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## MUDLOG MD

COMPANY	ExxonMobil Production
WELL	FRU197-28A6
FIELD	FREEDOM RANCH UNIT
REGION	ROCKIES
COORDINATES	LAT: 39.934490000 LON: 108.295893000
ELEVATION	GL = 6,082' KB = 6,109'
COUNTY, STATE	RIO BLANCO, COLORADO
API INDEX	051031163400
SPUD DATE	07/10/2010
CONTRACTOR	HELMRICH AND PAYNE
CO. REP.	RICKY T. OWENS
RIG/TYPE	215 / FLEX 3
LOGGING UNIT	MLU 051
GEOLOGISTS	GEORGE BAKER DEVIN CLAAR
ADD. PERSONS	BILL JOHANNING PATRICIA ORTIZ
CO. GEOLOGIST	MELANIE A. BIGGS

### LOG INTERVAL

DEPTHS: 3,600' TO 12,191'  
DATES: 07/10/2010 TO 7/30/2010  
SCALE: 5" = 100'

### CASING DATA

16.0" AT 120'  
10.75" AT 3,603'  
4.50" AT 12,191'

AT

### HOLE SIZE

14.75" TO 3,603'  
8.75" TO 12,191'  
TO  
TO

### MUD TYPES

LSND TO 12,191'  
TO  
TO  
TO

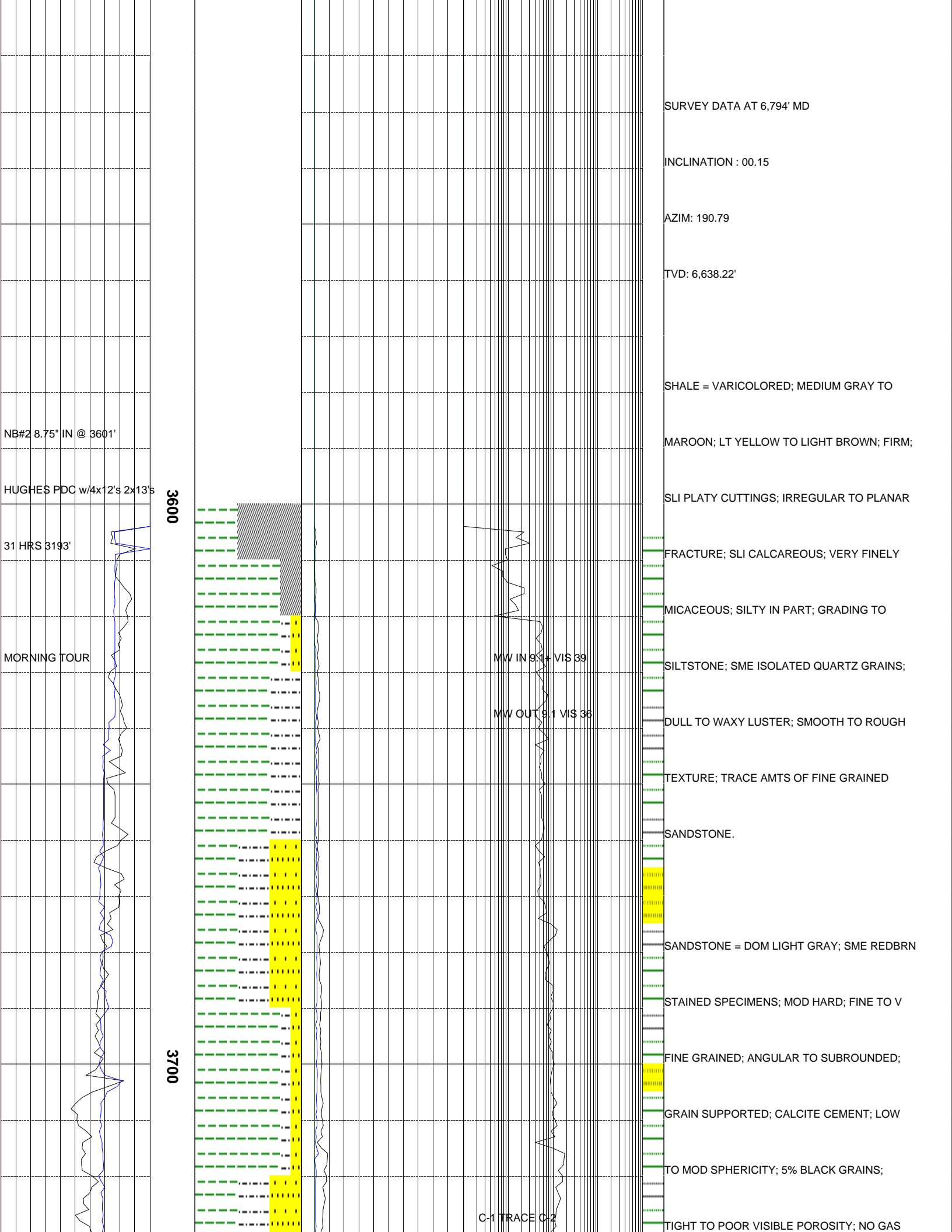
### ABBREVIATIONS

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		

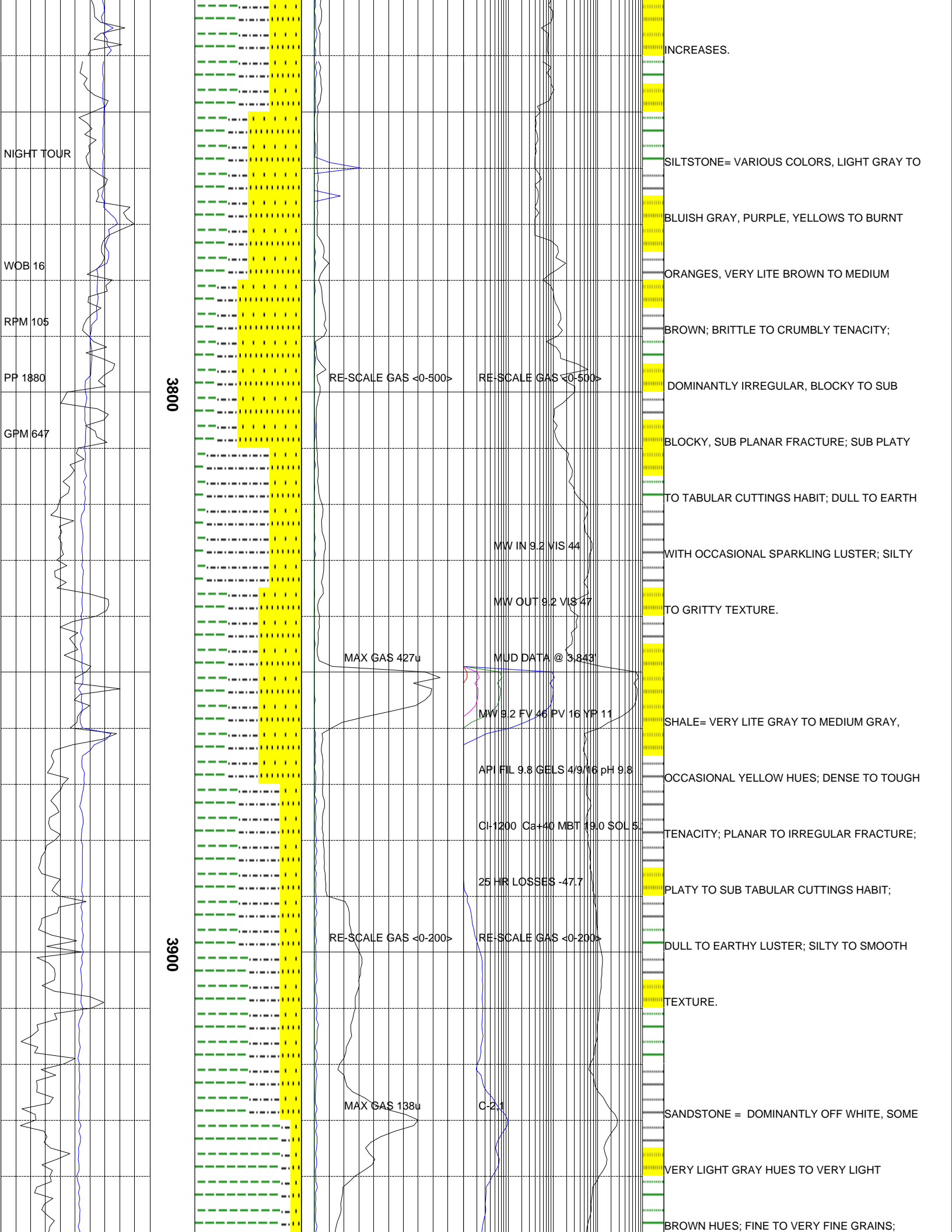
	ALTERED ZONE		CHERT - GLASSY		FELSIC SILIC DIKE		MARL - CALC		SANDSTONE
	ANDESITE		CHERT - PORCEL		FOSSIL		METAMORPHICS		SANDSTONE-TUFFACEOUS
	ANHYDRITE		CHERT - TIGER STRIPE		GABBRO		MUDSTONE		SERICITIZATION
	BASALT		CHERT - UNDIFF		GLASSY TUFF		OBSIDIAN		SERPENTINE
	BENTONITE		CLAY		GRANITE		PALEOSOL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

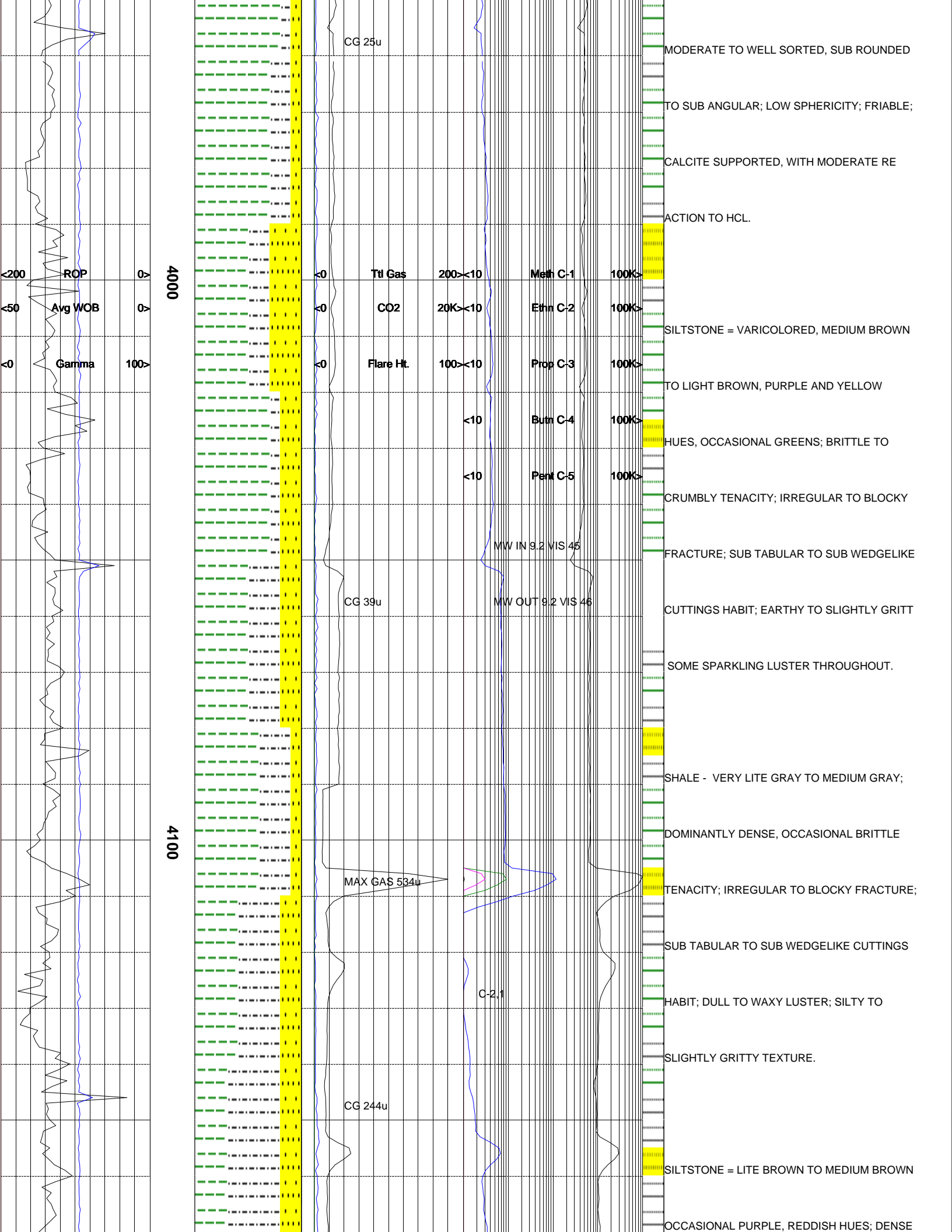


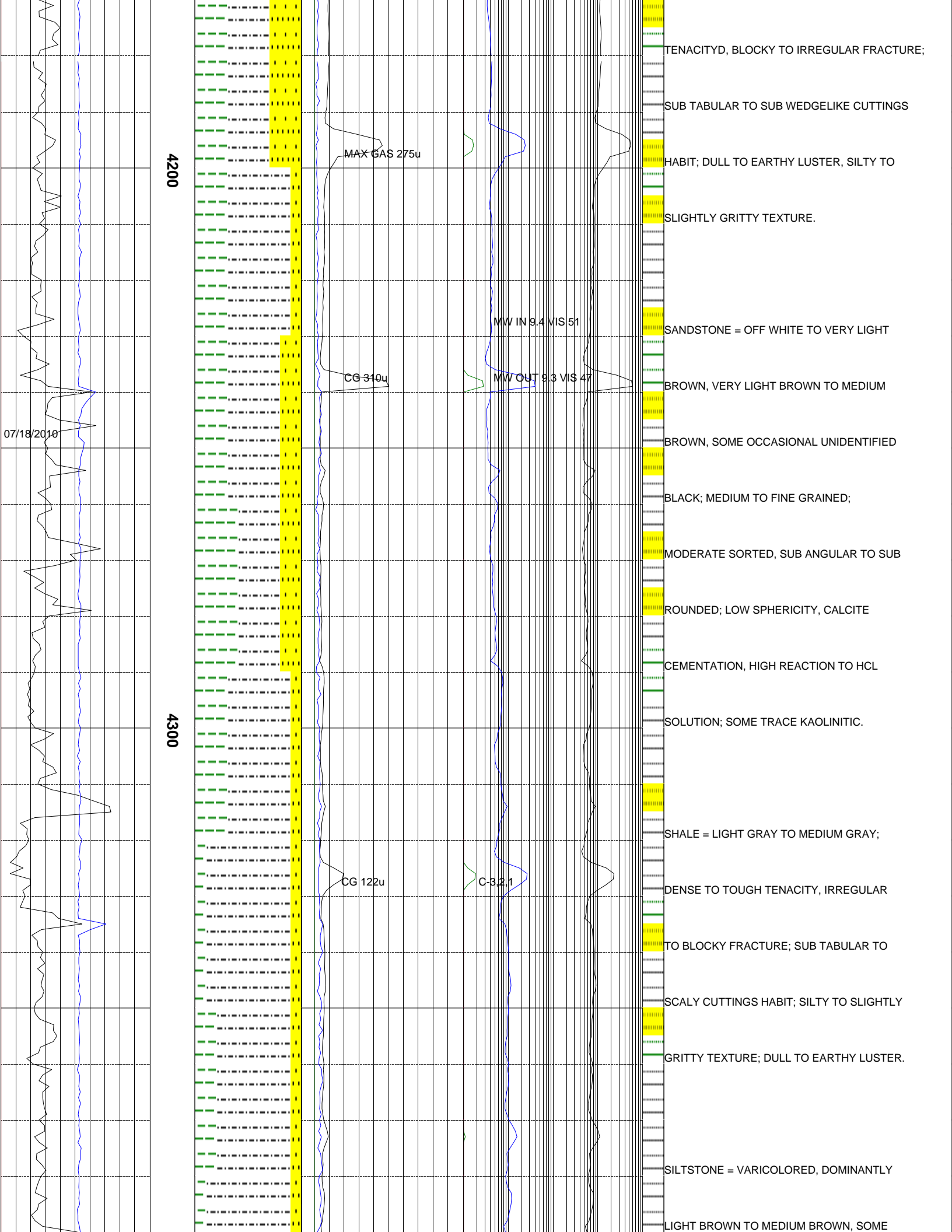
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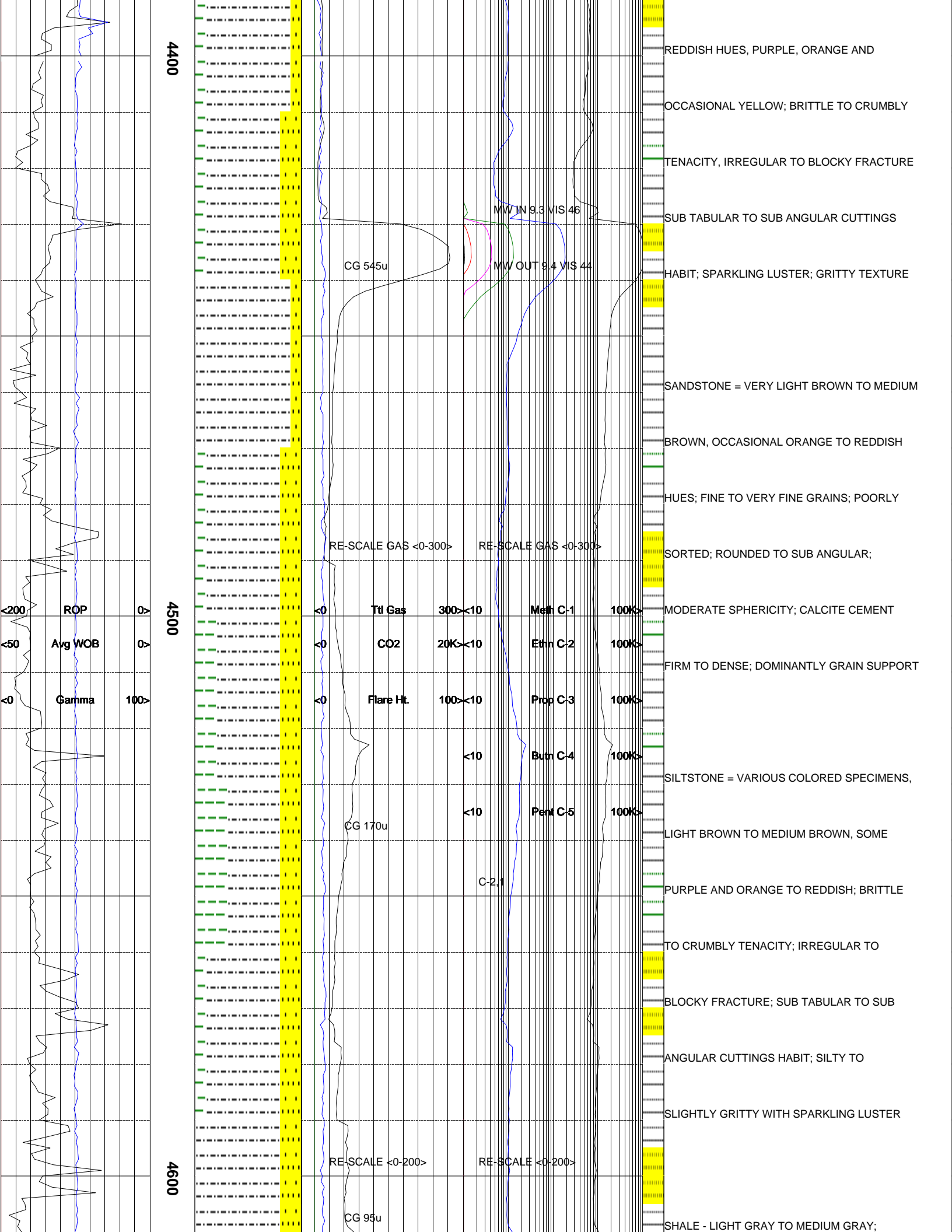


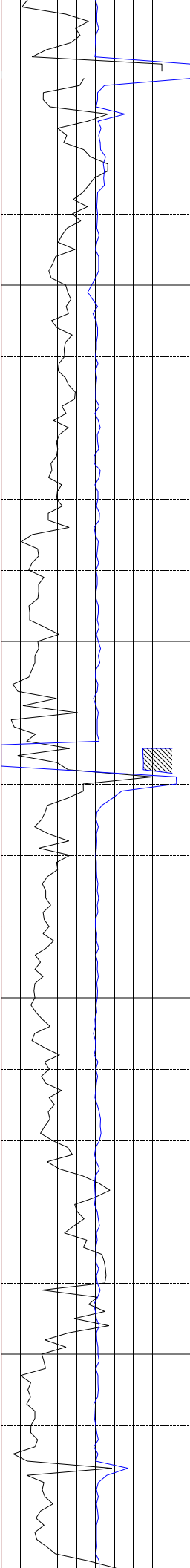






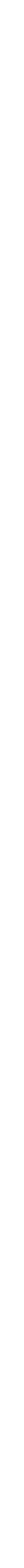
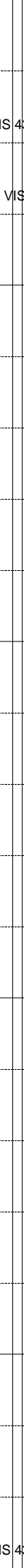
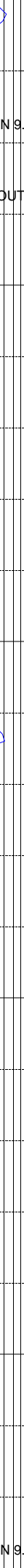
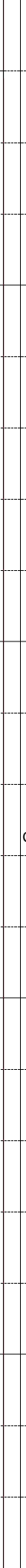
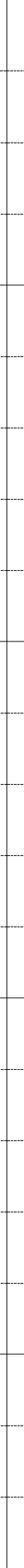
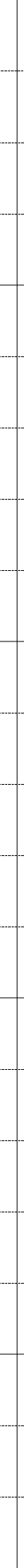
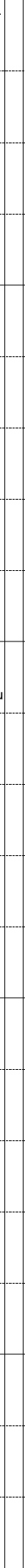
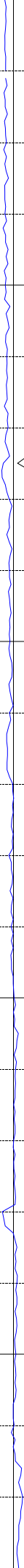






4700

4800



MW IN 9.4 VIS 43

MW OUT 9.4 VIS 43

CG 225u

C1

CG 75 u

MW IN 9.4 VIS 43

DENSE TO TOUGH TENACITY; BLOCKY TO

SUB PLATY FRACTURE; SUB TABULAR TO

SUB ANGULAR CUTTINGS HABIT; SMOOTH

TO SILTY TEXTURE; DULL TO WAXY LUSTER.

SANDSTONE = LIGHT BROWN TO MEDIUM

BROWN WITH SOME UNIDENTIFIED BLACK

IN SPECIMEN; FINE GRAIN; MODERATELY

SORTED, SUB ROUNDED TO SUB ANGULAR

LOW SPHERICITY; FRIABLE; GRAIN SUPPORT

TRACE AMOUNT OF PYRITE IN SAMPLE TRAY

SILTSTONE= VARIOUS COLORS, LITE BROWN

TO MEDIUM BROWN, HUES OF PURPLE, RED

ORANGE; TOUGH TO DENSE TENACITY;

IRREGULAR TO BLOCKY FRACTURE; SUB

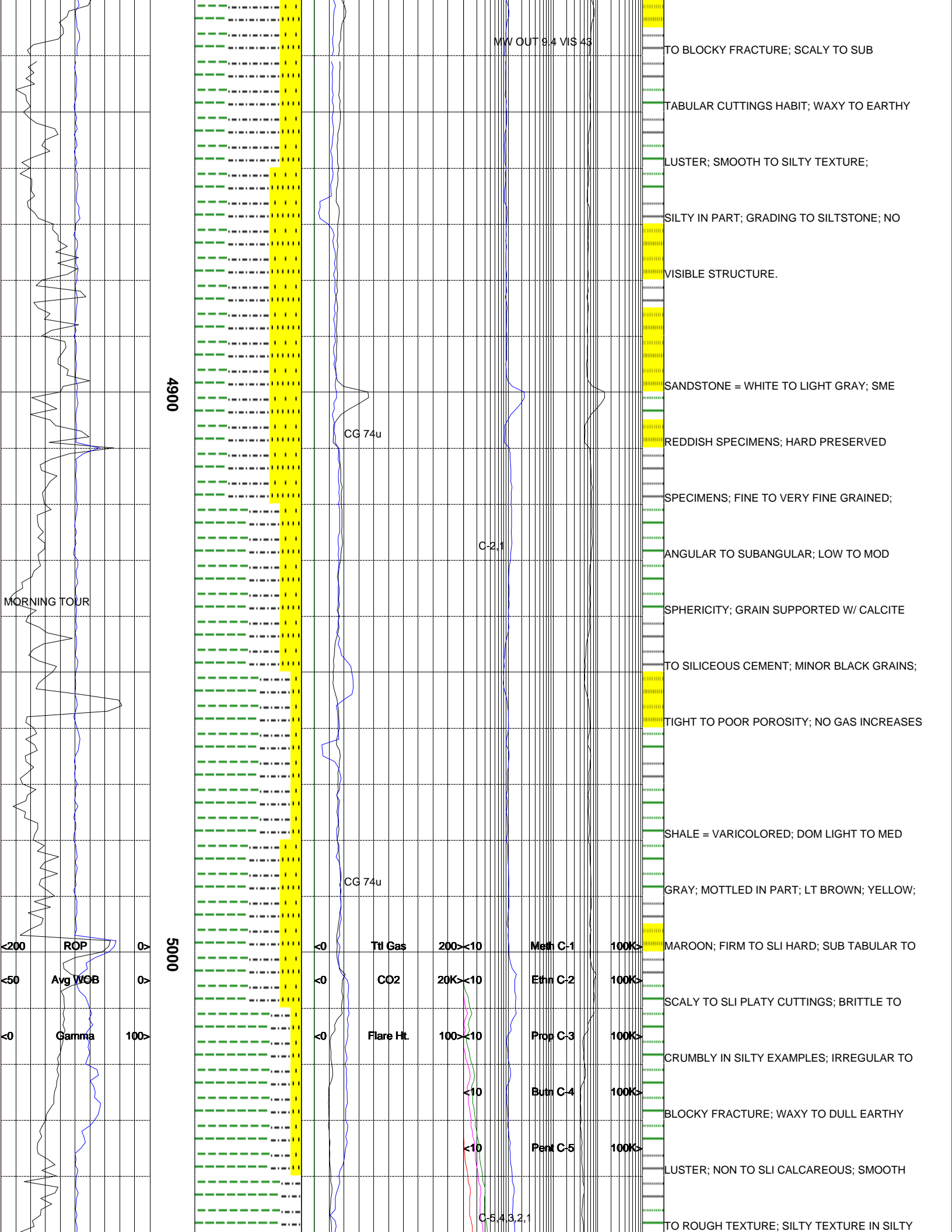
WEDGELIKE TO SUB PLANAR CUTTINGS HABIT

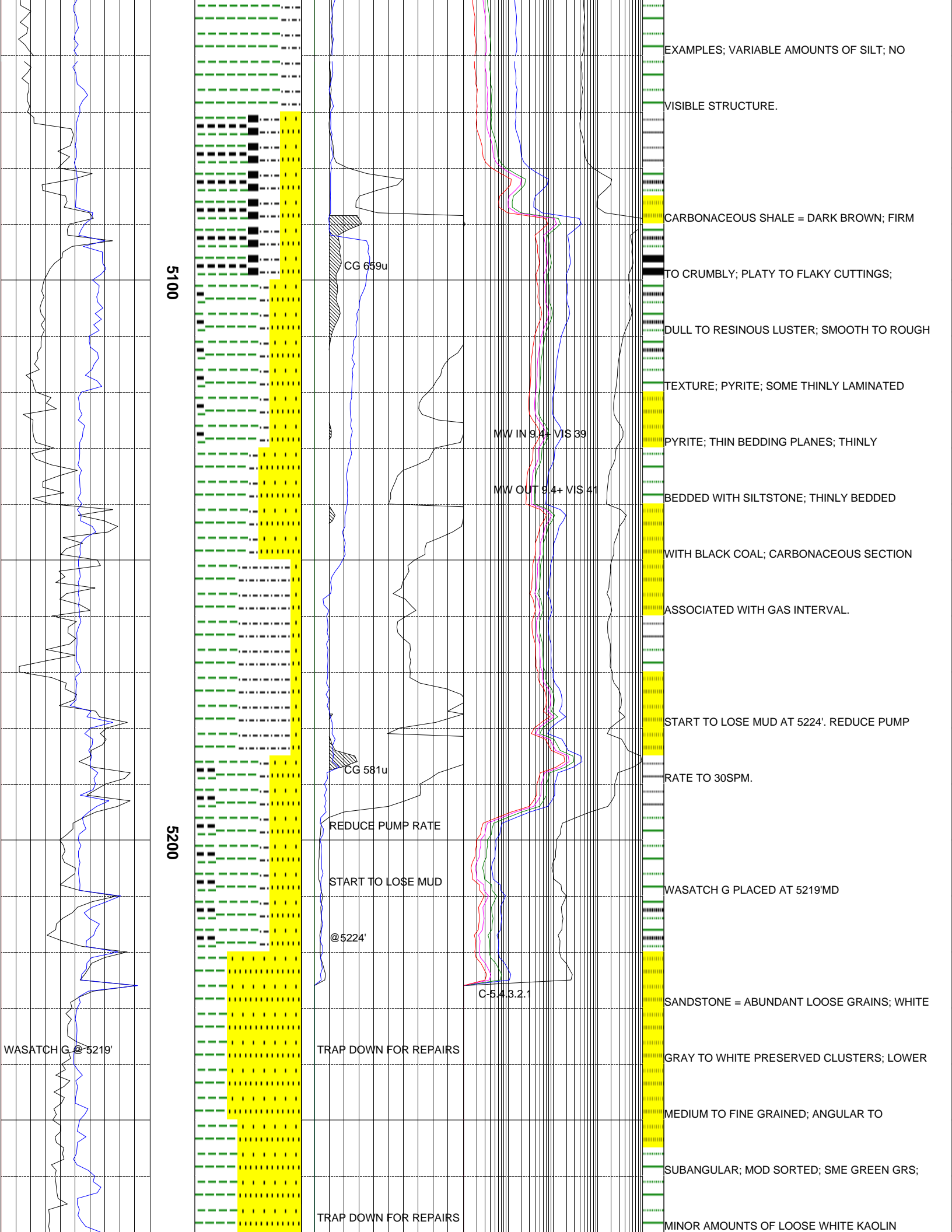
EARTHY TO DULL WITH SPARKLING LUSTER;

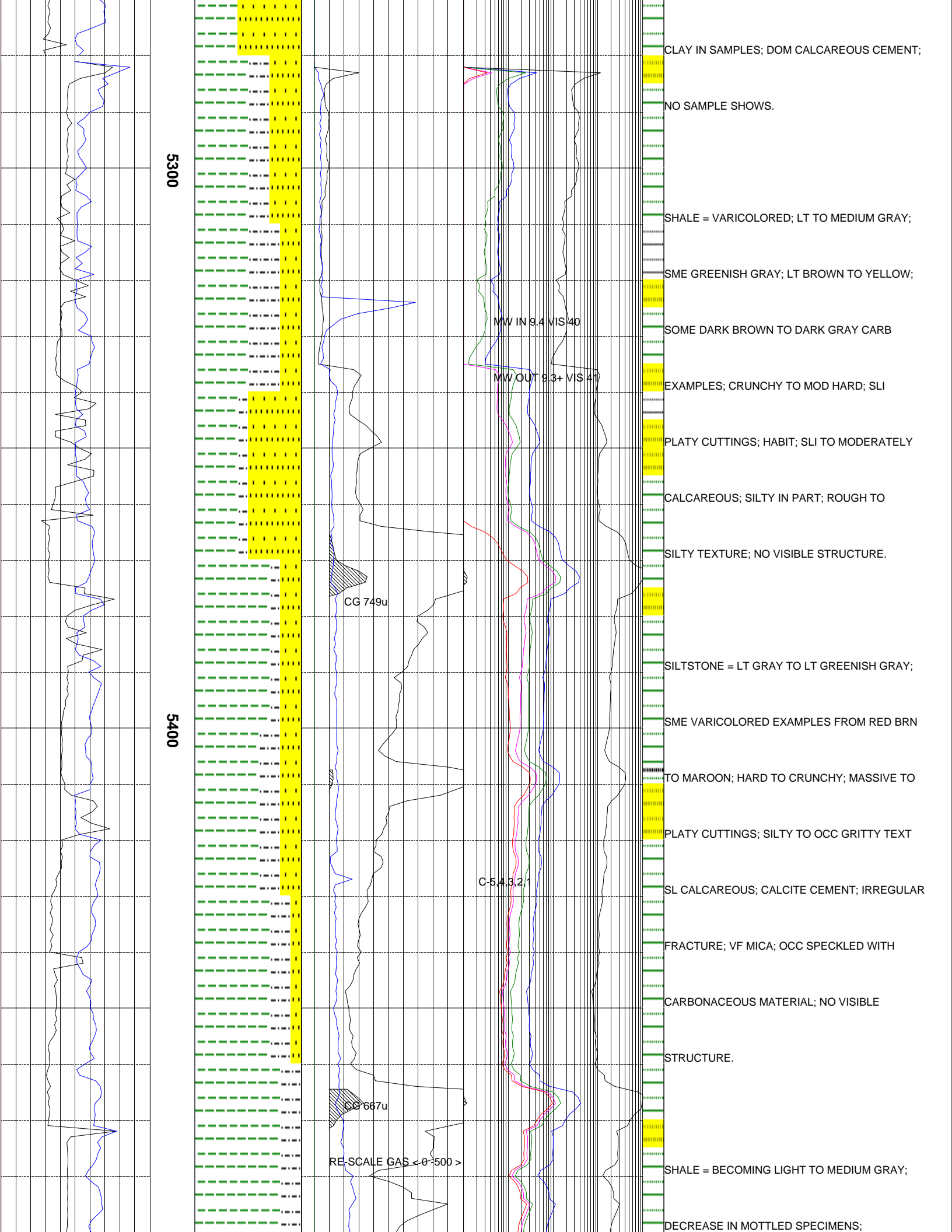
SILTY TO GRITTY TEXTURE.

SHALE = LIGHT GRAY TO MEDIUM GRAY;

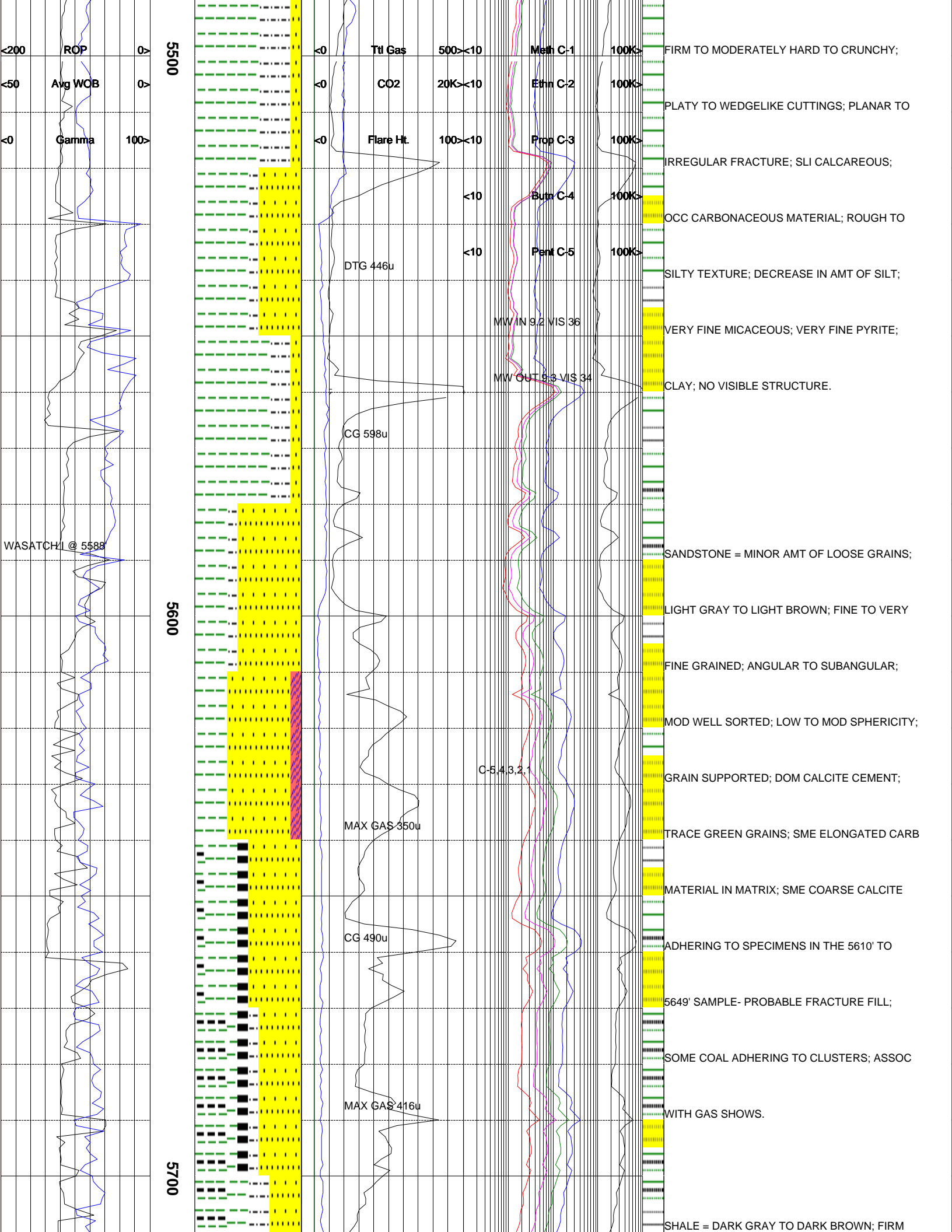
BRITTLE TO CRUMBLY TENACITY, IRREGULAR

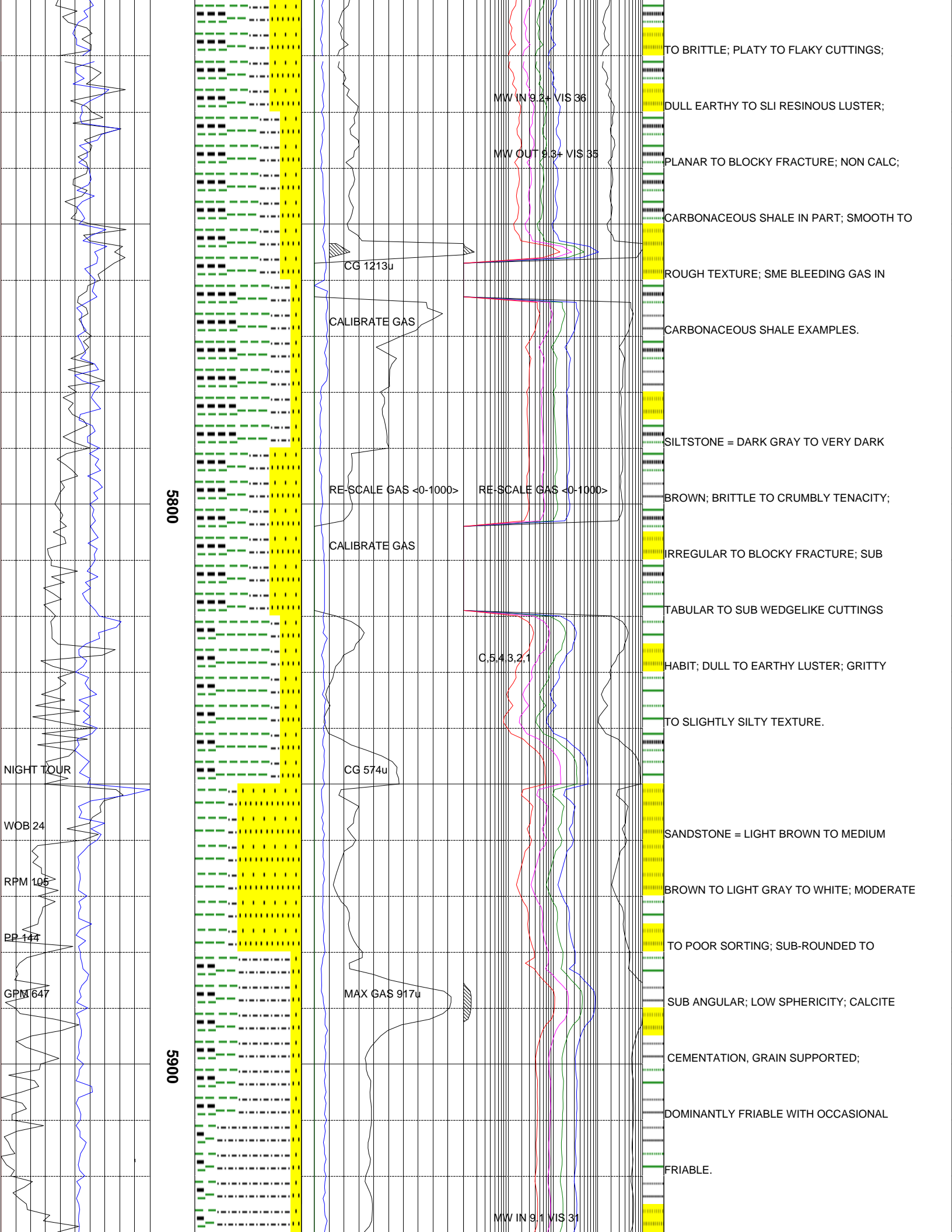


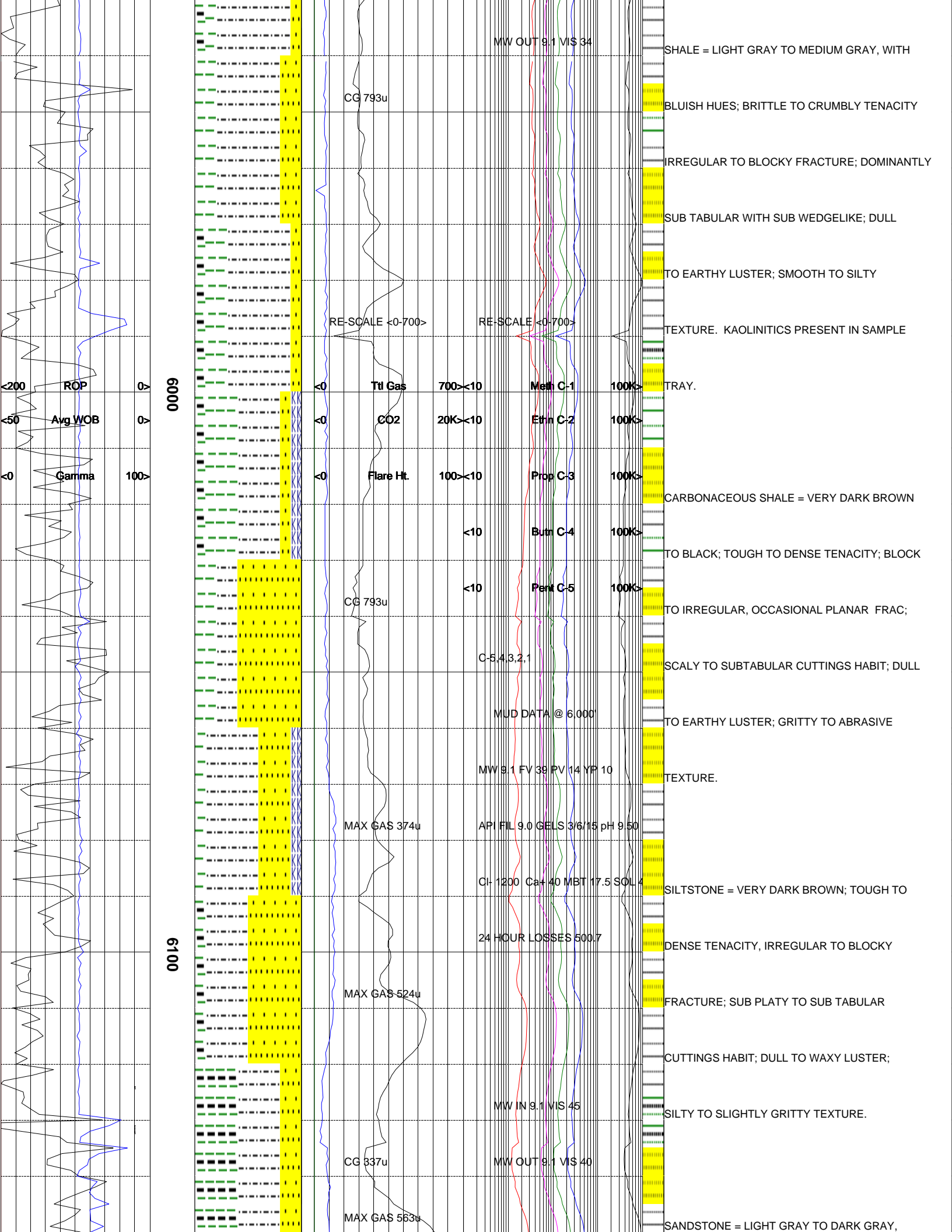


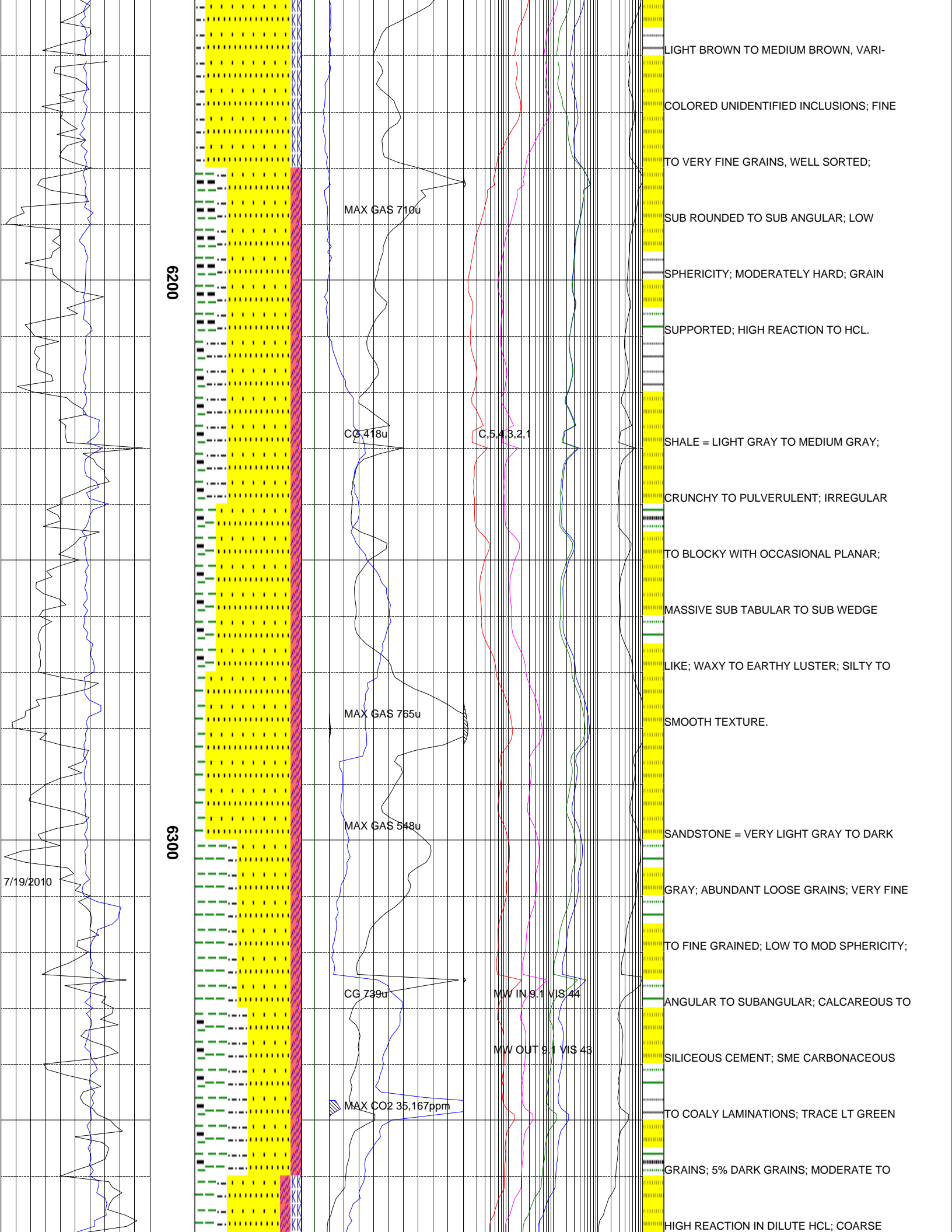


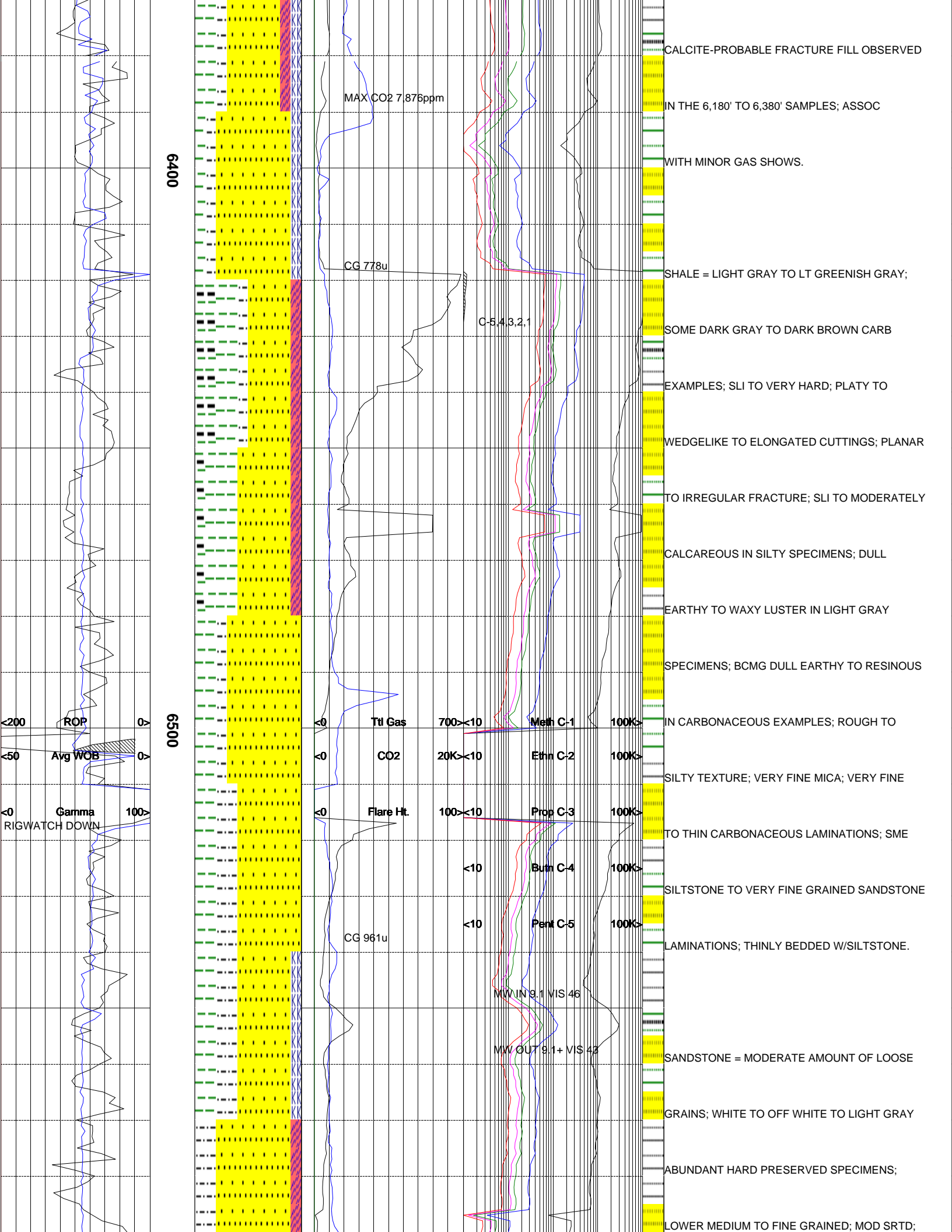


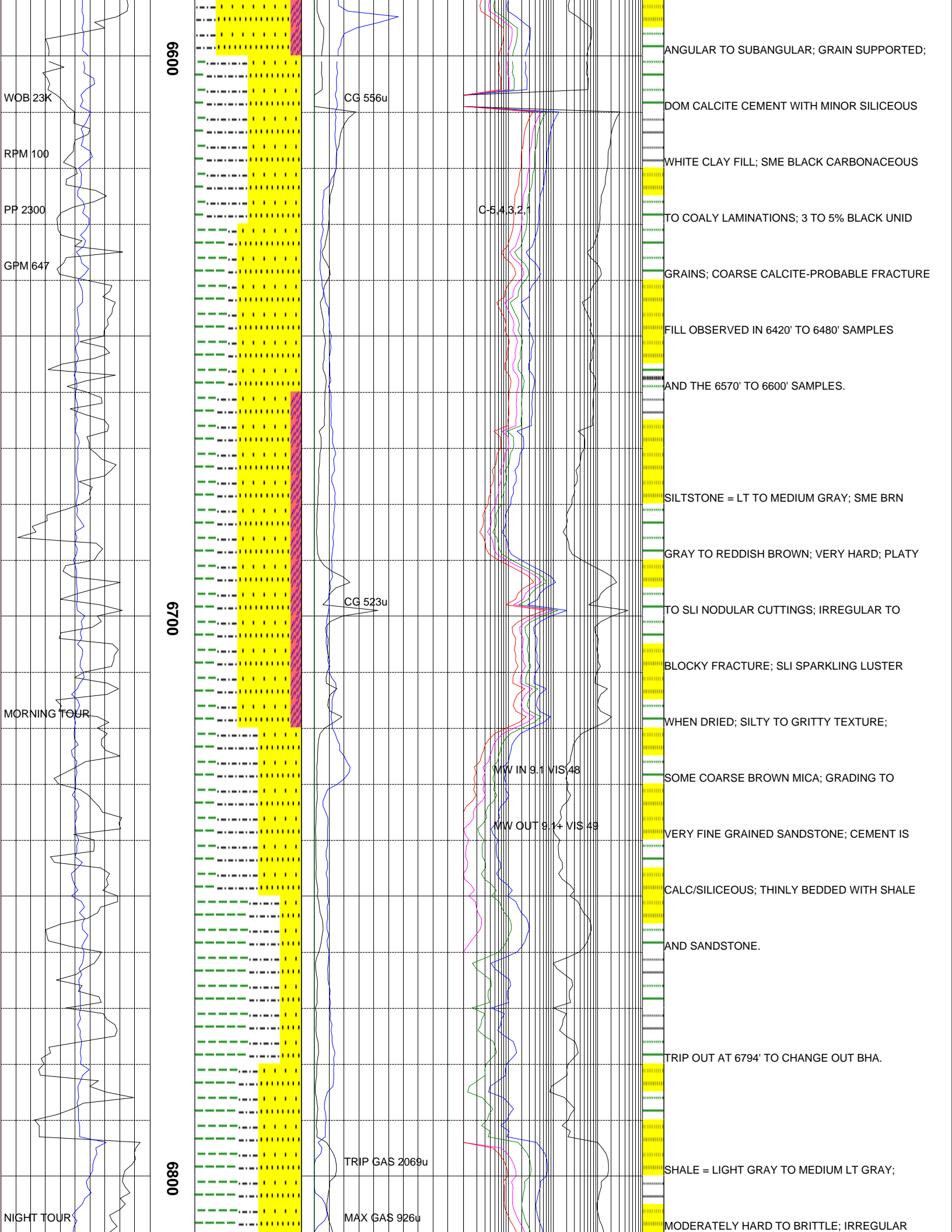


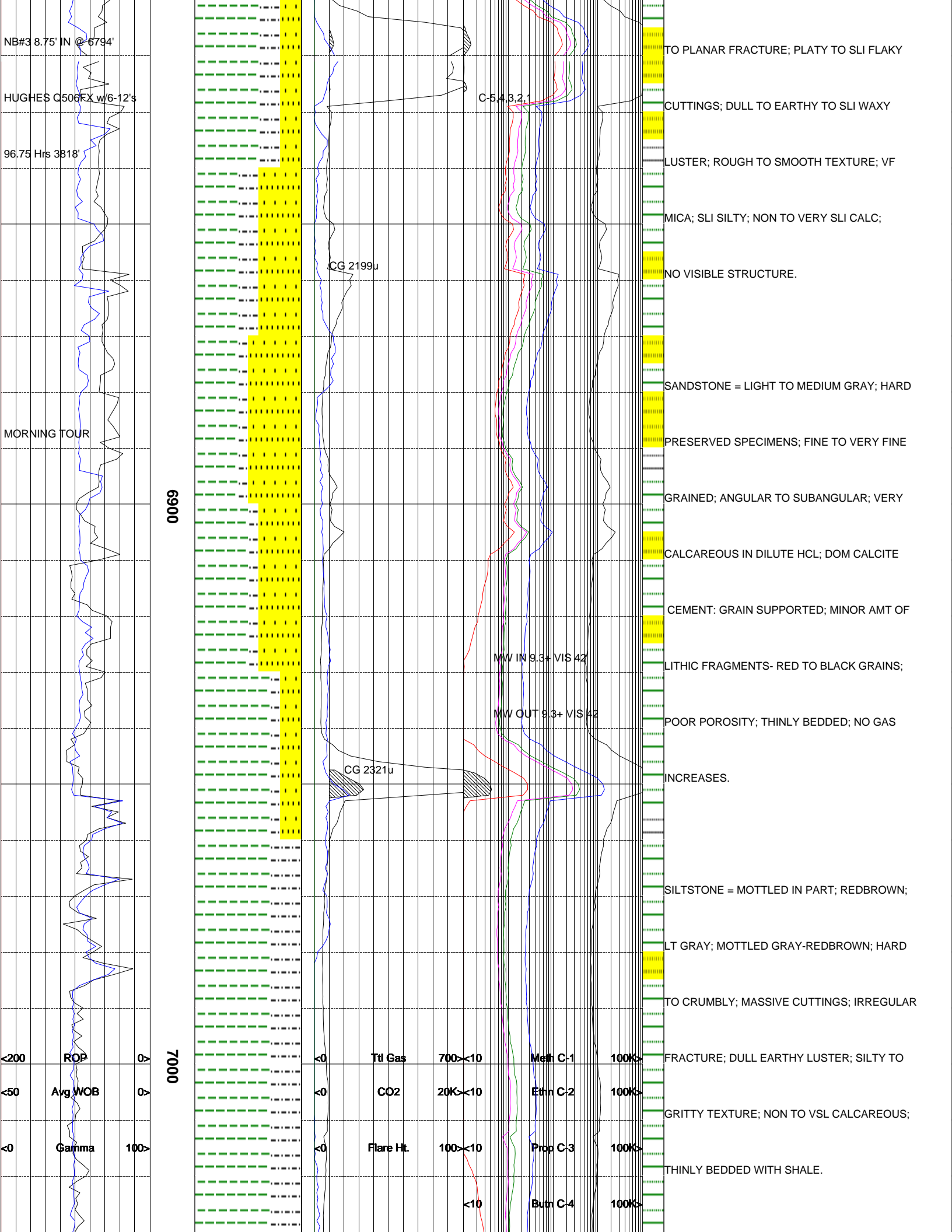




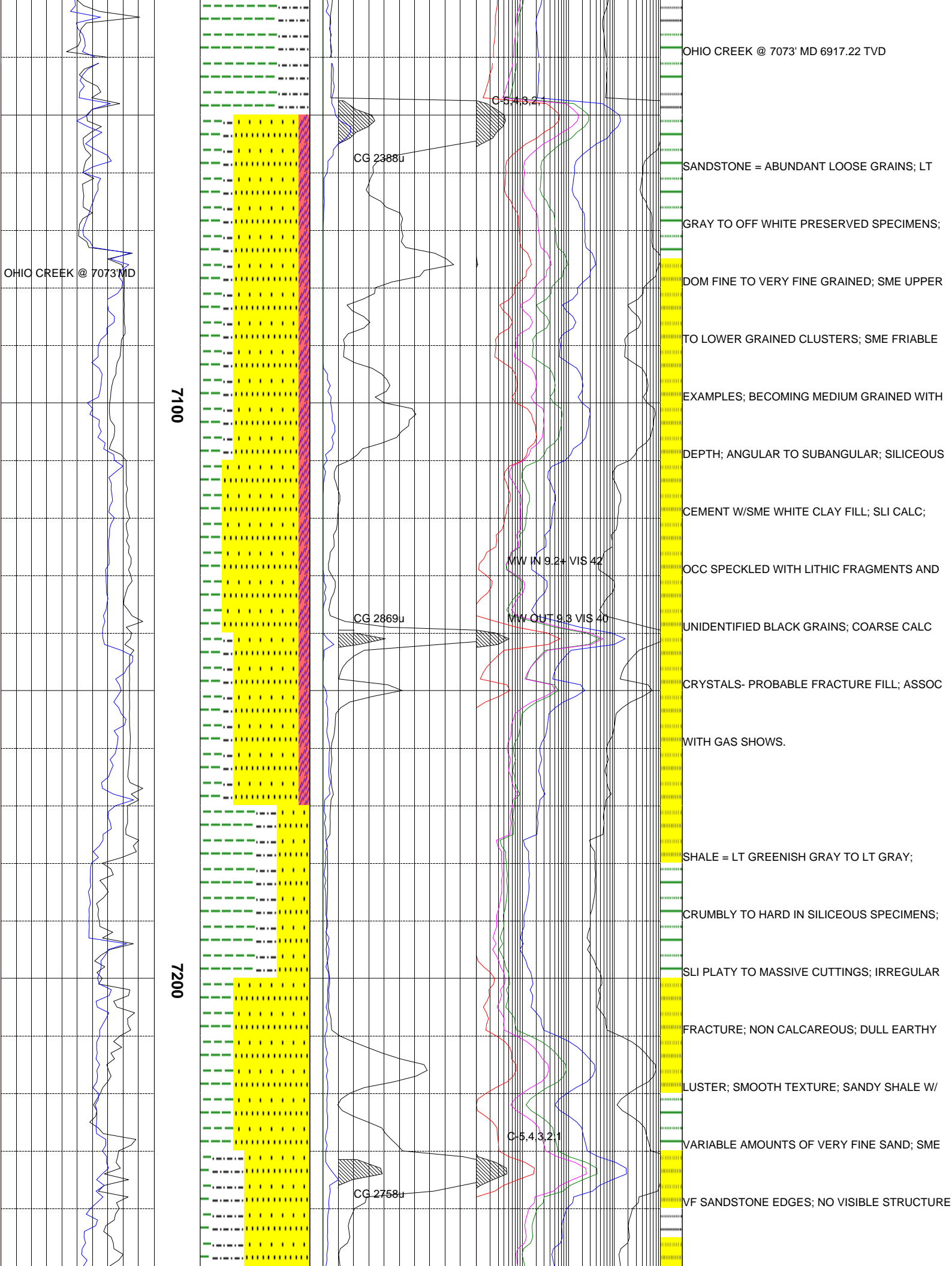




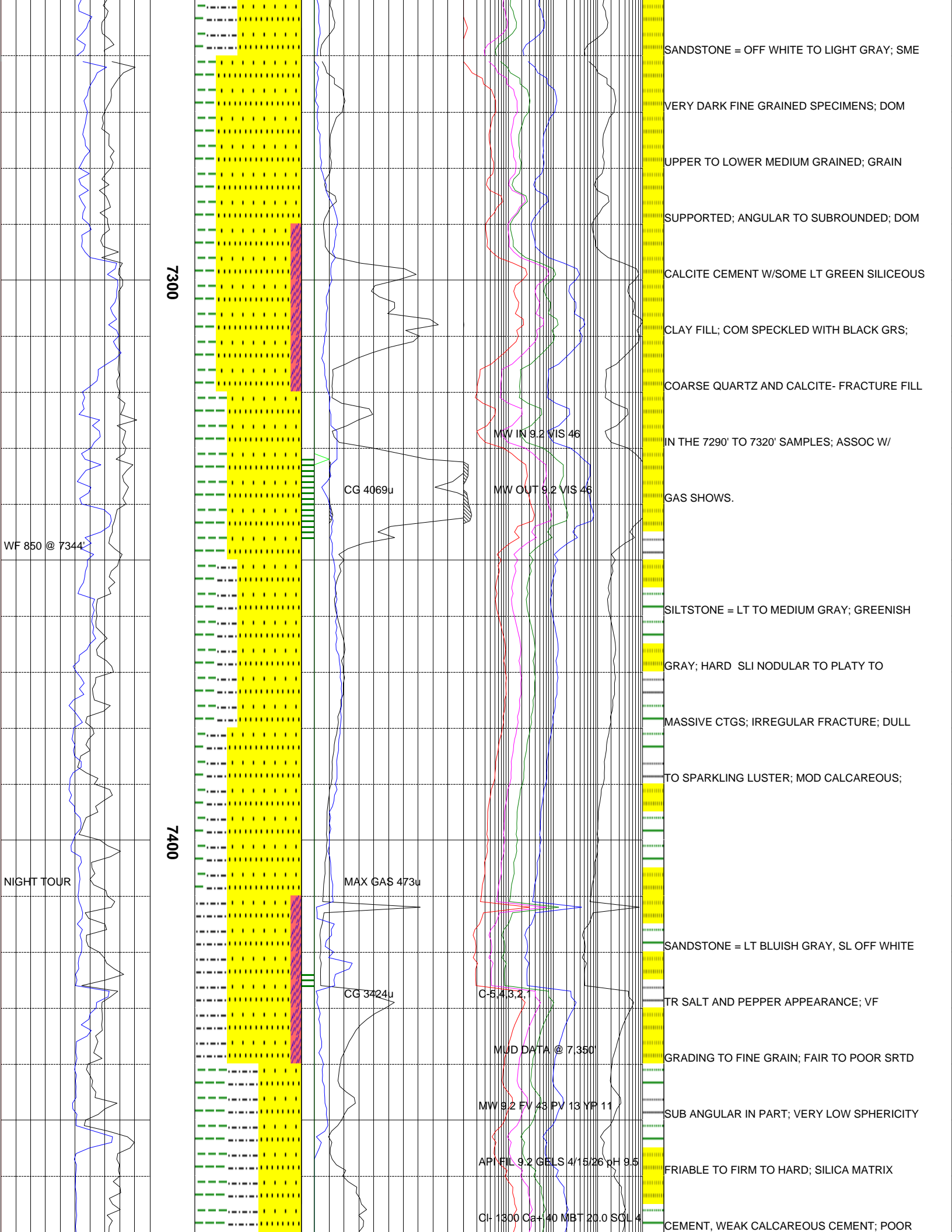


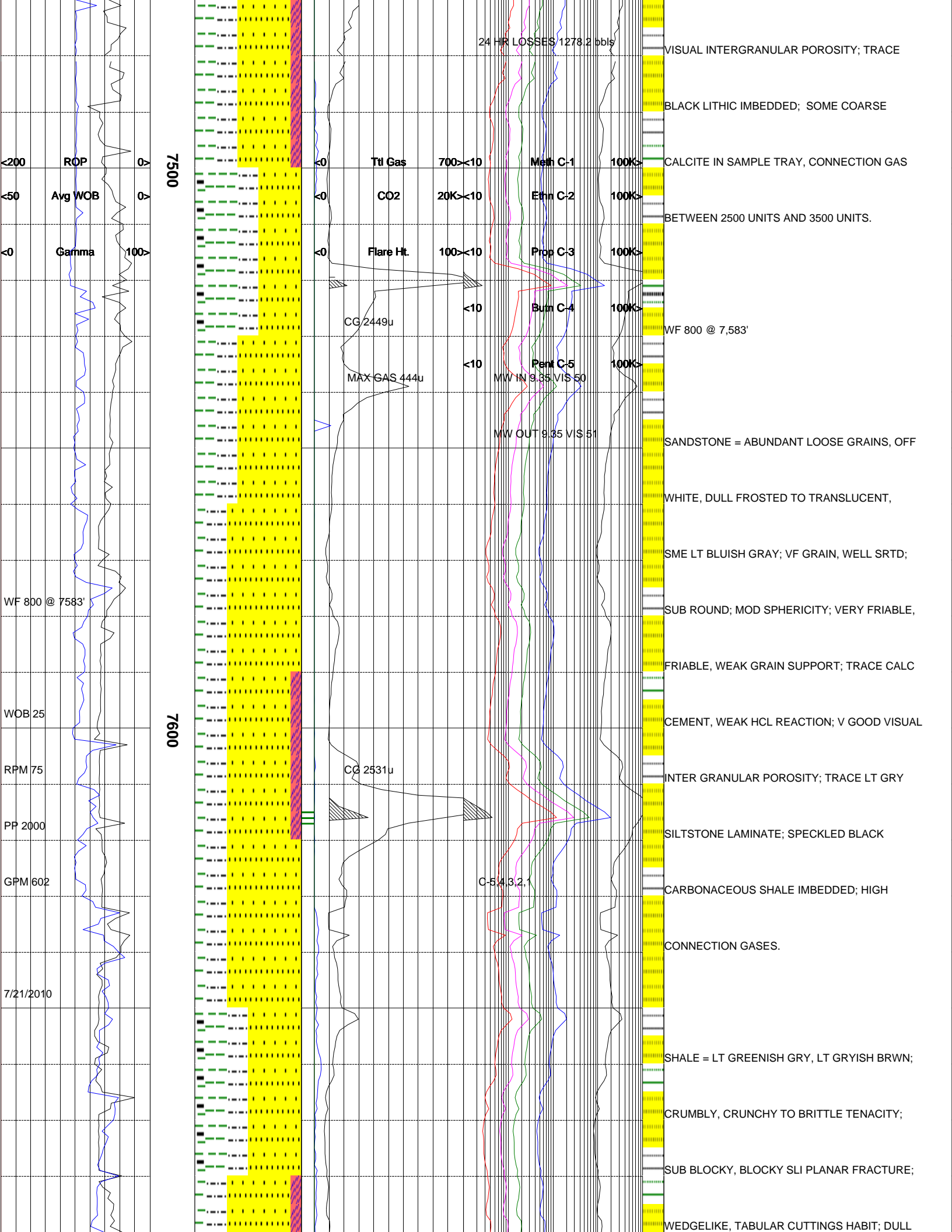


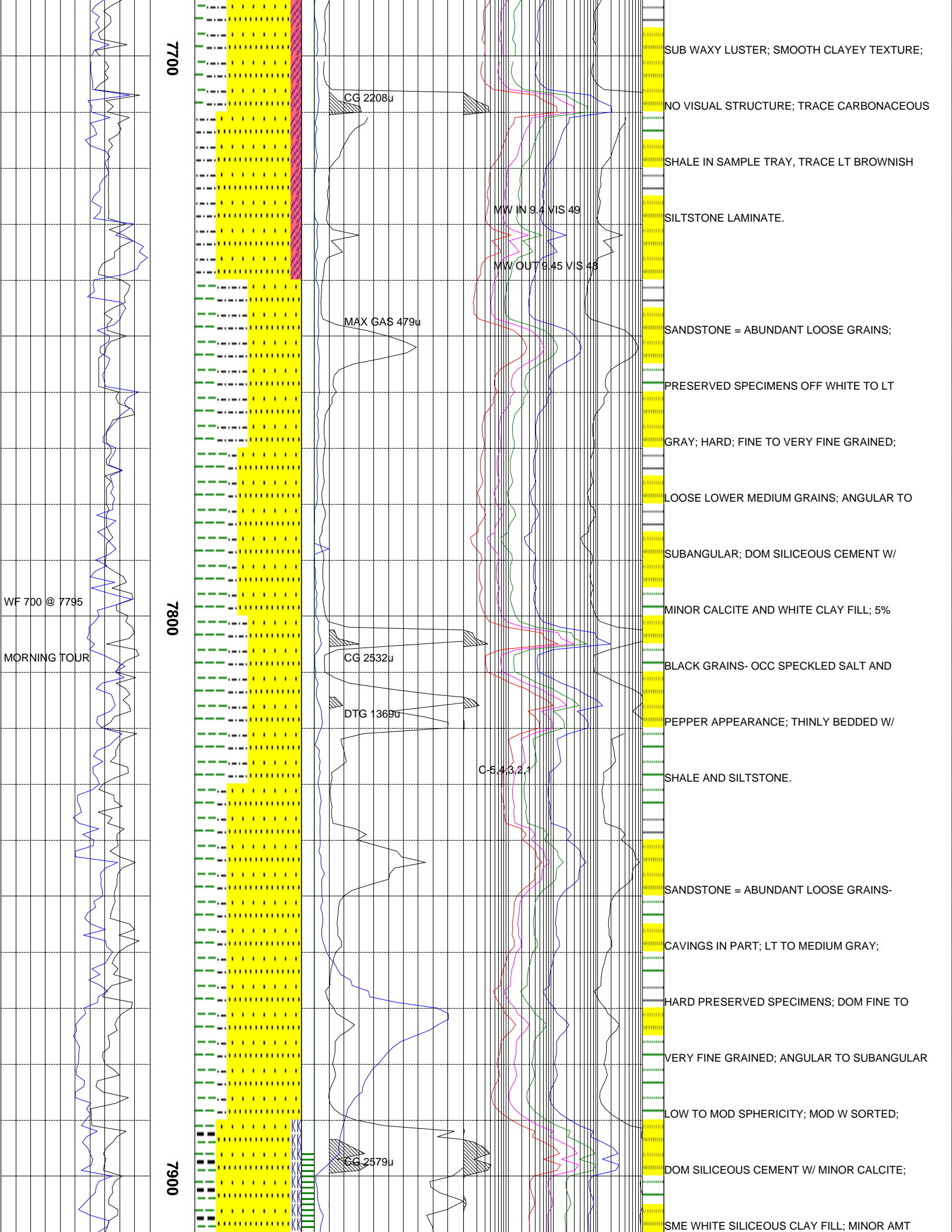


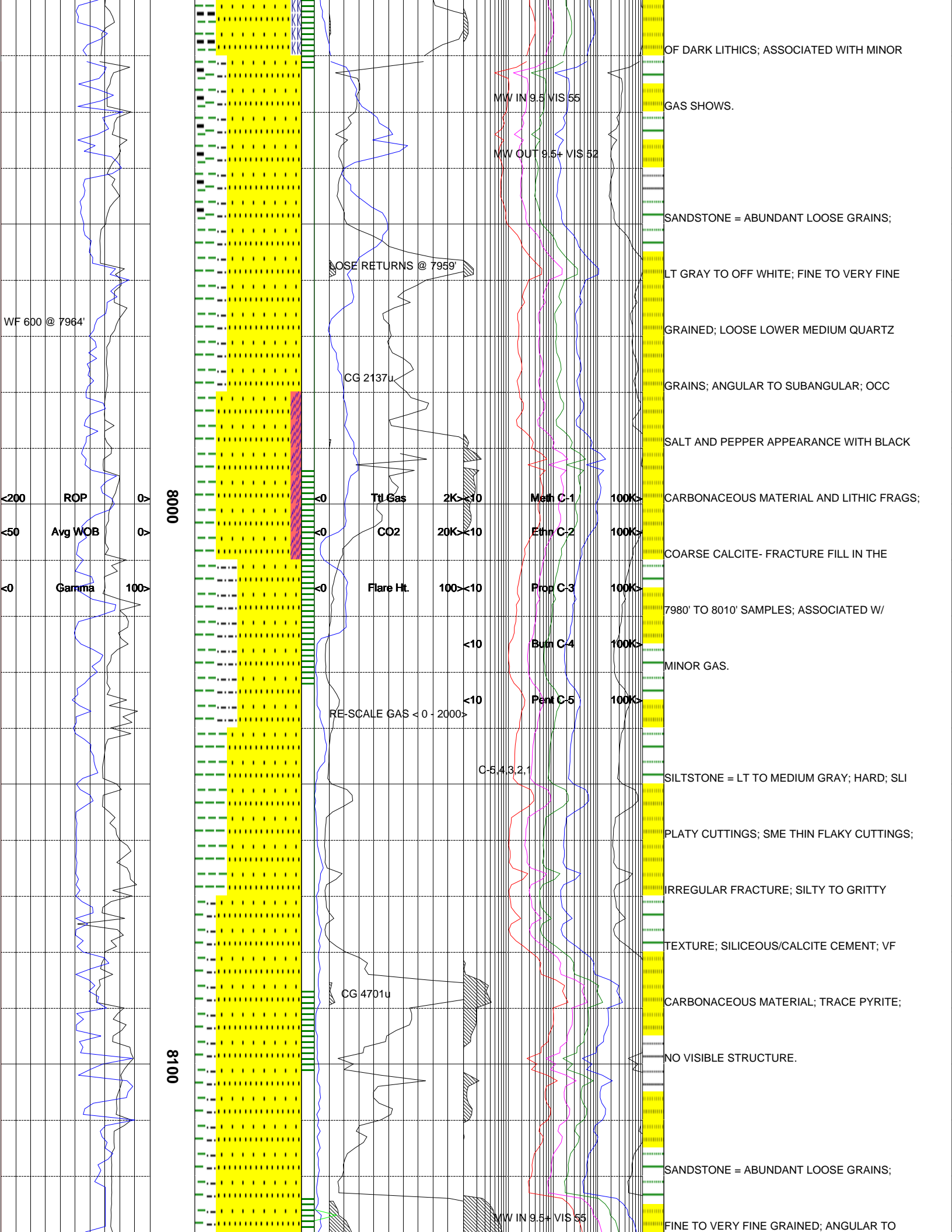


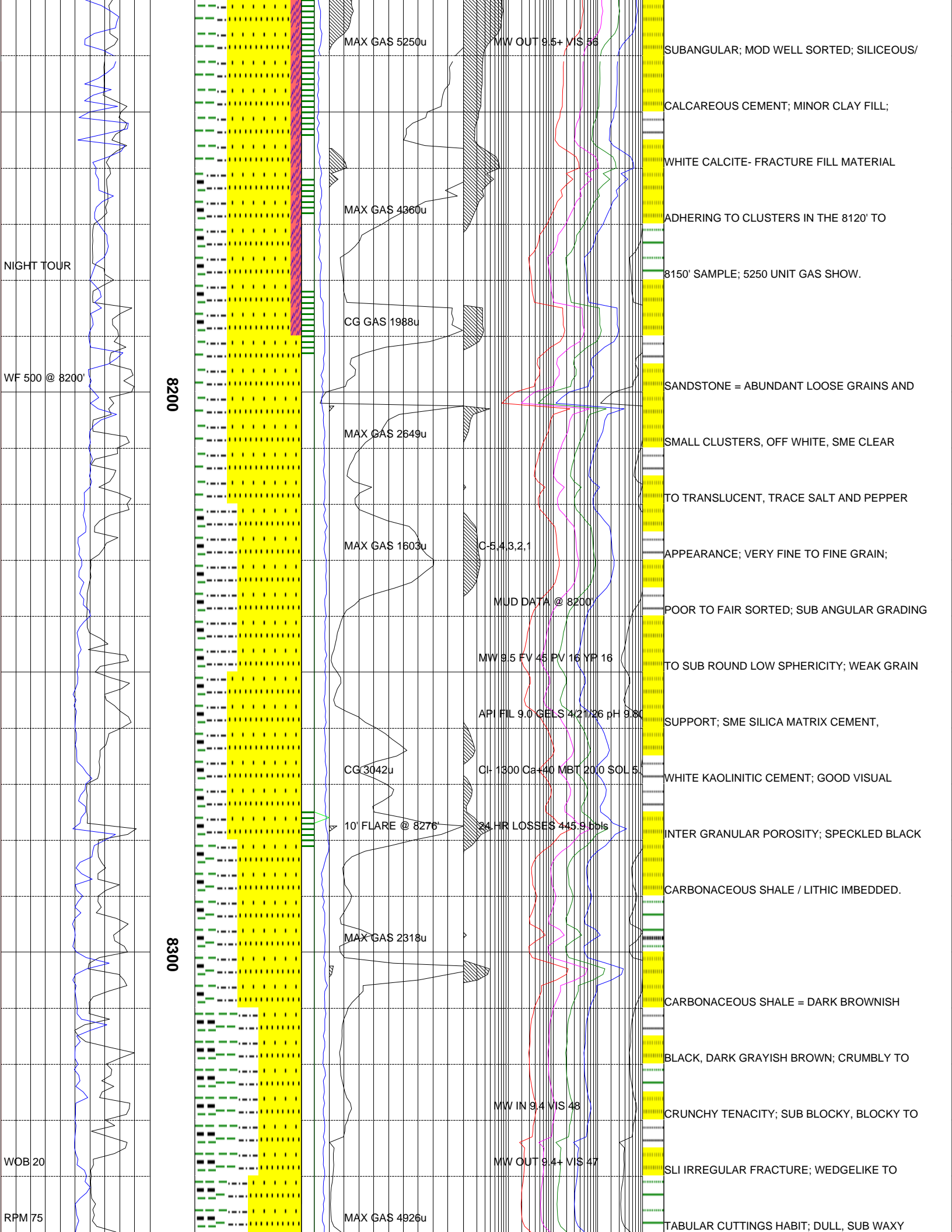


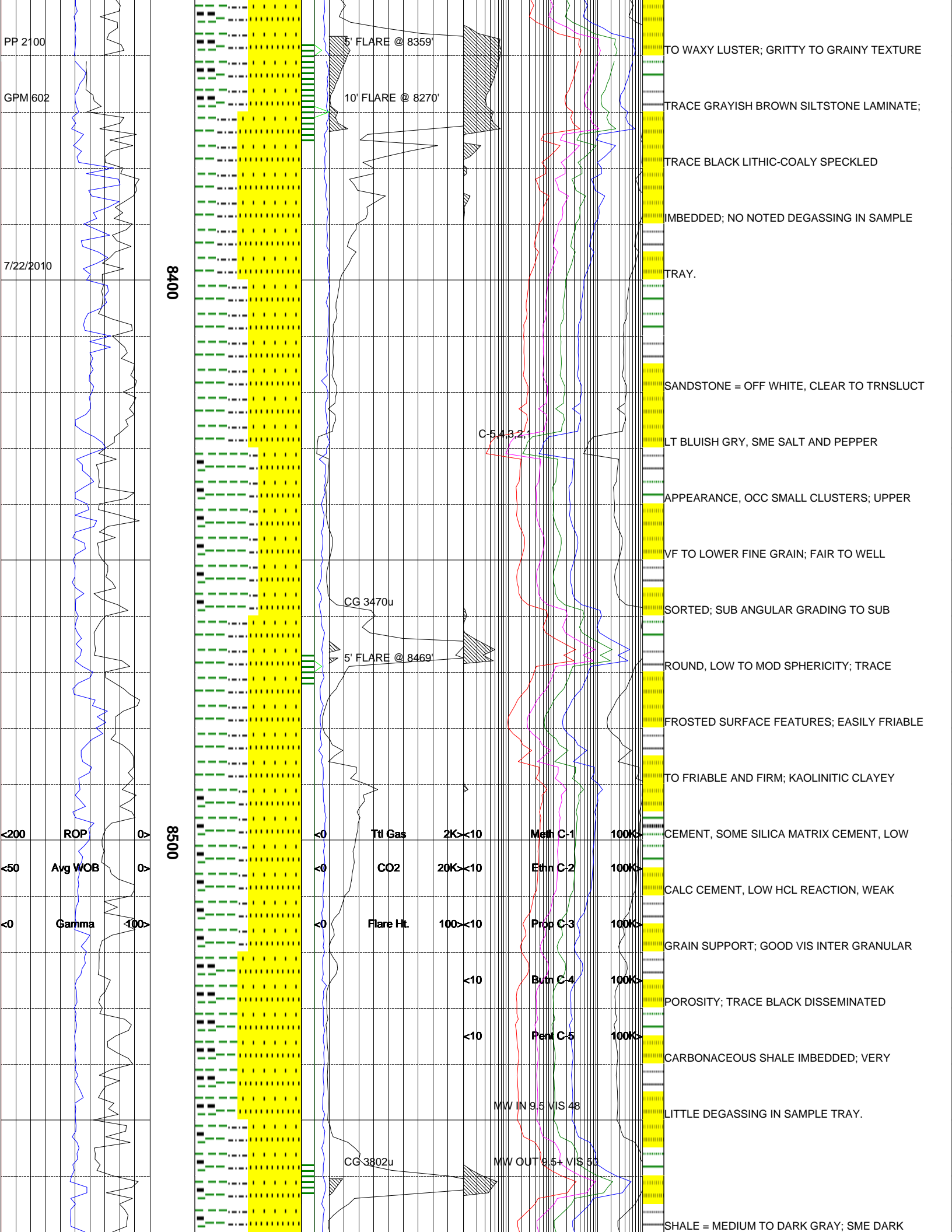


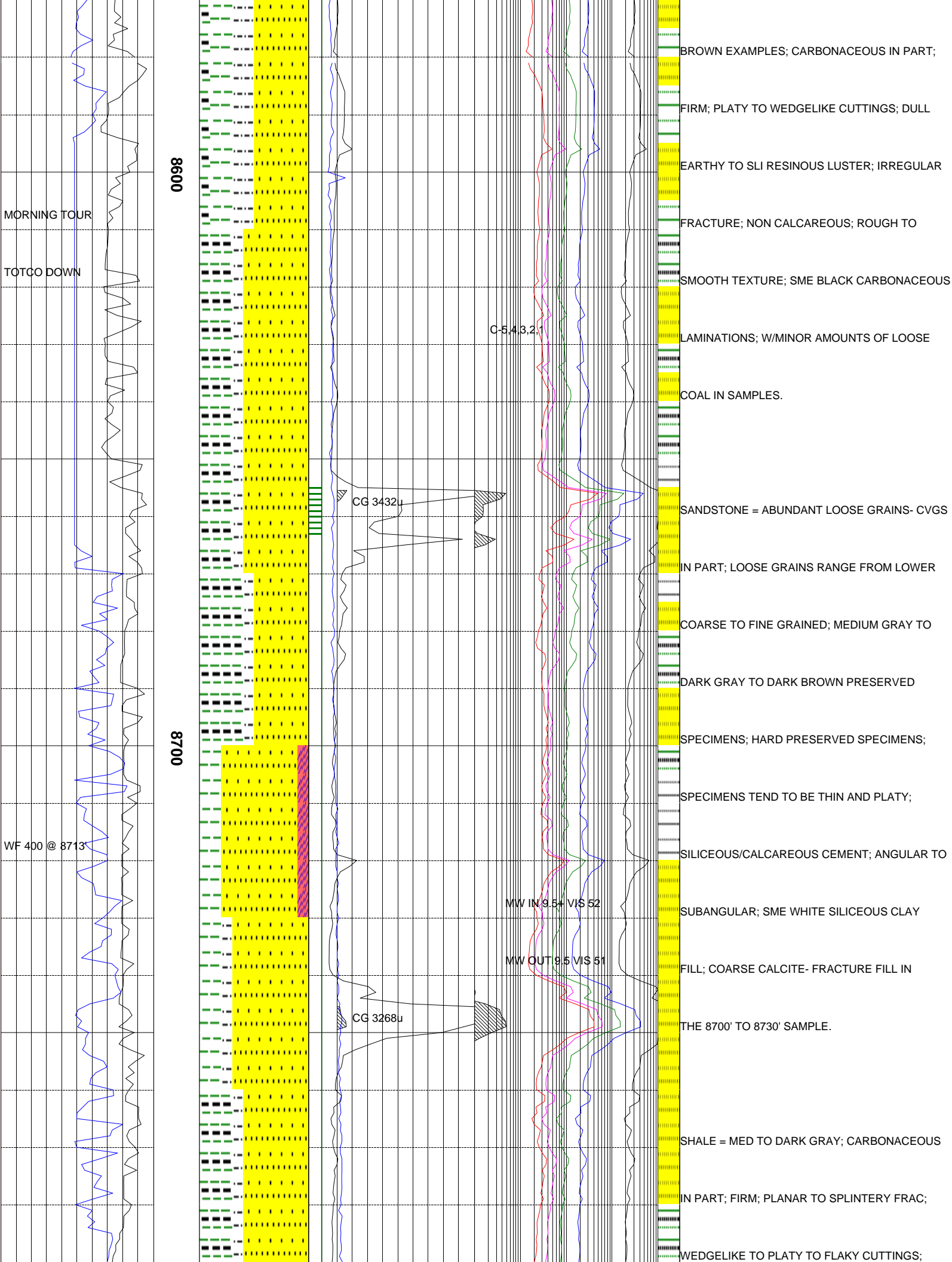




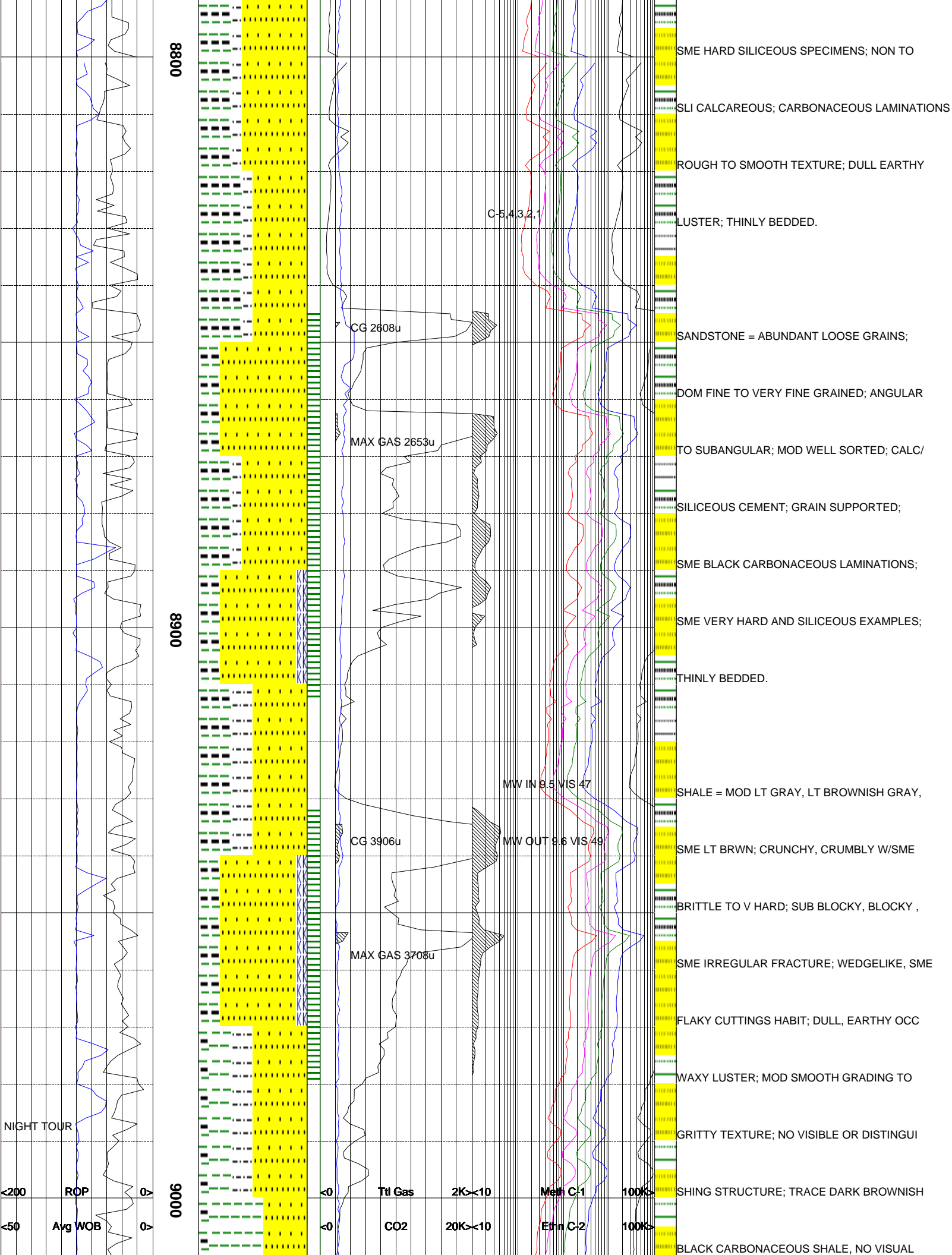




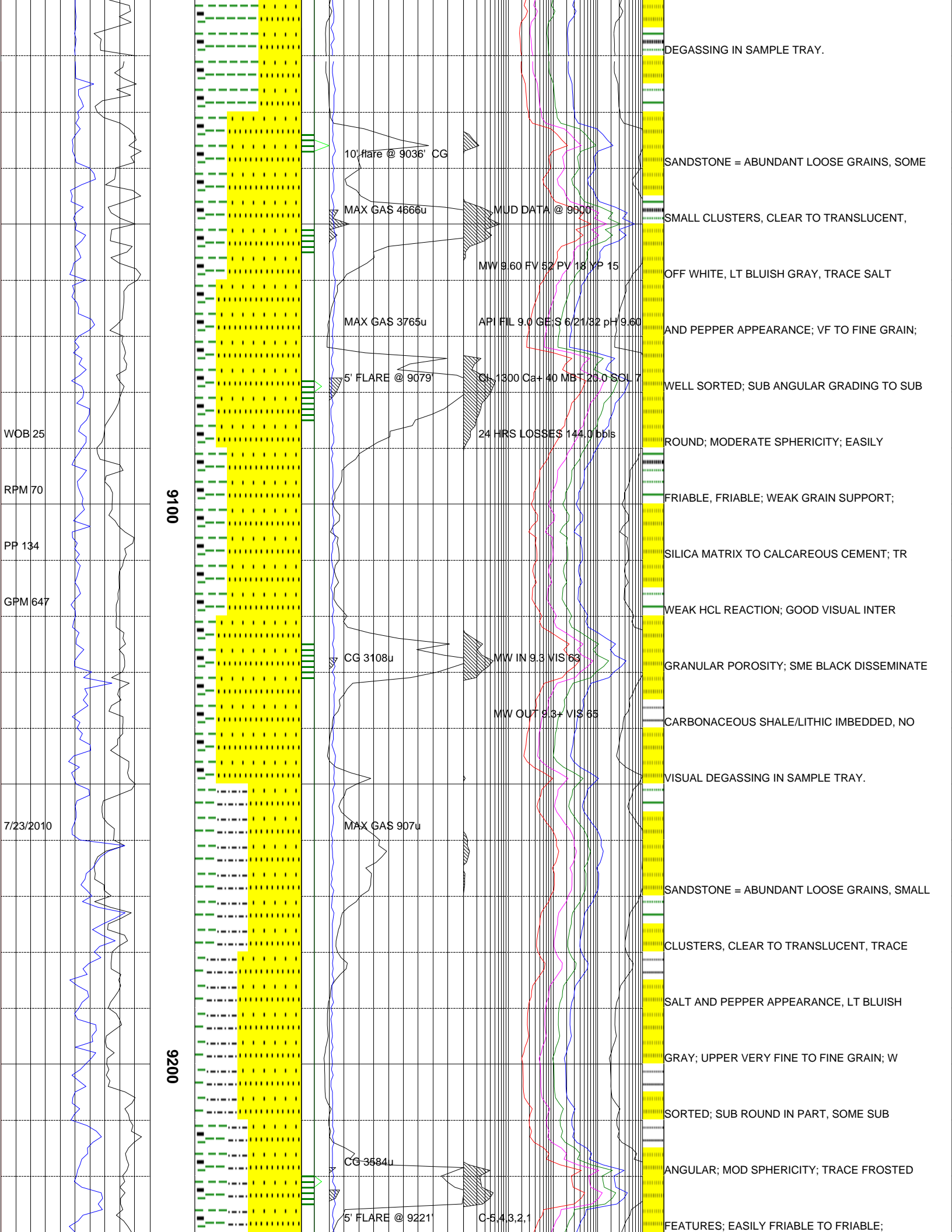


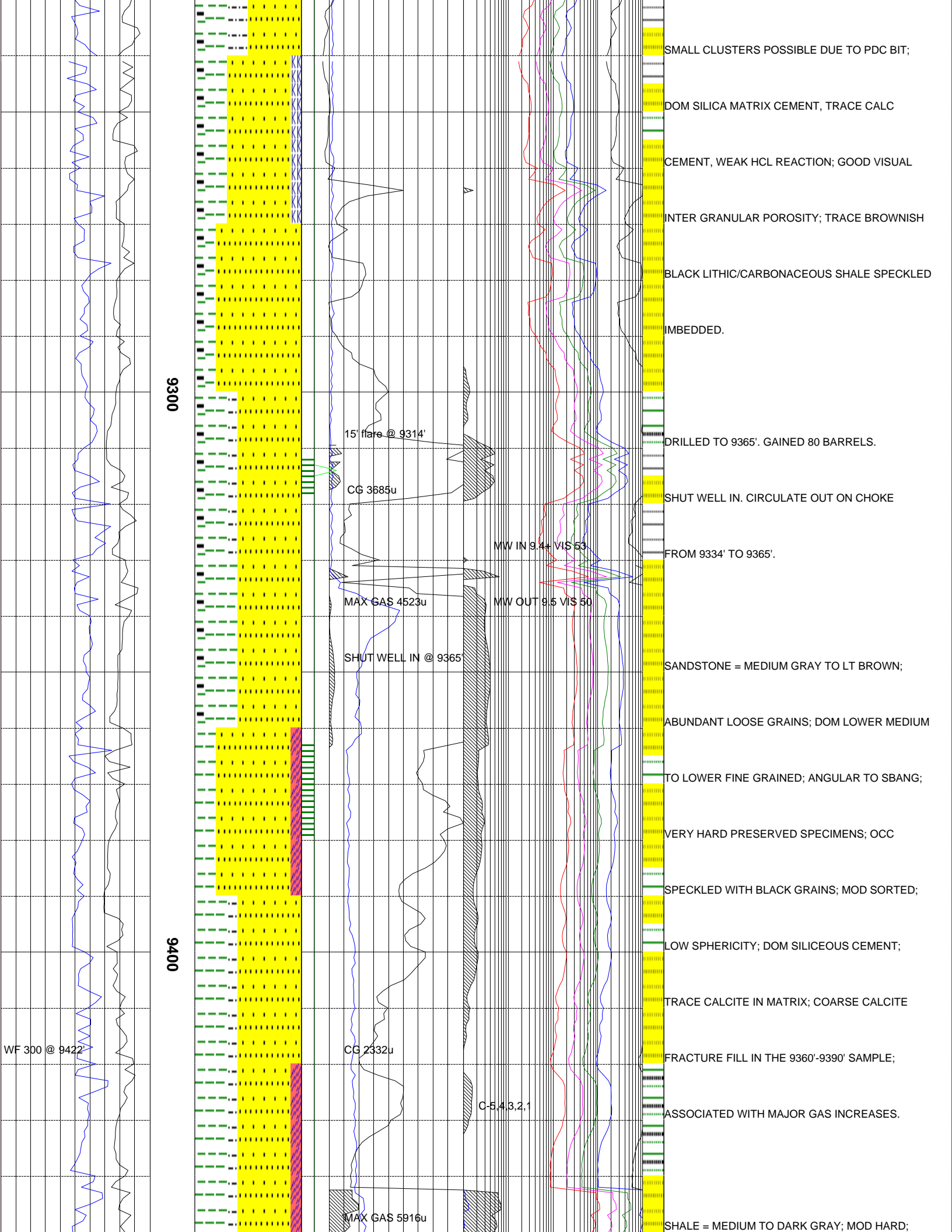


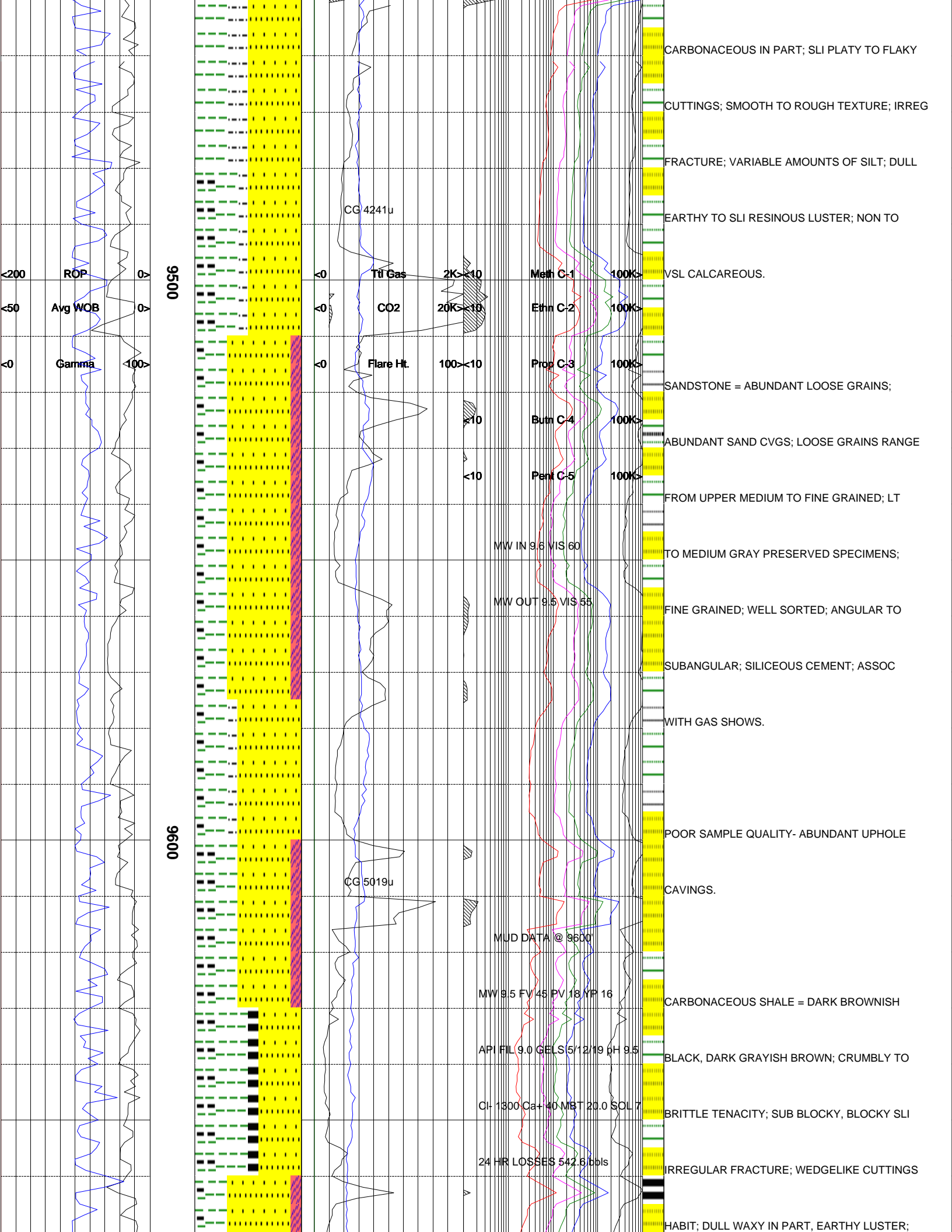


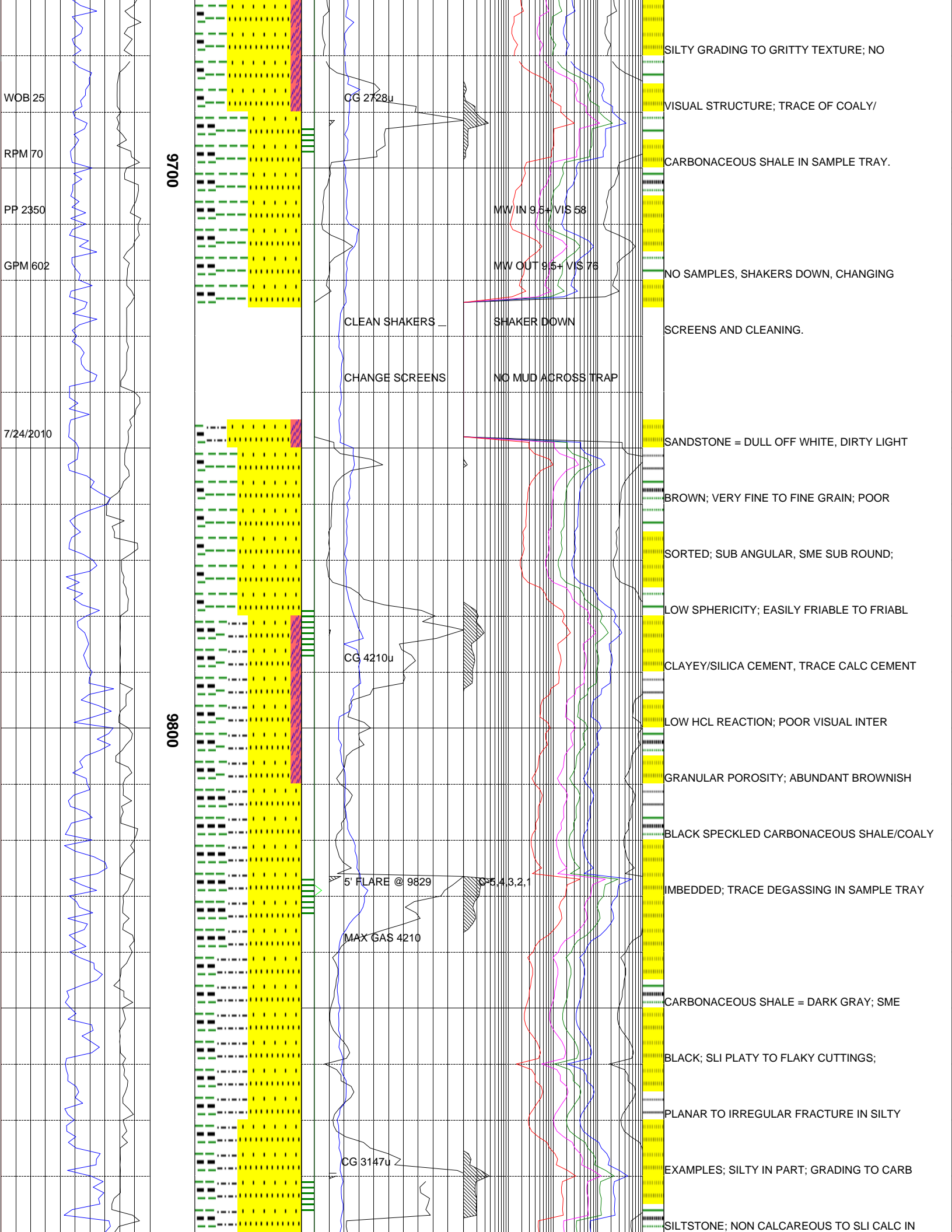


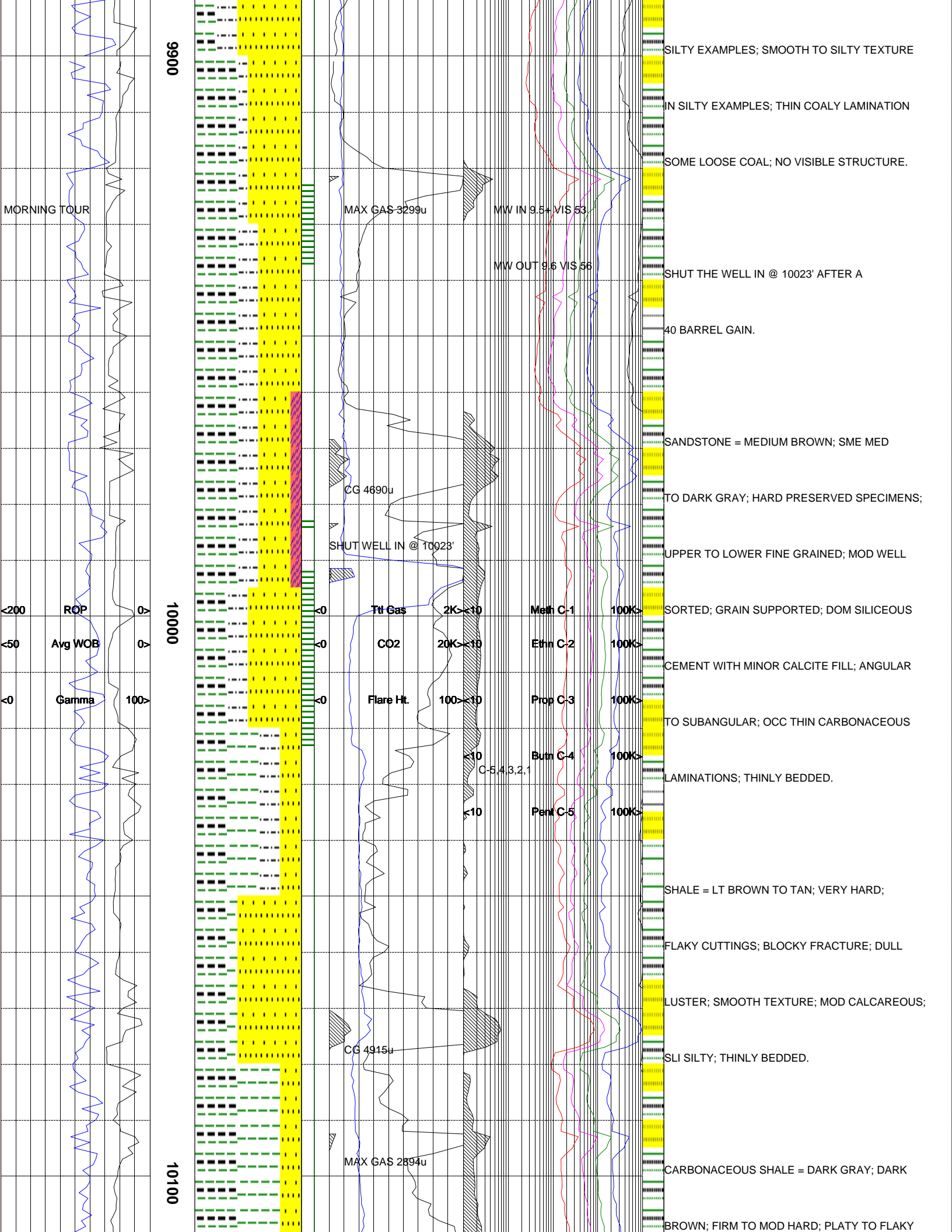


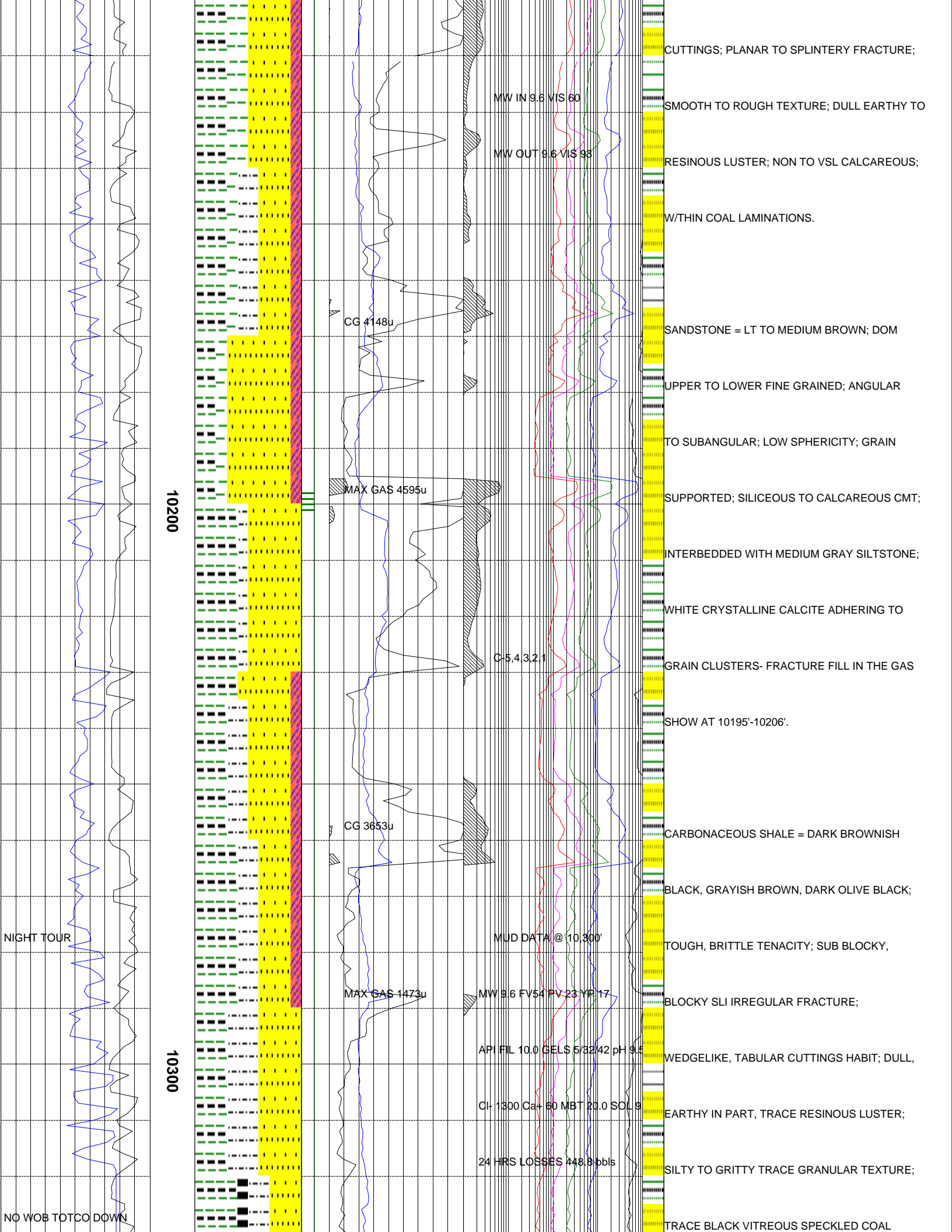


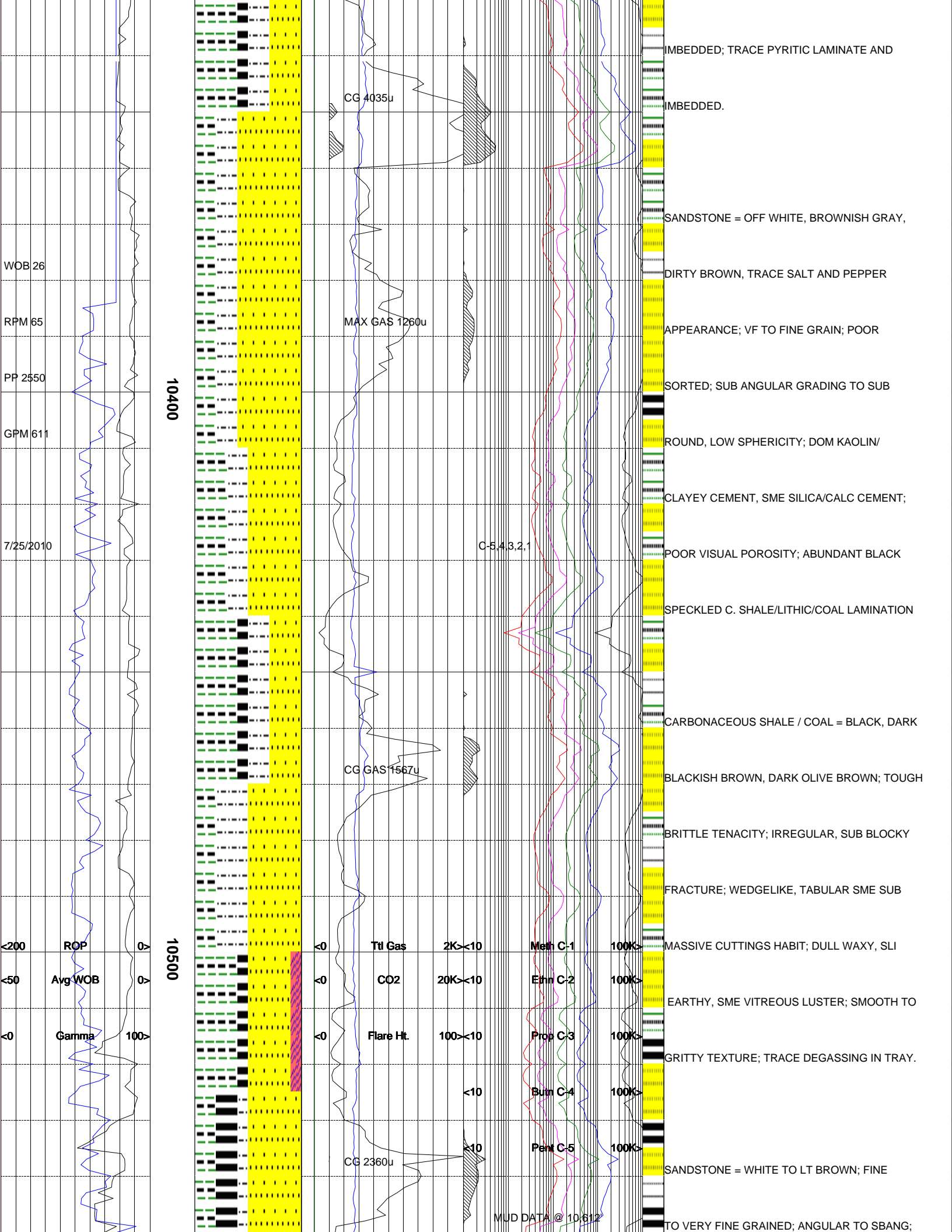




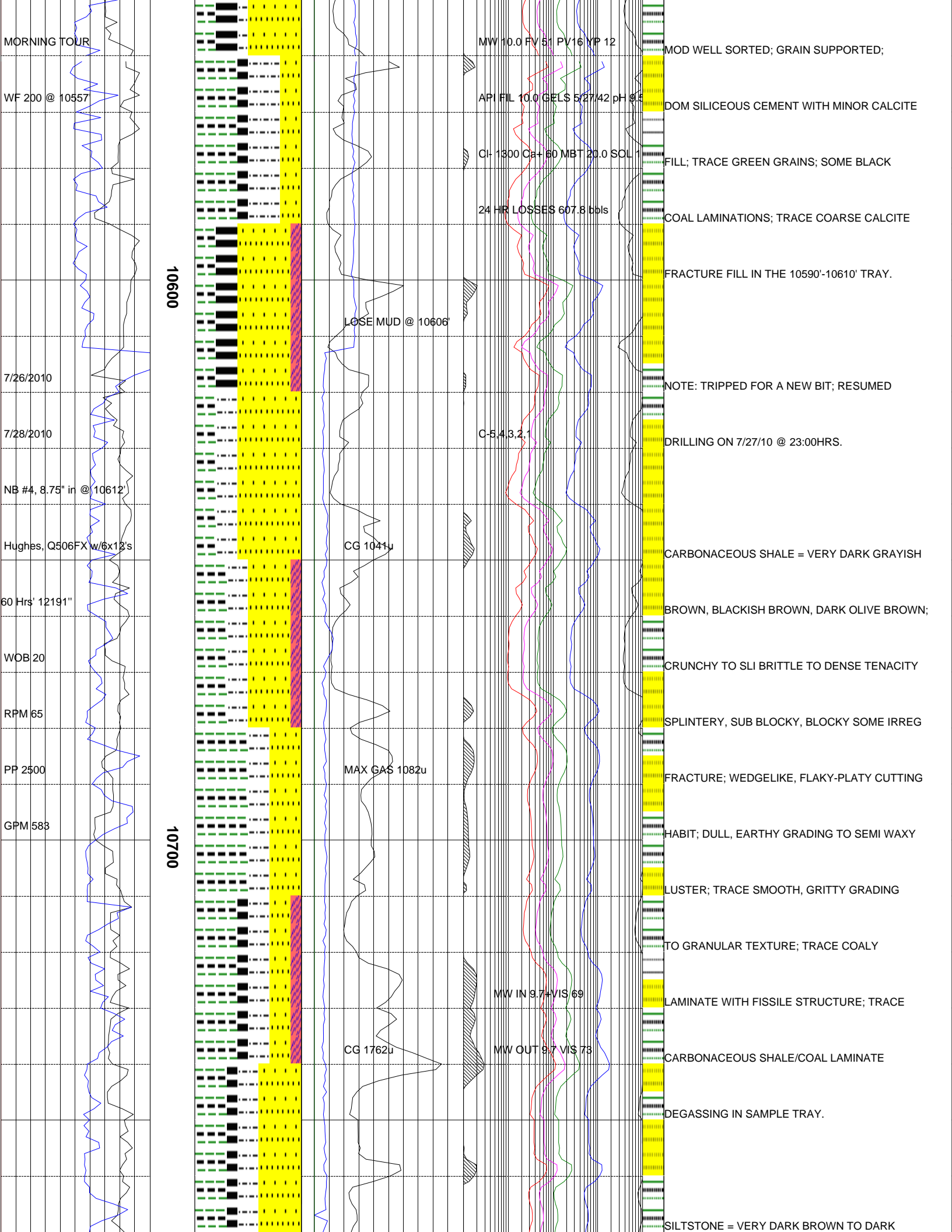




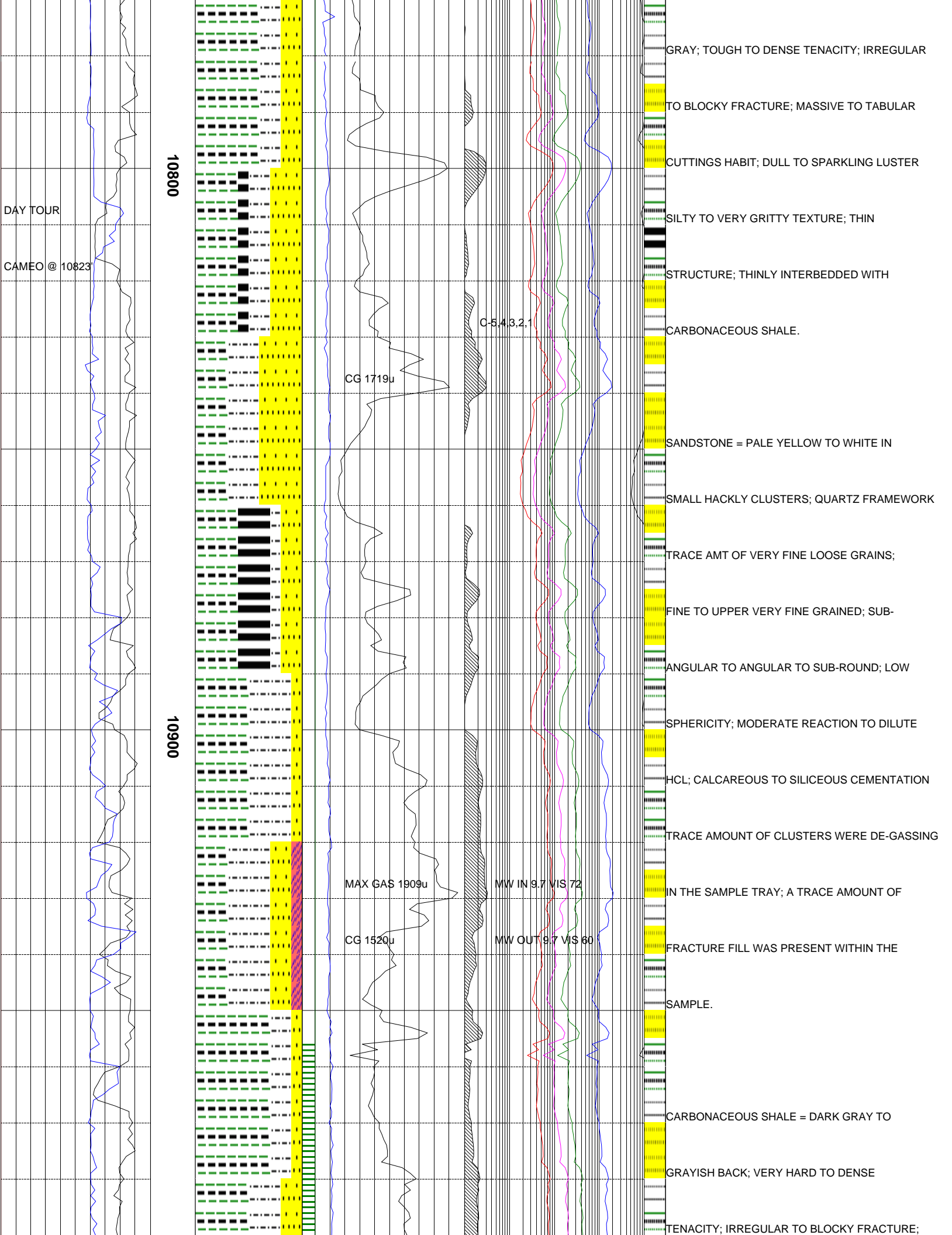


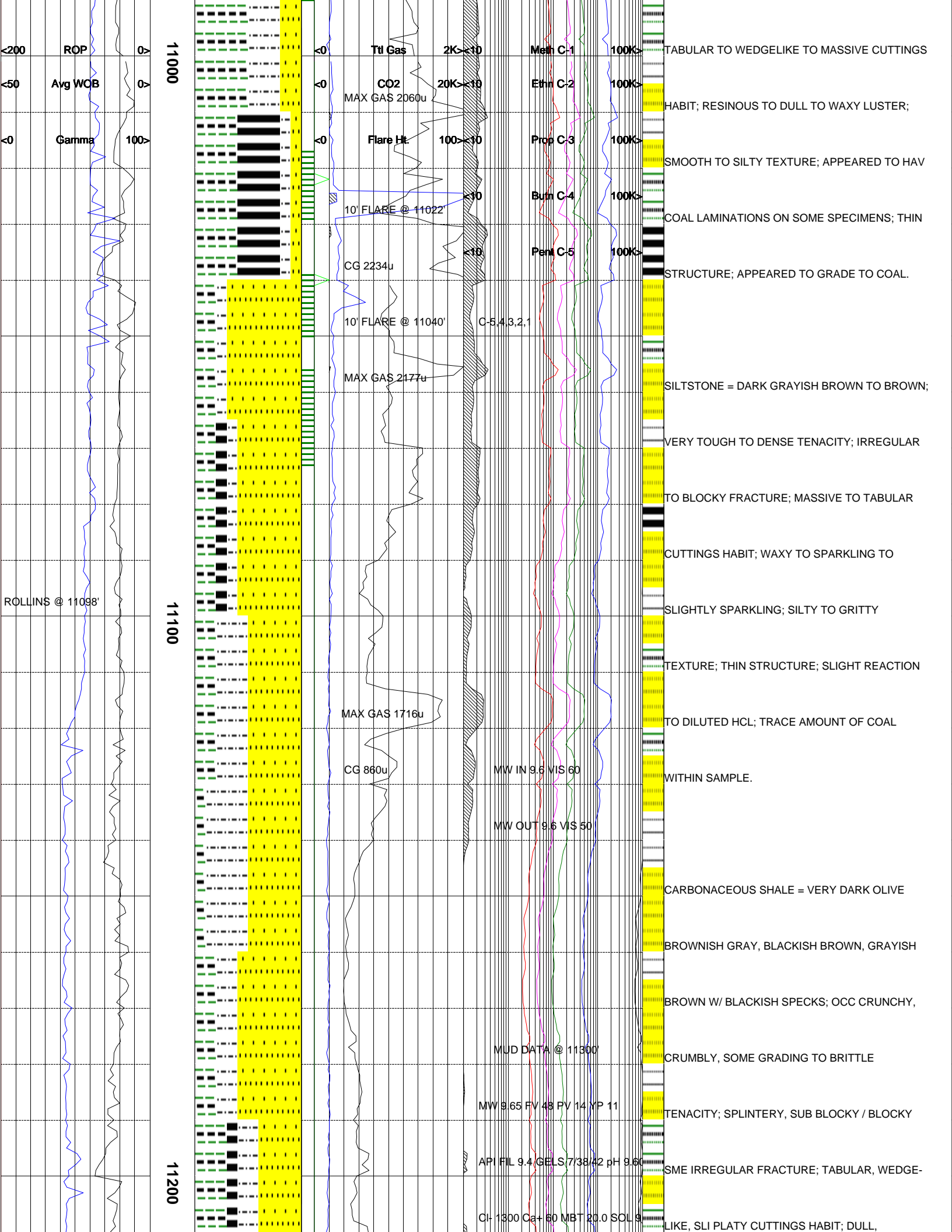


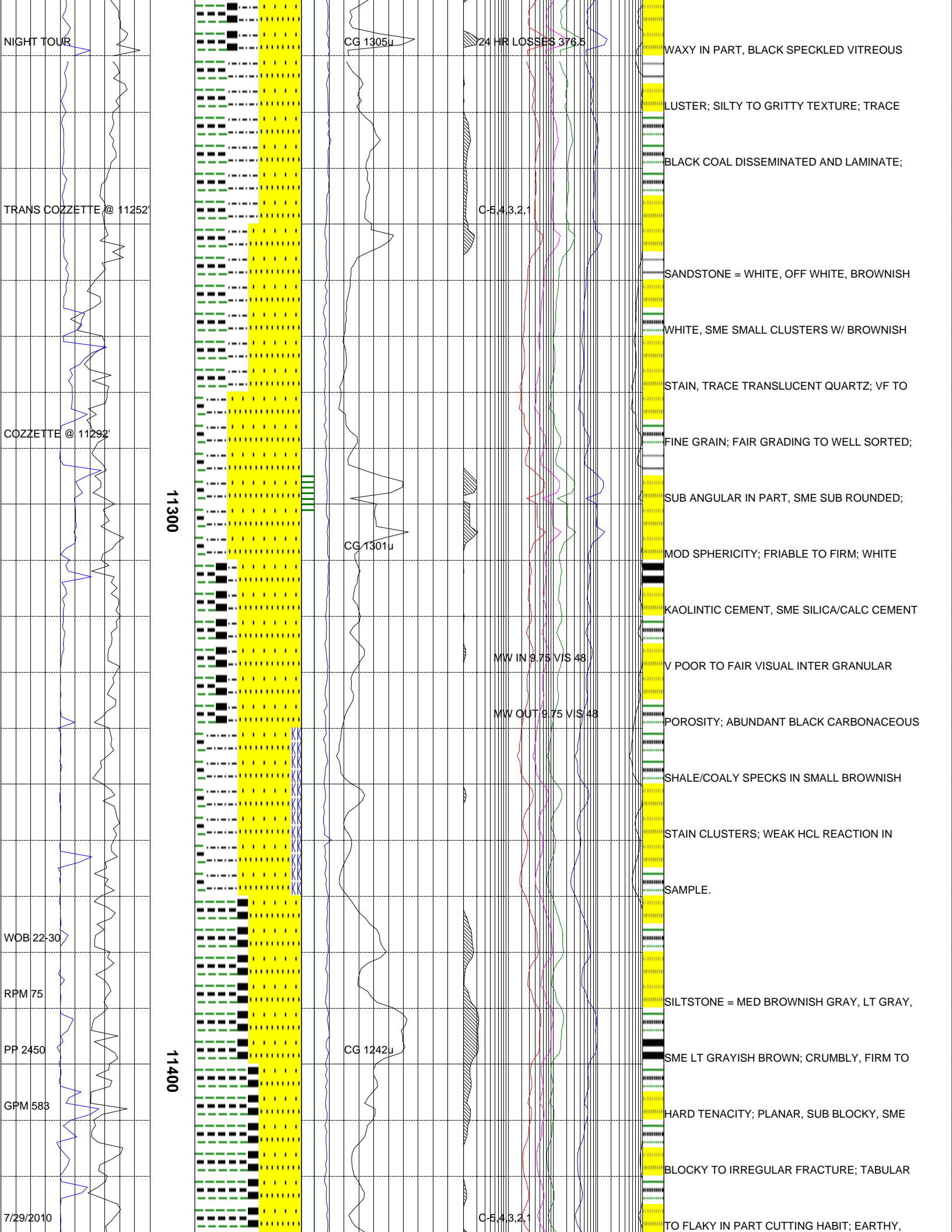


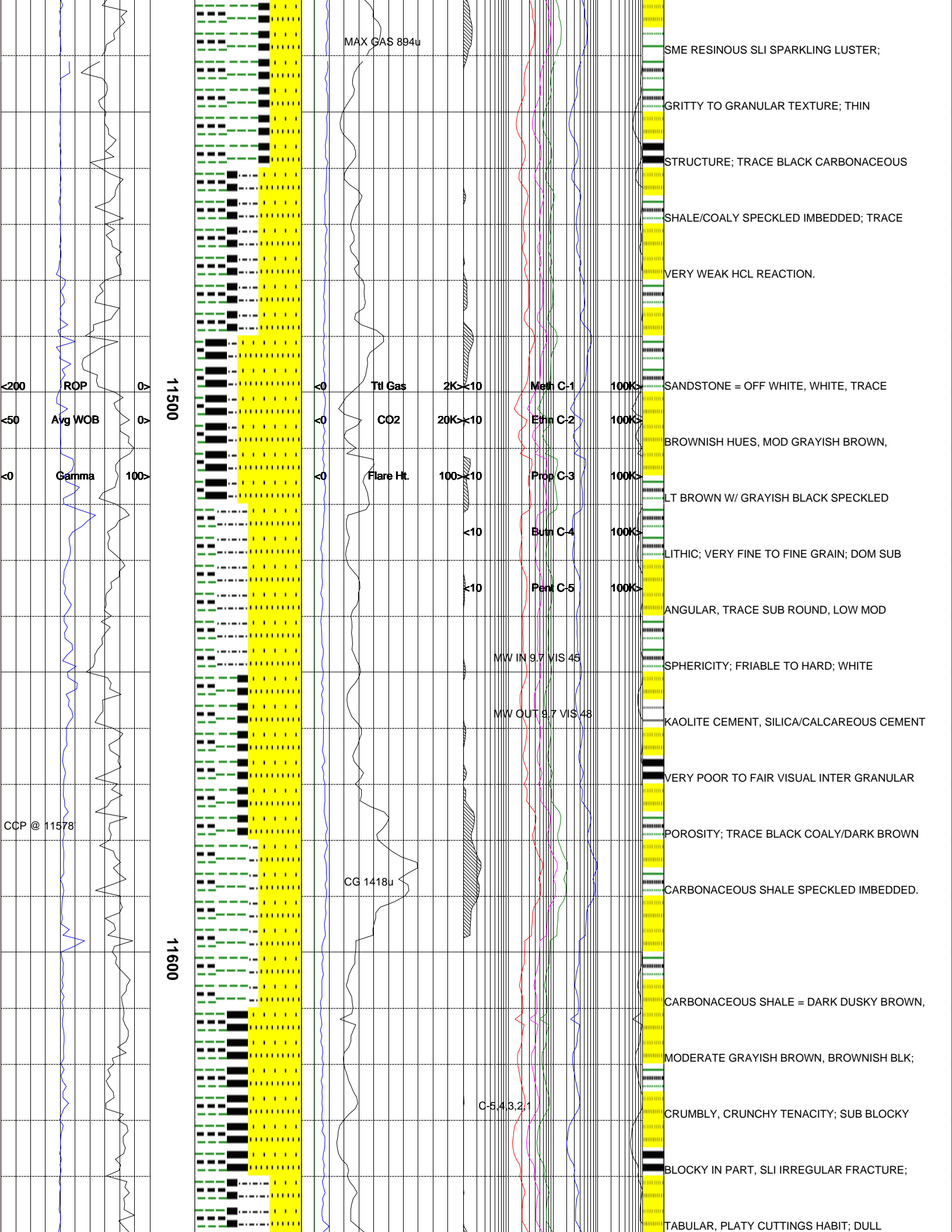


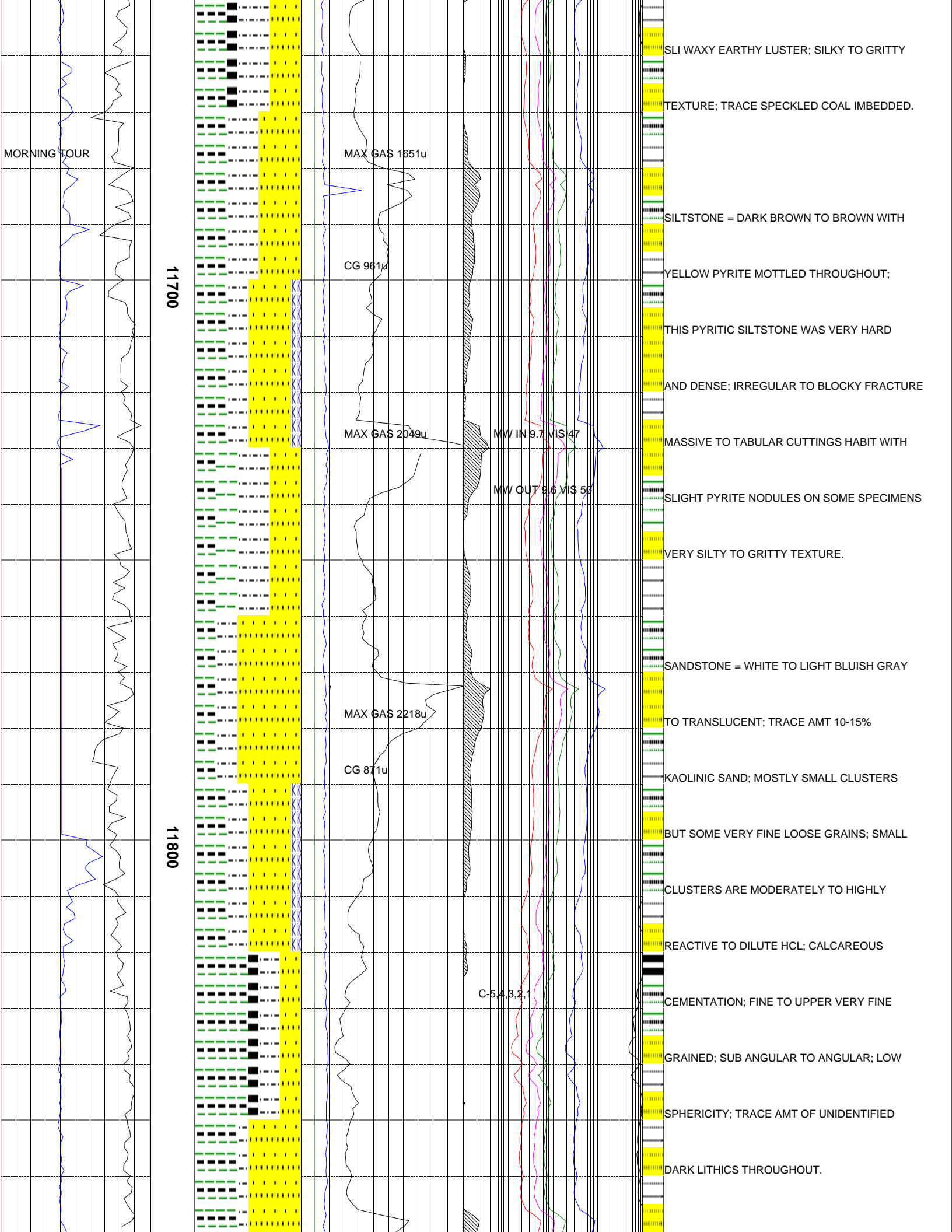


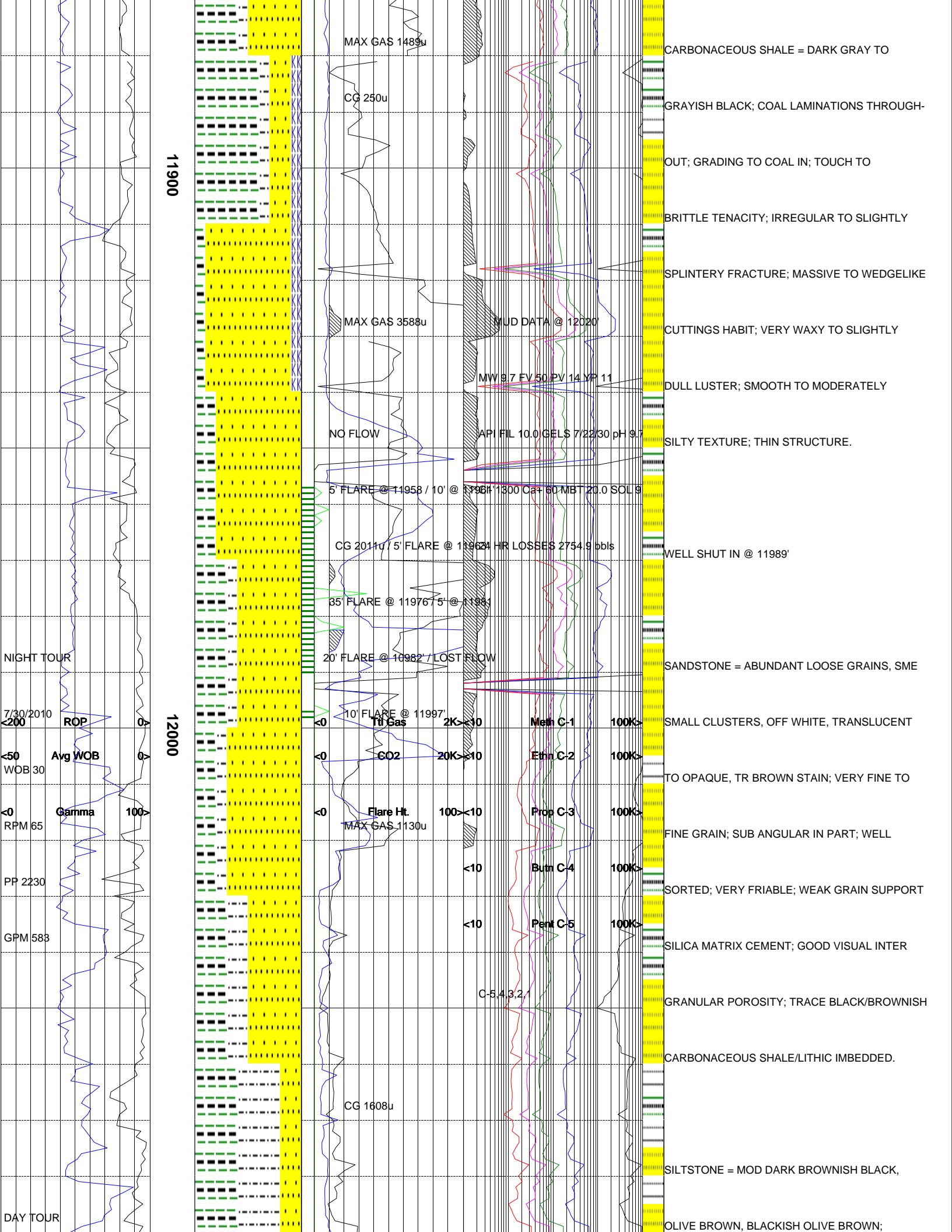


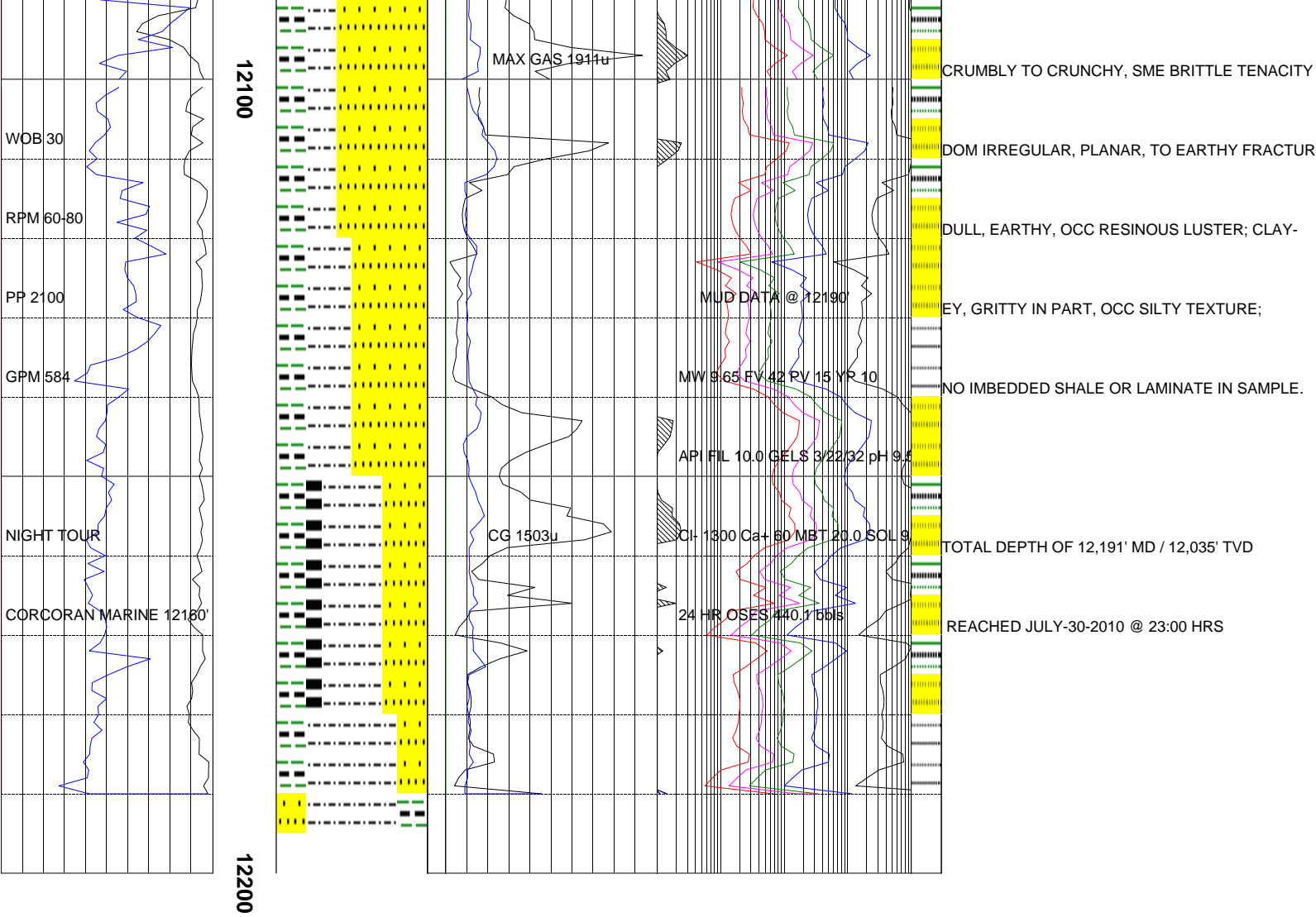












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