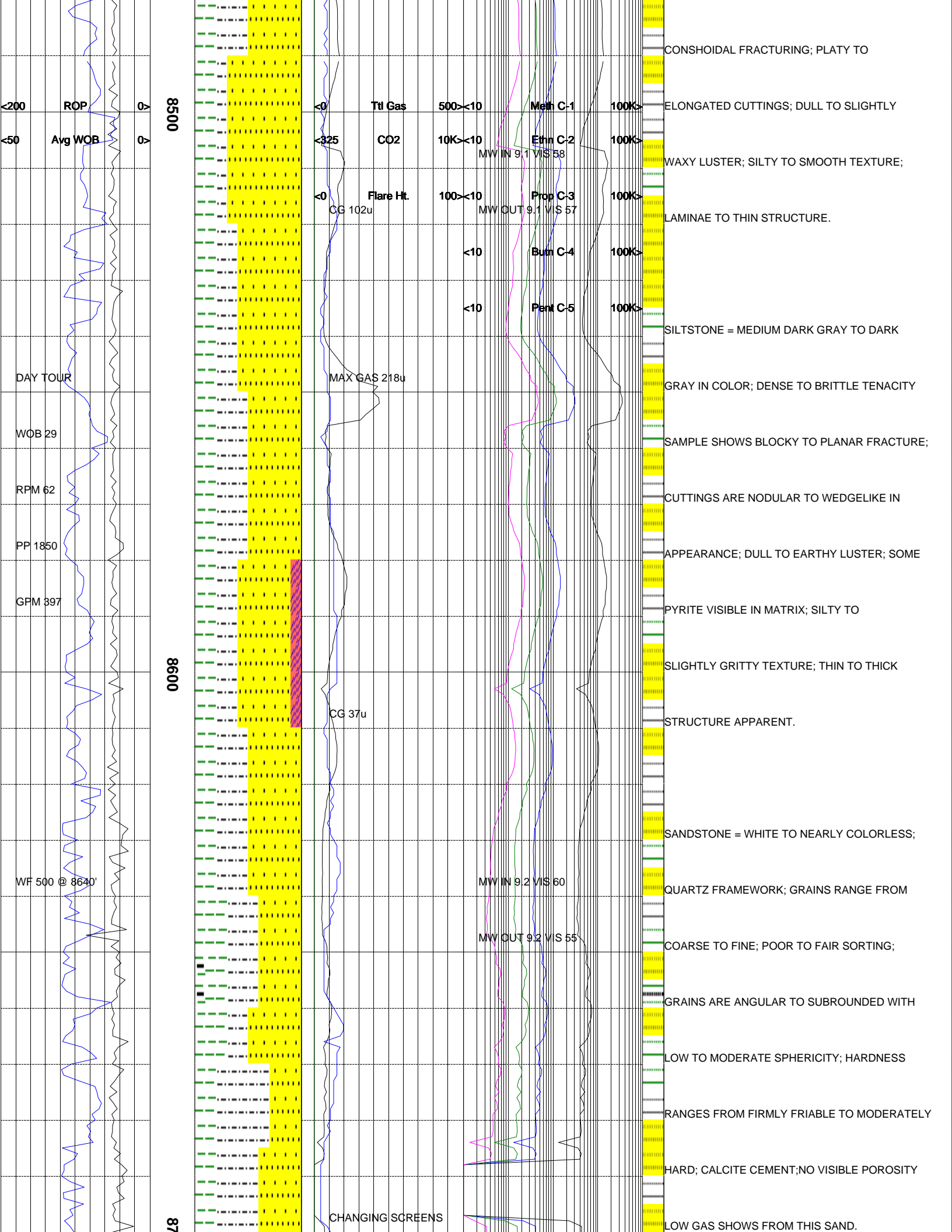


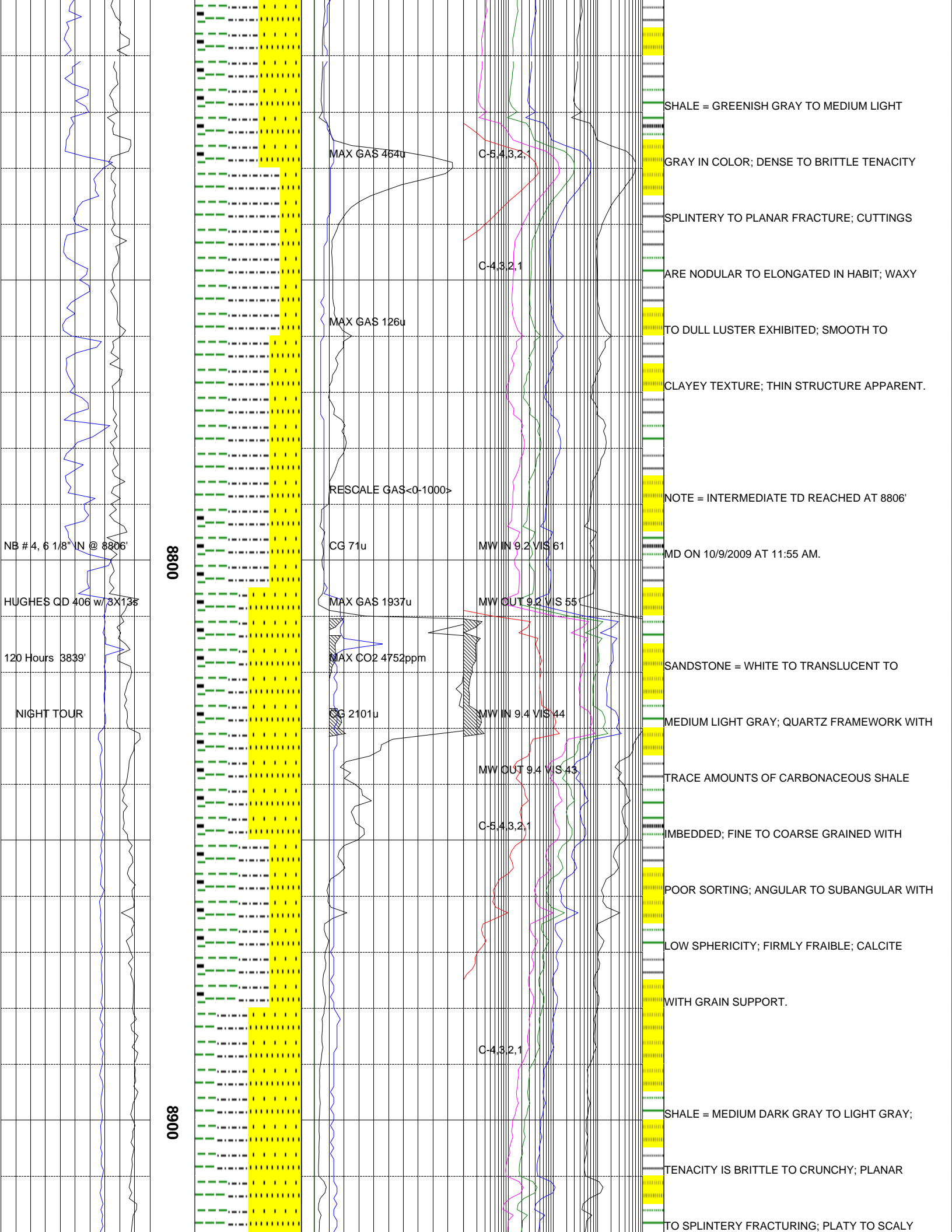


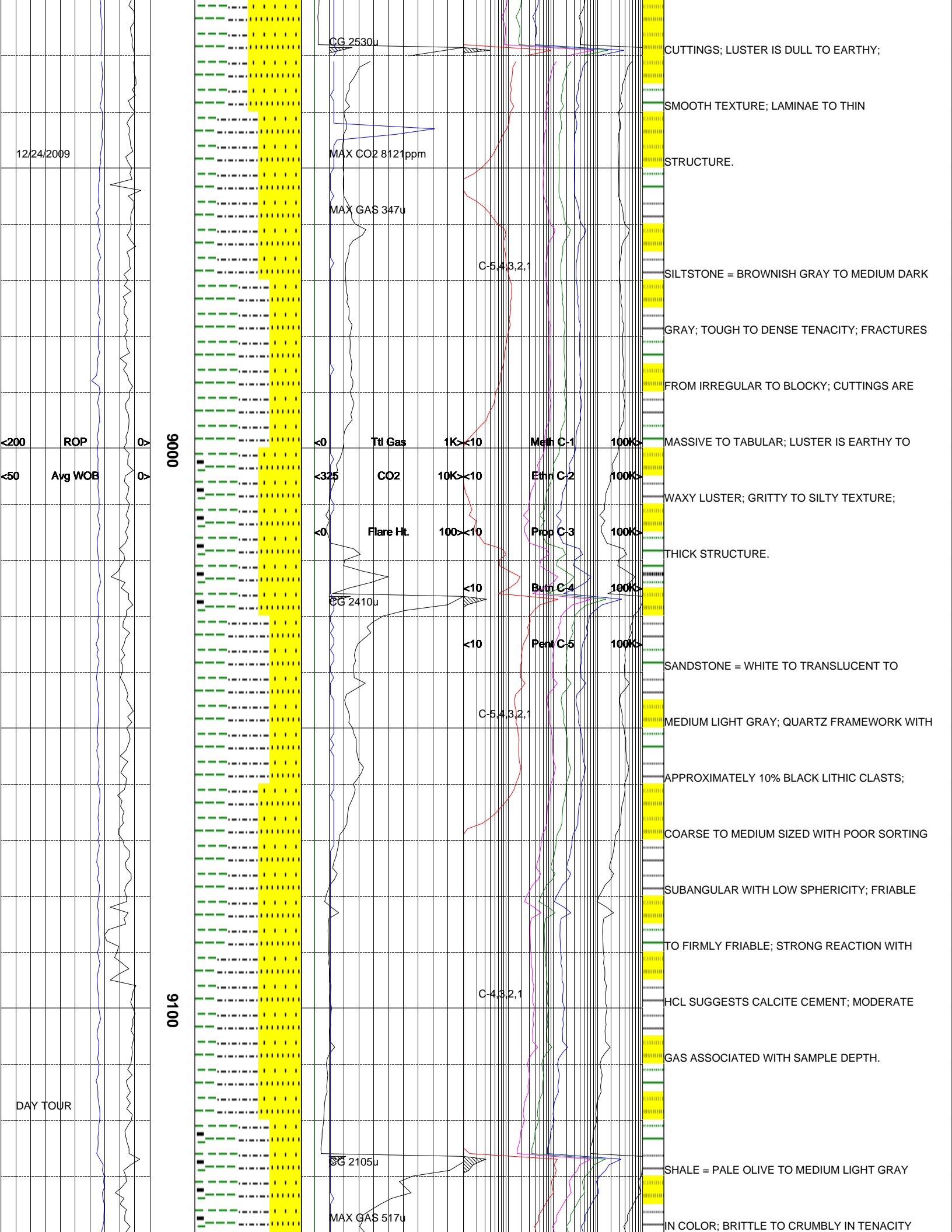


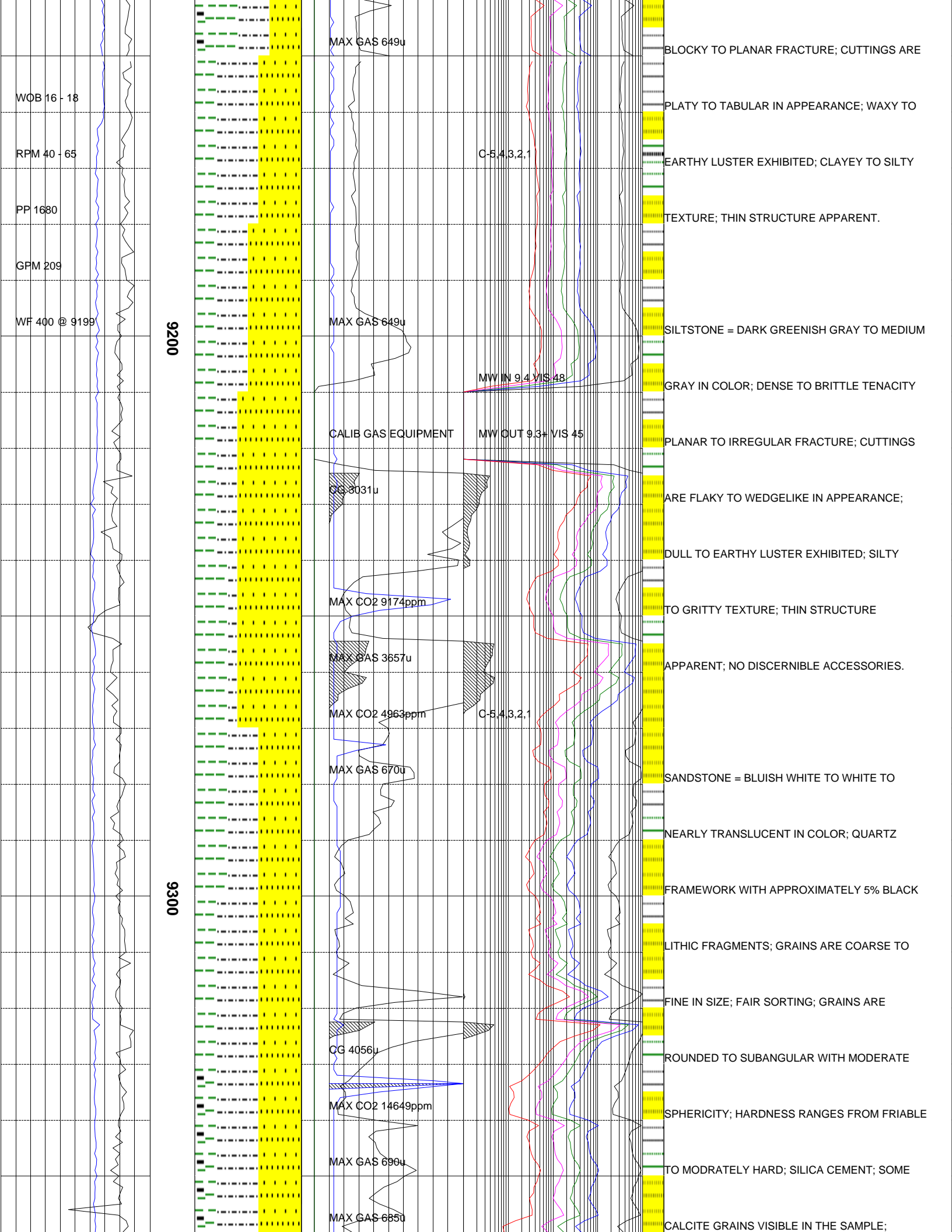












MAX GAS 649u

BLOCKY TO PLANAR FRACTURE; CUTTINGS ARE

WOB 16 - 18

PLATY TO TABULAR IN APPEARANCE; WAXY TO

RPM 40 - 65

C-5.4.3.2.1

EARTHY LUSTER EXHIBITED; CLAYEY TO SILTY

PP 1680

TEXTURE; THIN STRUCTURE APPARENT.

GPM 209

WF 400 @ 9199

9200

MAX GAS 649u

SILTSTONE = DARK GREENISH GRAY TO MEDIUM

MW IN 9.4 VIS 48

GRAY IN COLOR; DENSE TO BRITTLE TENACITY

CALIB GAS EQUIPMENT

MW OUT 9.3+ VIS 45

PLANAR TO IRREGULAR FRACTURE; CUTTINGS

QC 3031u

ARE FLAKY TO WEDGELIKE IN APPEARANCE;

DULL TO EARTHY LUSTER EXHIBITED; SILTY

MAX CO2 9174ppm

TO GRITTY TEXTURE; THIN STRUCTURE

MAX GAS 3657u

APPARENT; NO DISCERNIBLE ACCESSORIES.

MAX CO2 4963ppm

C-5.4.3.2.1

SANDSTONE = BLUISH WHITE TO WHITE TO

NEARLY TRANSLUCENT IN COLOR; QUARTZ

9300

MAX GAS 670u

FRAMEWORK WITH APPROXIMATELY 5% BLACK

LITHIC FRAGMENTS; GRAINS ARE COARSE TO

FINE IN SIZE; FAIR SORTING; GRAINS ARE

QC 4056u

ROUNDED TO SUBANGULAR WITH MODERATE

MAX CO2 14649ppm

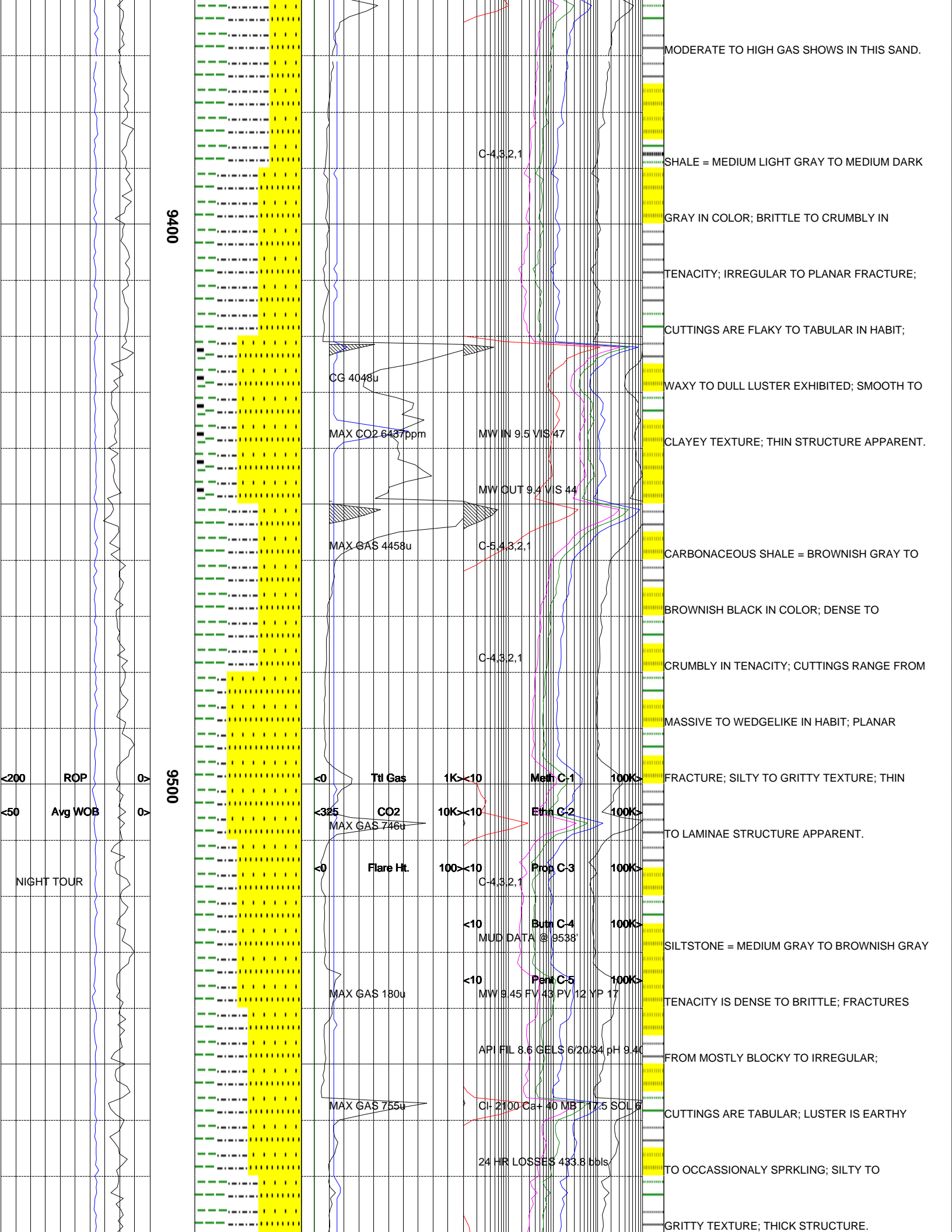
SPHERICITY; HARDNESS RANGES FROM FRIABLE

MAX GAS 690u

TO MODERATELY HARD; SILICA CEMENT; SOME

MAX GAS 685u

CALCITE GRAINS VISIBLE IN THE SAMPLE;



0096

MAX GAS 848u

CG 1582u

MW IN 9.4 VIS 48

MAX GAS 2403u

MW OUT 9.4 VIS 44

MAX CO2 10017ppm

C-5.4.3.2.1

MAX CO2 14860ppm

RESCALE GAS<0-2000>

CG 1756u

C-4.3.2.1

MAX GAS 3873u

SANDSTONE = WHITE TO MEDIUM LIGHT GRAY

TO OCCASSIONALY TRANSLUCENT; QUARTZ

FRAMEWORK; FINE TO MEDIUM SIZED GRAINS

WITH FAIR SORTING; SUBANGULAR TO

SUBROUNDED WITH MODERATE SPHERICITY;

GRAIN SUPPORTED; MODERATE HARDNESS;

VERY SLIGHT REACTION WITH HCL SUGGESTS

SILICA CEMENT; TRACE AMOUNTS OF PYRITE

PRESENT AS AN ACCESSORY MINERAL.

SHALE = LIGHT GRAY WITH PALE BLUE HUES;

TENACITY IS BRITTLE TO SLIGHTLY CRUNCHY;

FRACTURES FROM MOSTLY PLANAR TO

OCCASSIONALY SPLINTERY; CUTTINGS ARE

PLATY TO SCALY; LUSTER IS DULL TO WAXY;

TEXTURE IS SMOOTH; LAMINAE TO THIN

STRUCTURE.

CARBONACEOUS SHALE = BROWNISH BLACK TO

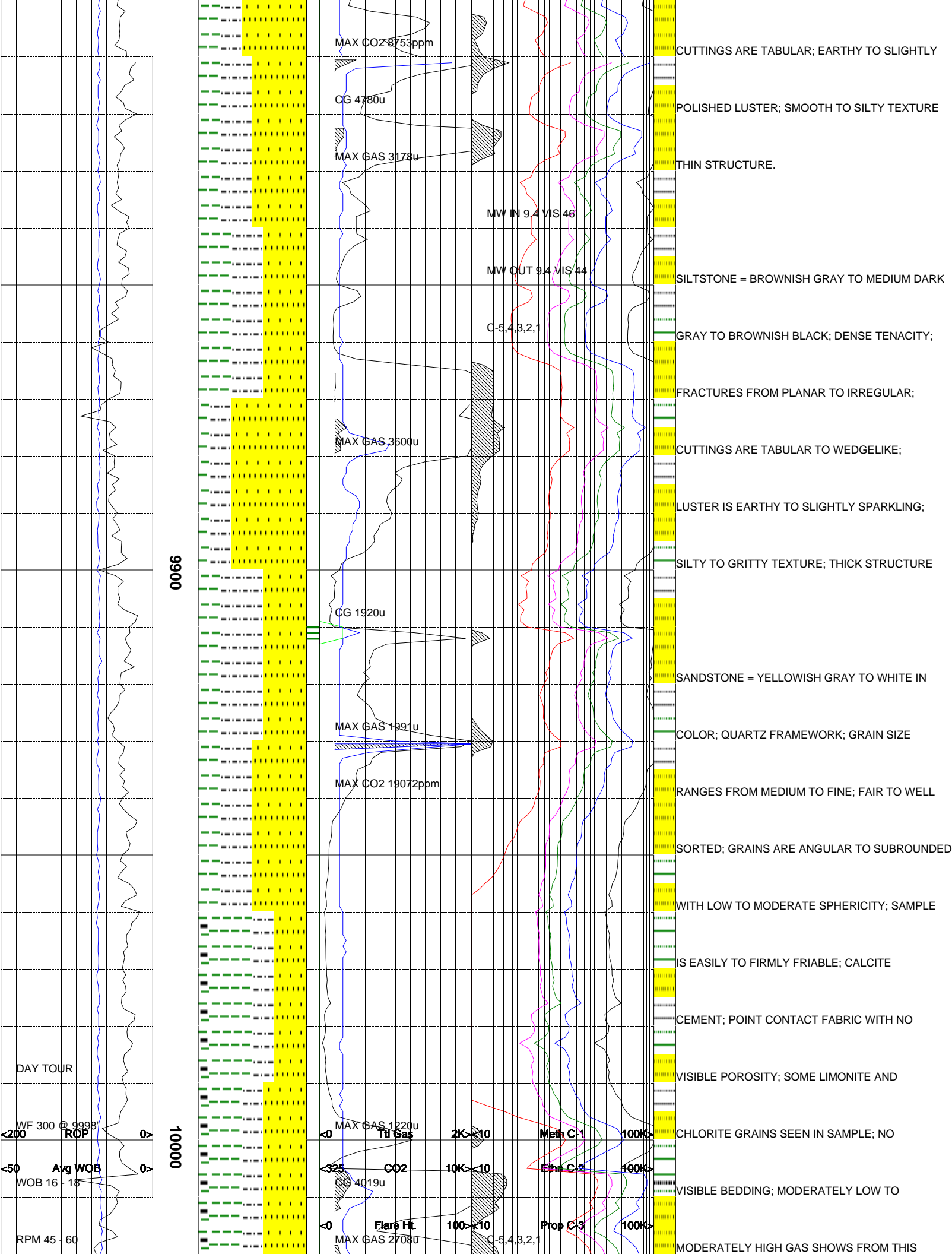
MEDIUM DARK GRAY; TENACITY IS CRUMBLY TO

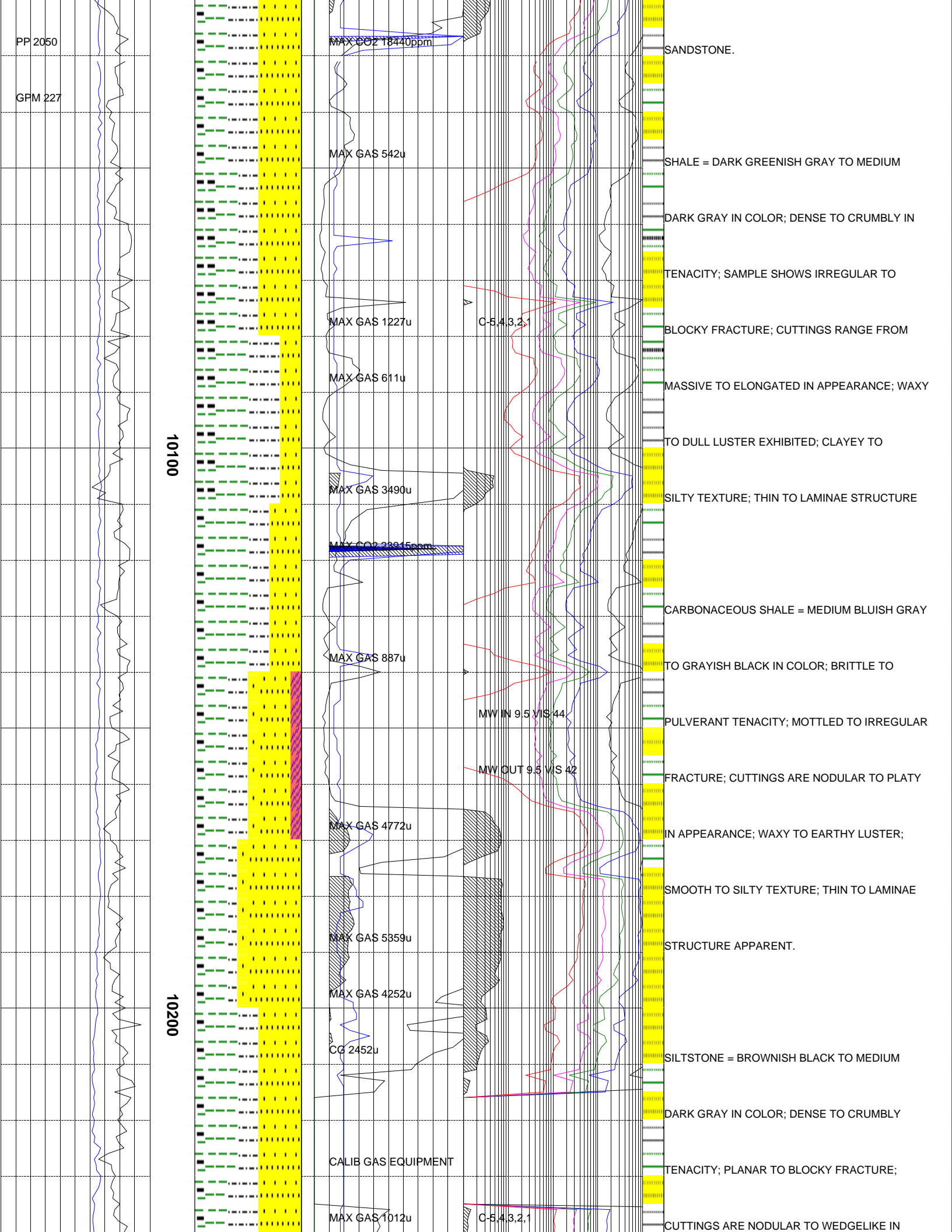
BRITTLE; FRACTURES FROM BLOCKY TO PLANAR

9700

98

12/25/2009





PP 2050

GPM 227

MAX CO2 18440ppm

MAX GAS 542u

MAX GAS 1227u

MAX GAS 611u

MAX GAS 3490u

MAX CO2 23915ppm

MAX GAS 887u

MAX GAS 4772u

MAX GAS 5359u

MAX GAS 4252u

CG 2452u

CALIB GAS EQUIPMENT

MAX GAS 1012u

C-5.4.3.2

MW IN 9.5 V/S 44

MW OUT 9.5 V/S 42

C-5.4.3.2,1

SANDSTONE.

SHALE = DARK GREENISH GRAY TO MEDIUM

DARK GRAY IN COLOR; DENSE TO CRUMBLY IN

TENACITY; SAMPLE SHOWS IRREGULAR TO

BLOCKY FRACTURE; CUTTINGS RANGE FROM

MASSIVE TO ELONGATED IN APPEARANCE; WAXY

TO DULL LUSTER EXHIBITED; CLAYEY TO

SILTY TEXTURE; THIN TO LAMINAE STRUCTURE

CARBONACEOUS SHALE = MEDIUM BLuish GRAY

TO GRAYISH BLACK IN COLOR; BRITTLE TO

PULVERANT TENACITY; MOTTLED TO IRREGULAR

FRACTURE; CUTTINGS ARE NODULAR TO PLATY

IN APPEARANCE; WAXY TO EARTHY LUSTER;

SMOOTH TO SILTY TEXTURE; THIN TO LAMINAE

STRUCTURE APPARENT.

SILTSTONE = BROWNISH BLACK TO MEDIUM

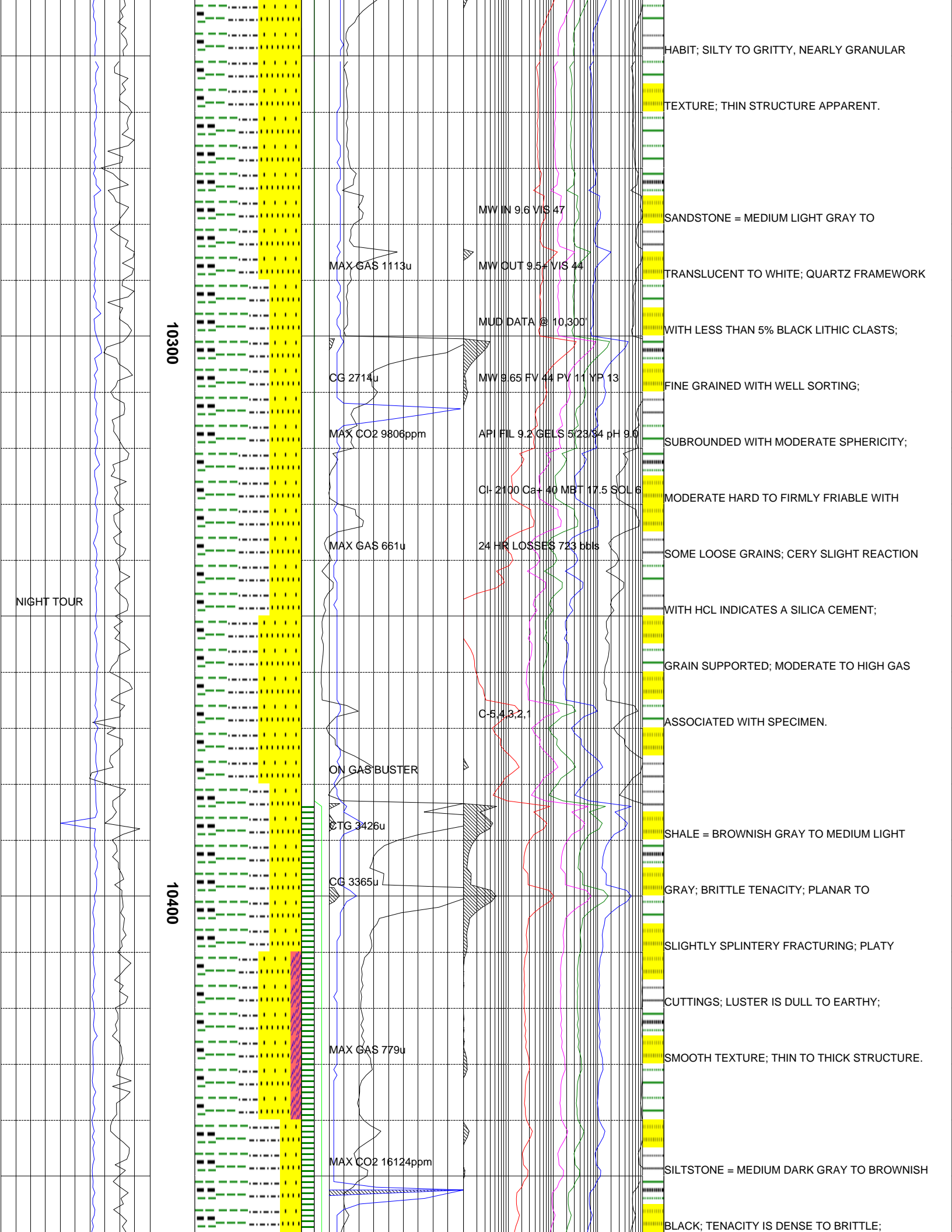
DARK GRAY IN COLOR; DENSE TO CRUMBLY

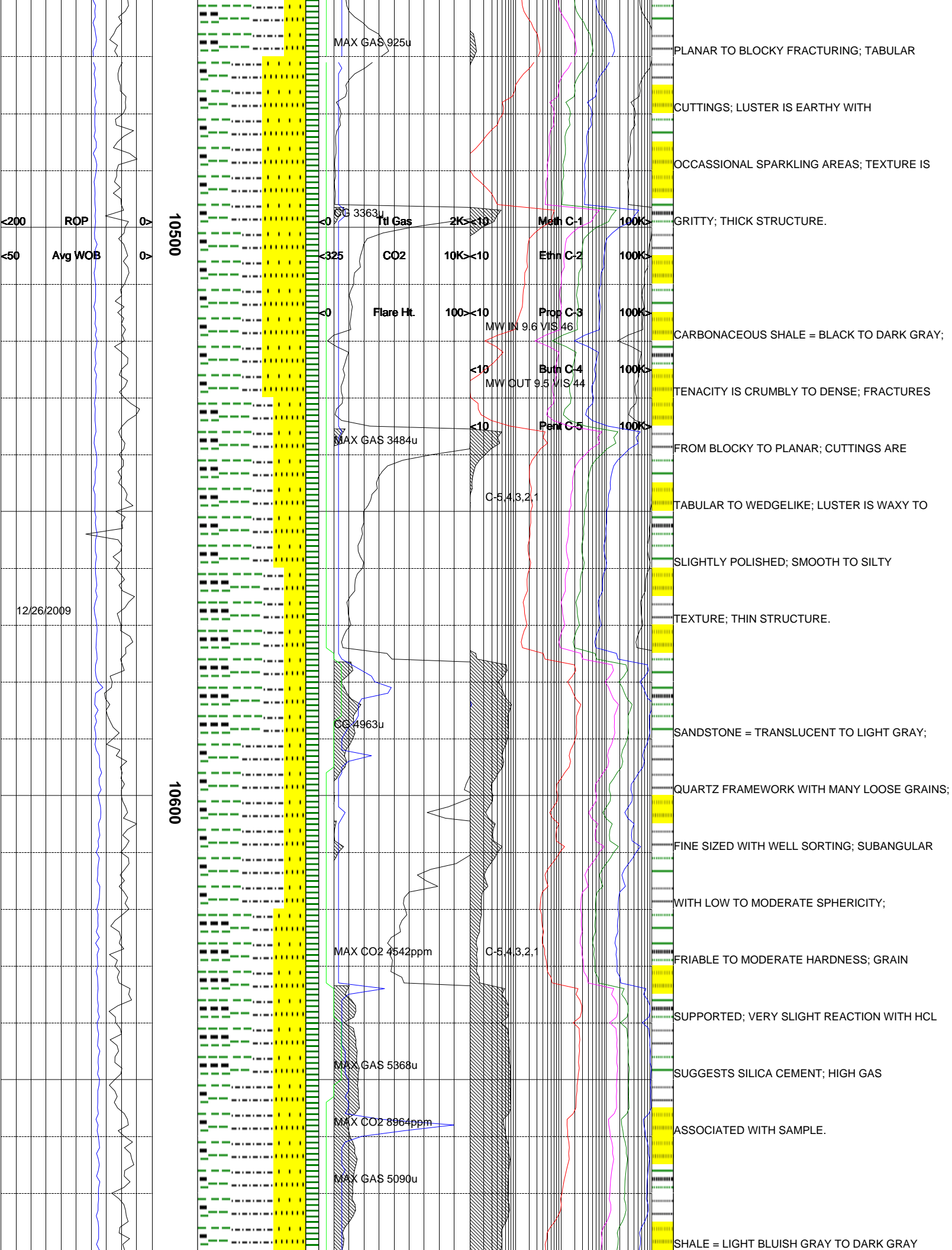
TENACITY; PLANAR TO BLOCKY FRACTURE;

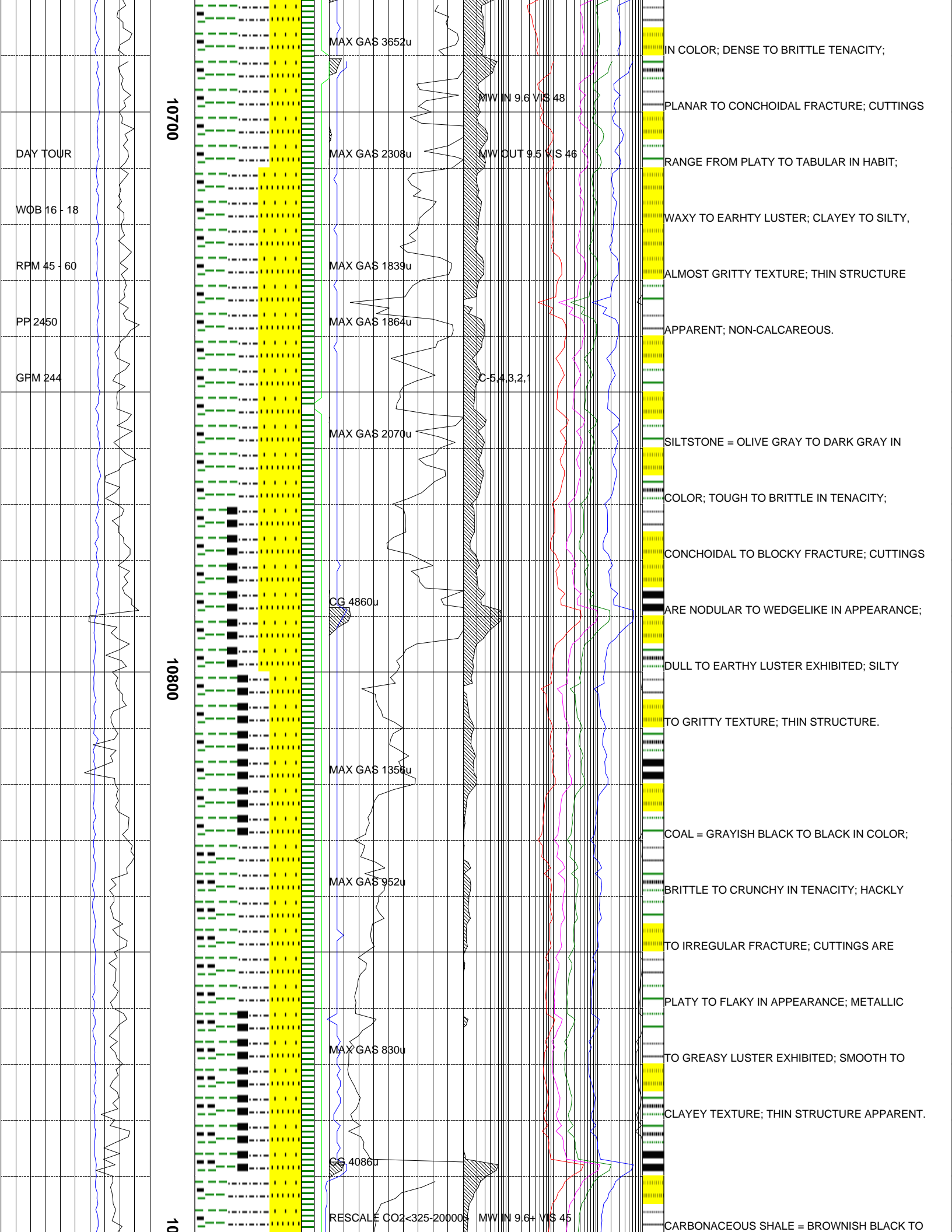
CUTTINGS ARE NODULAR TO WEDGELIKE IN

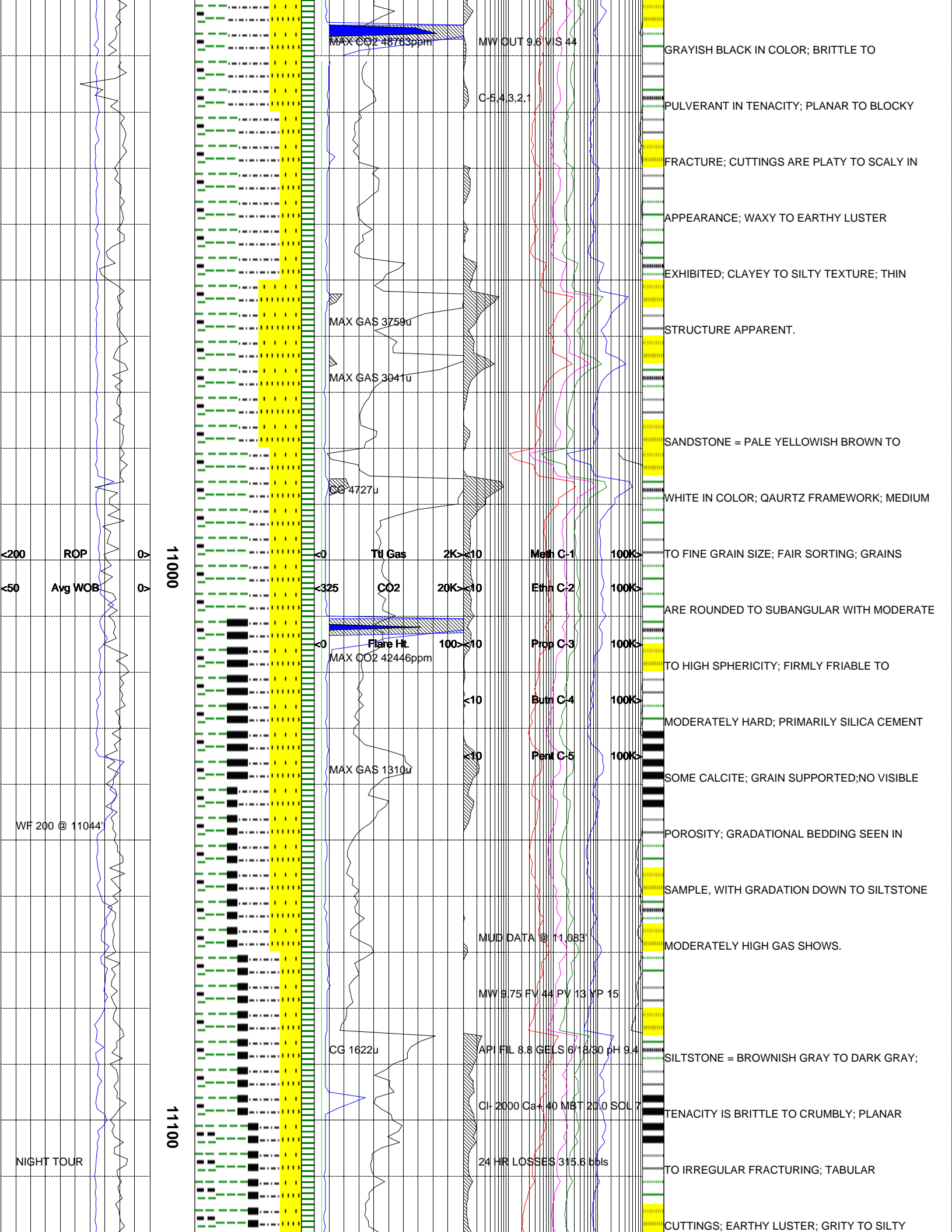
10100

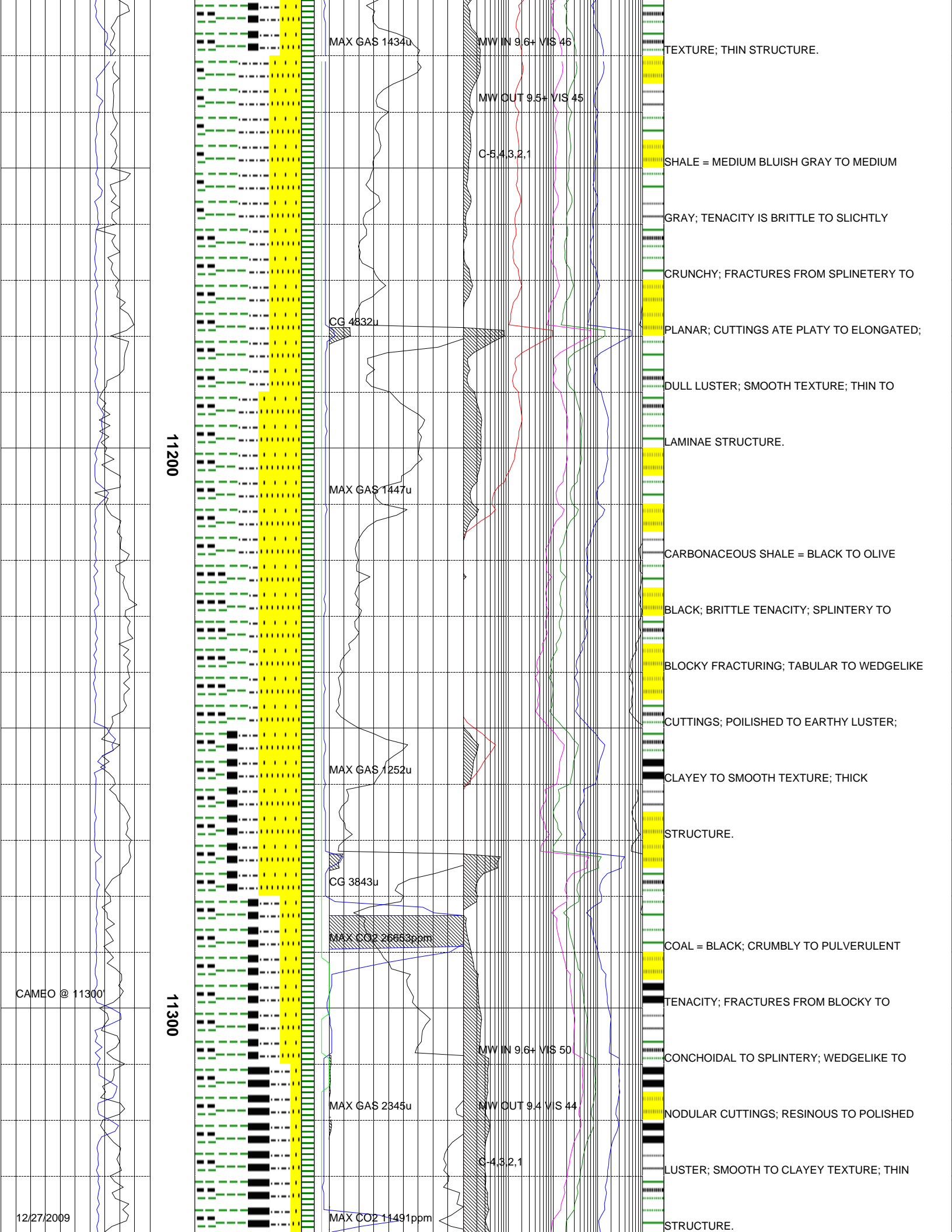
10200

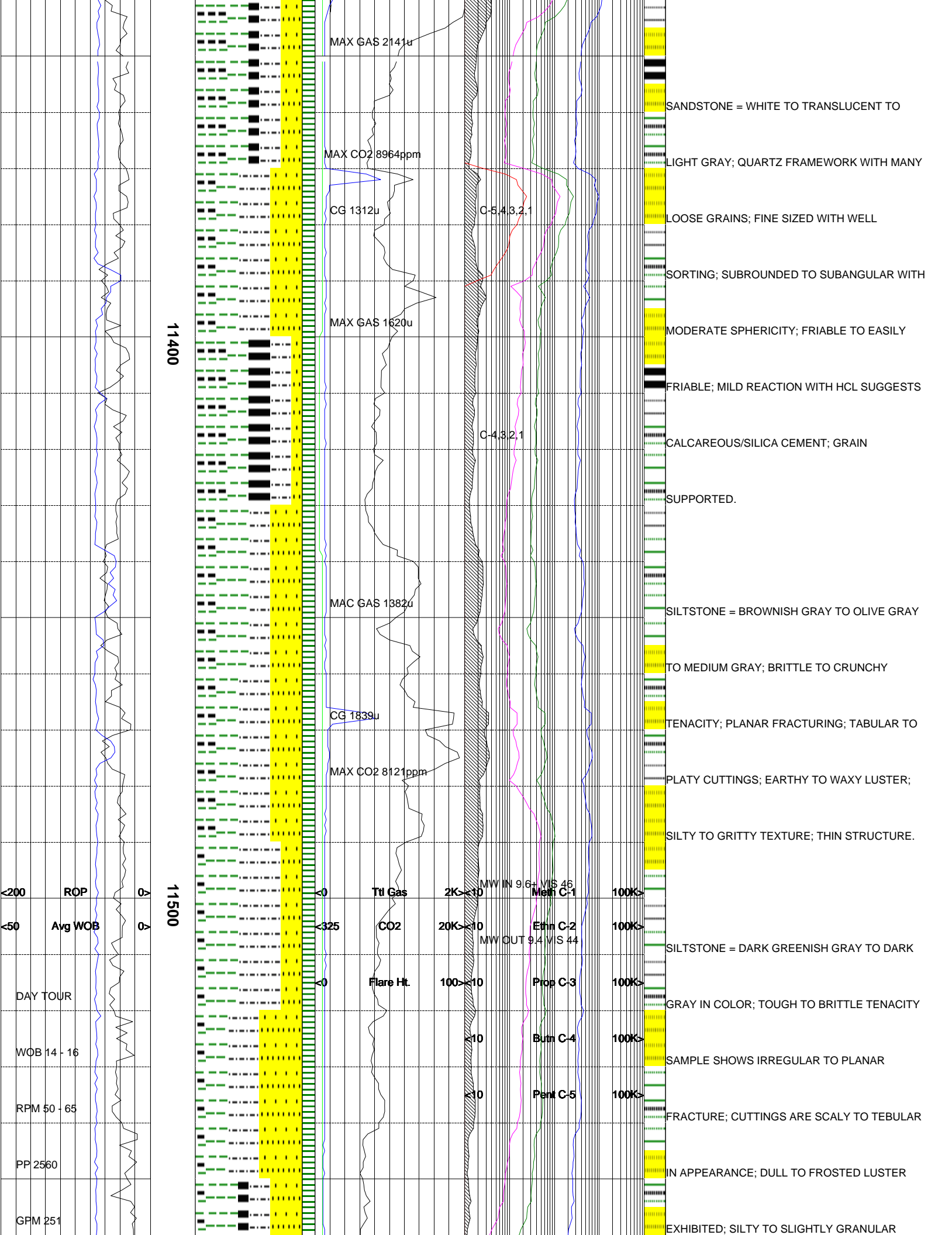


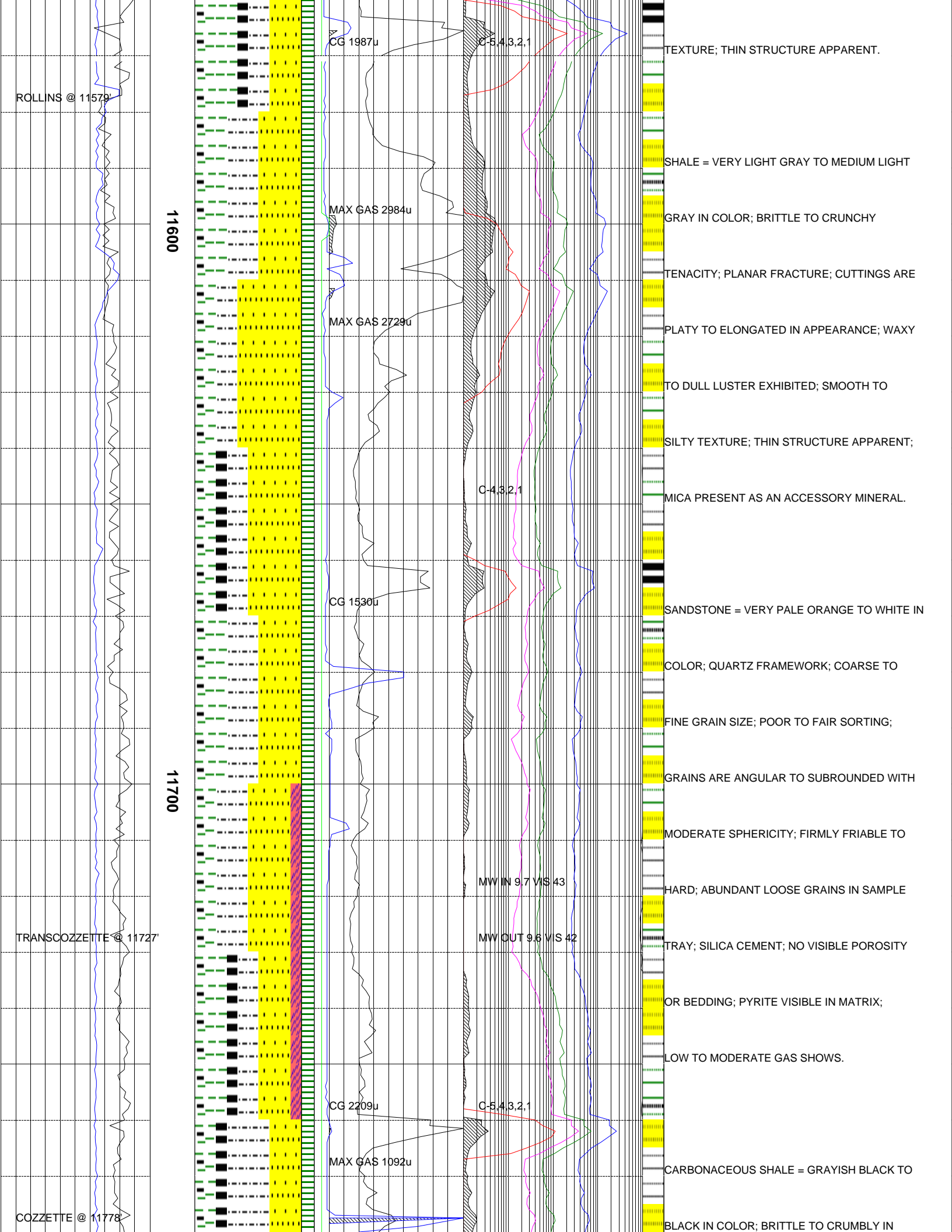


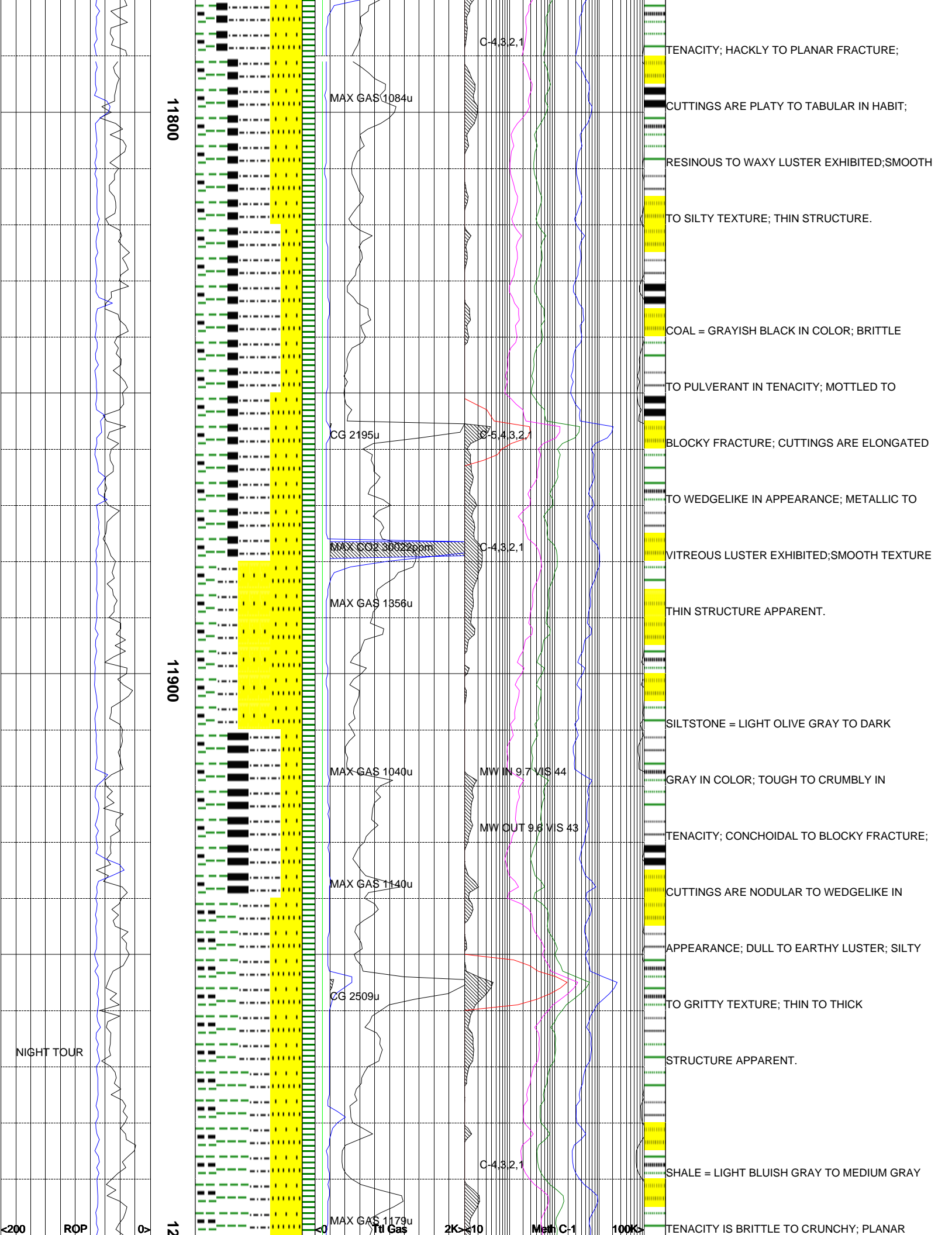


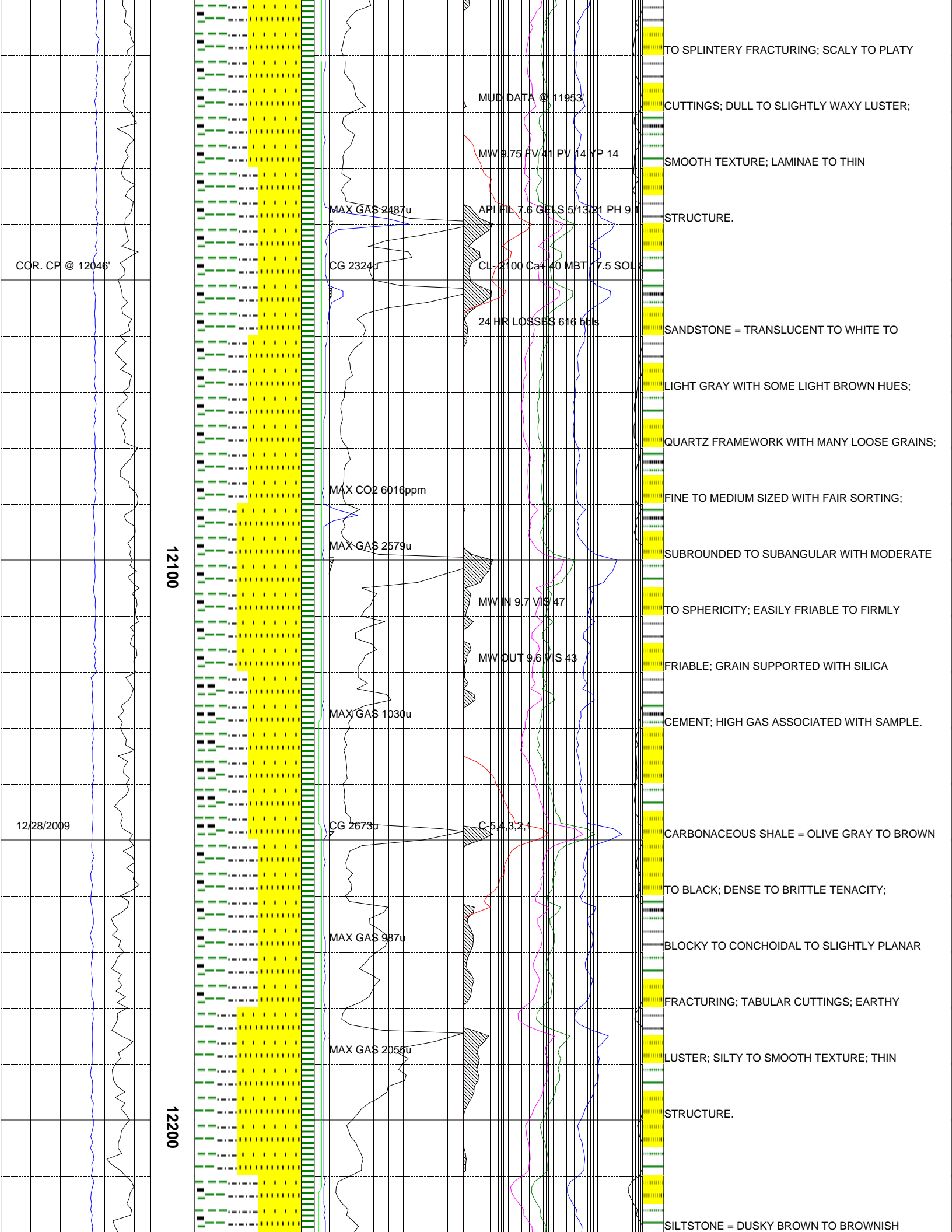


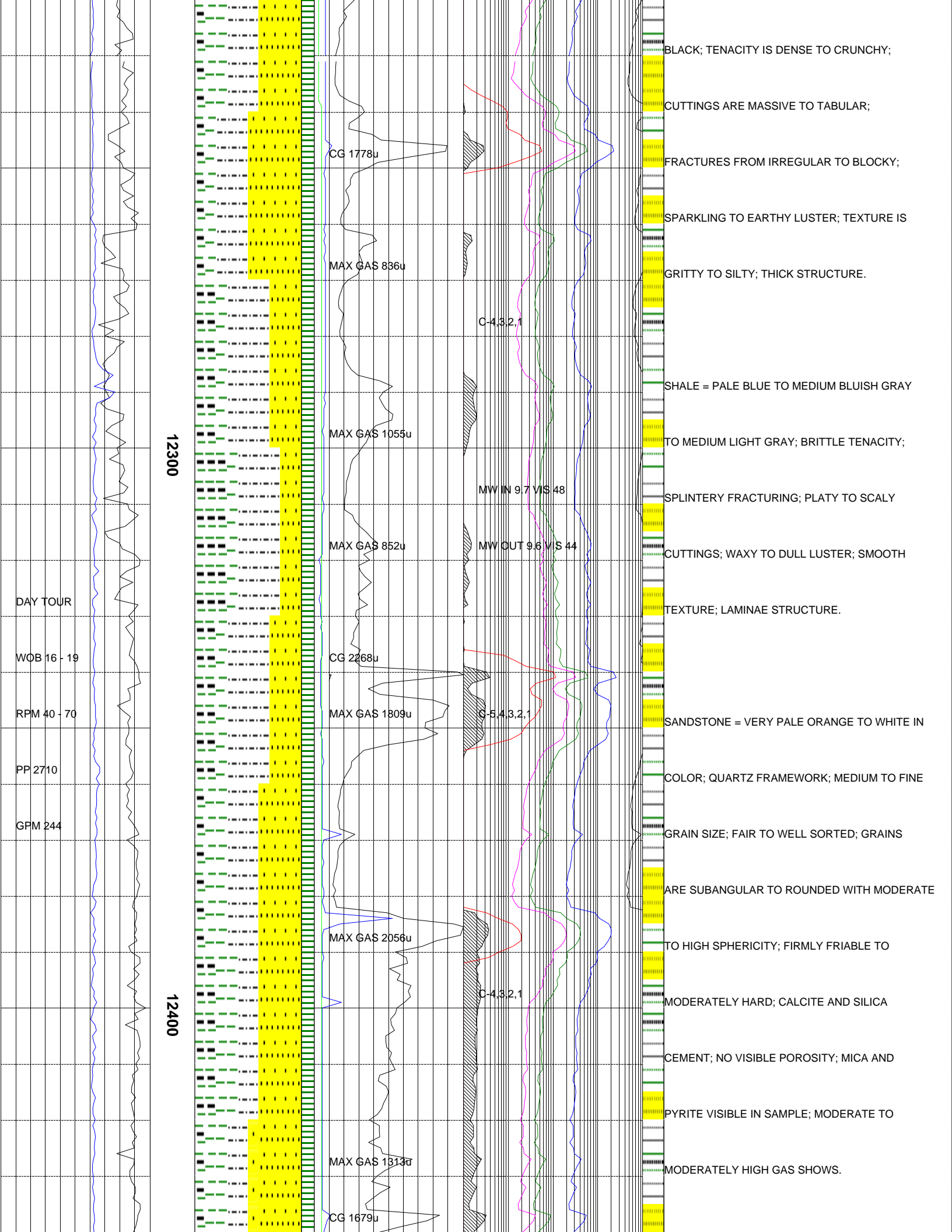


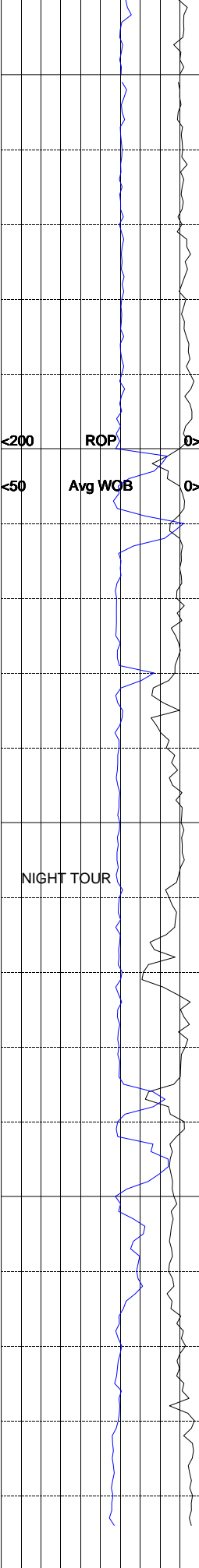






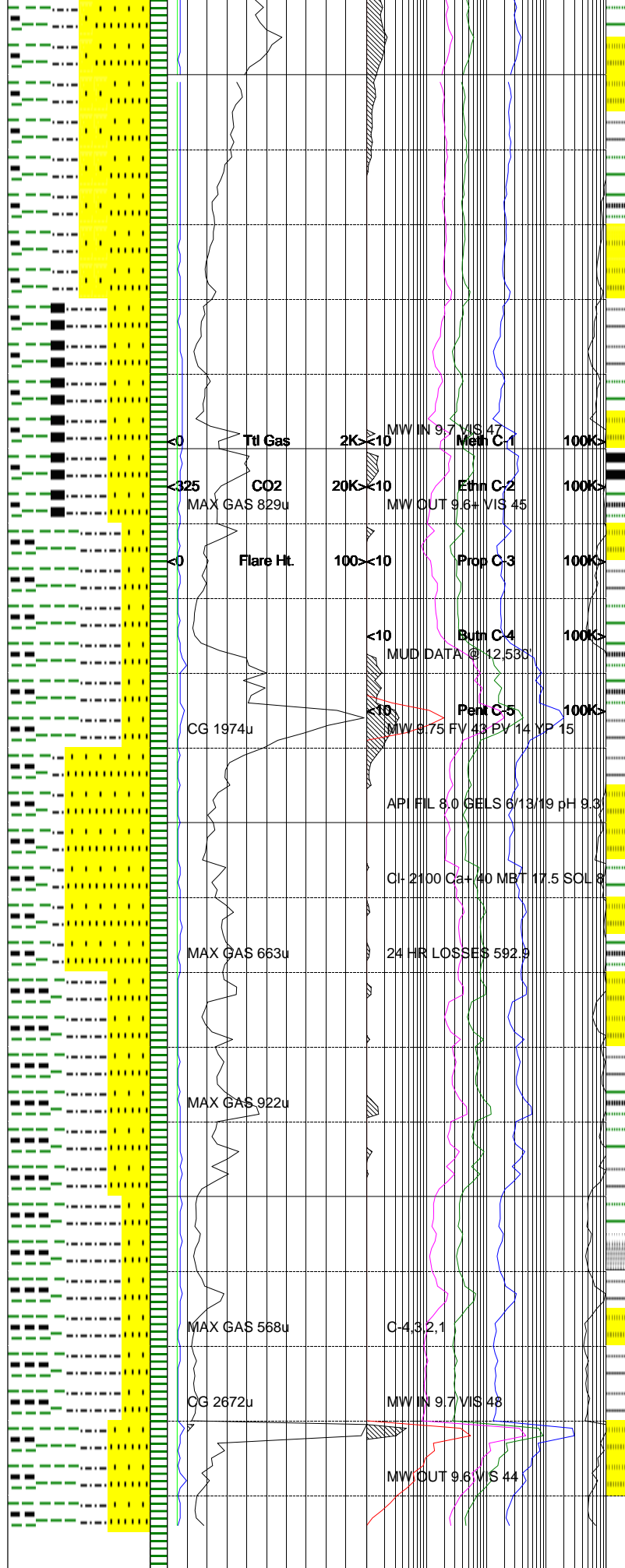






12500

12600



CARBONACEOUS SHALE = GRAYISH BLACK TO BLACK IN COLOR; DENSE TO CRUNCHY IN TENACITY; PLANAR TO CONCHOIDAL FRACTURE; CUTTINGS ARE SCALY TO EQUANT IN HABIT; GREASY TO WAXY LUSTER EXHIBITED; SMOOTH TO CLAYEY TEXTURE; THIN STRUCTURE APPARENT.

SILTSTONE = DUSKY BROWN TO BROWNISH BLACK; DENSE TO TOUGH TENACITY; FRACTURES FROM IRREGULAR TO BLOCKY; MASSIVE TO TABULAR CUTTINGS; EARTHY TO WAXY LUSTER; GRITTY TO SILTY TEXTURE; THICK STRUCTURE.

NOTE = REACHED TOTAL DEPTH OF 12645' MD ON 12/28/2009 AT 11:30 PM.

