Houston, TX
(281) 784-5500
Bakersfield, CA
(661) 328-1595
New Iberia, LA
(337) 364-2322
Anchorage, AK
(907) 561-2465

MUDLOG MD

LOG INTERVAL

DEPTHS:	3858'	**TO**	12800'
DATES:	06/15/2010	**TO**	07/31/2010
SCALE:	5" = 100'		

MUD TYPES

SPUD MUD	**TO**	3858'
LSND	**TO**	12800'
	TO	
	TO	

CASING DATA

10.75"	**AT**	3853'
7.00"	**AT**	8731'
	AT	
	AT	

HOLE SIZE

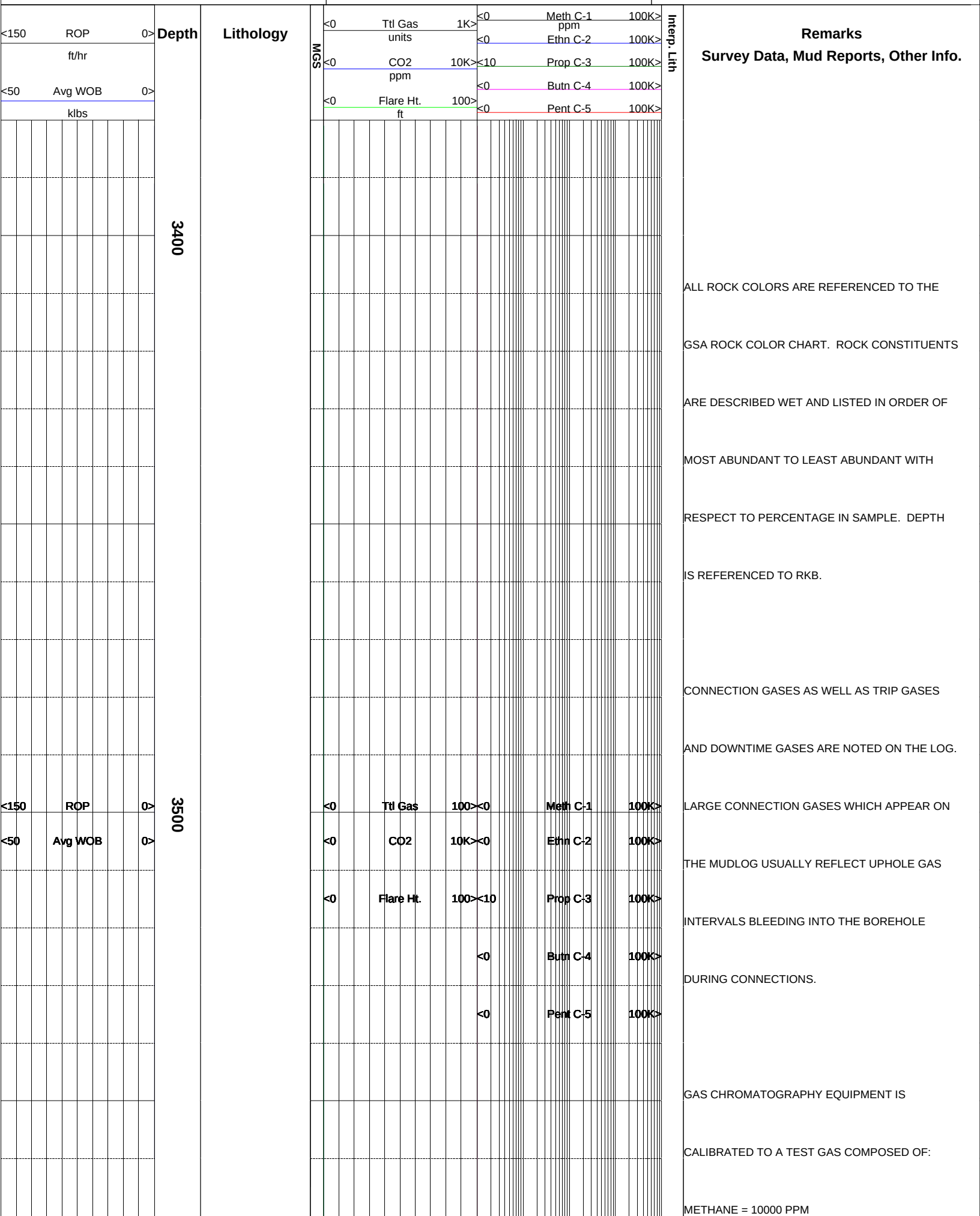
14.75"	**TO**	3858'
9.875"	**TO**	8750'
6.125"	**TO**	12800'
	TO	

COMPANY	ExxonMobil Production
WELL	PCU 197-34A3
FIELD	PICEANCE CREEK UNIT
REGION	ROCKY MOUNTAINS
COORDINATES	LAT: 39.918037
	LONG: -108.276941
ELEVATION	G.L.: 6490.8'
	RKB: 30.2'
COUNTY, STATE	RIO BLANCO, CO
API INDEX	051031154200
SPUD DATE	02/27/2010
CONTRACTOR	HELMERICH AND PAYNE
CO. REP.	J. THOMAS
RIG/TYPE	HP 325 / FLEX 4S
LOGGING UNIT	MLU 48
GEOLOGISTS	M. GROSS
	D. NEW
ADD. PERSONS	
CO. GEOLOGIST	MELISSA SAURBORN

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
ANDESITE
ANHYDRITE
BASALT
BENTONITE
BIOTITIZATION
BRECCIA
CALCARENITE
CALCAREOUS TUFF
CALCILUTITE
CARBONATES
CARBONACEOUS MAT
CARBONACEOUS SH
CEMENT CONTAM.
CHALK
CRYSTALLINE TUFF
CHERT - ARGILL
CHERT - GLASSY
CHERT - PORCEL
CHERT - TIGER STRIPE
CHERT - UNDIFF
CLAY
CLAY-MUDSTONE
CLYST-TUFFACEOUS
CHLORITIZATION
COAL
CONGLOMERATE
CONGL. SAND
CONGL. SANDSTONE
COQUINA
DACITE
DIATOMITE
DIORITE
DOLOSTONE
FELSIC SILIC DIKE
FOSSIL
GABBRO
GLASSY TUFF
GRANITE
GRANITE WASH
GRANODIORITE
GYPSUM
HALITE
HORNBL-QTZ-DIO
IGNEOUS (ACIDIC)
IGNEOUS (BASIC)
INTRUSIVES
KAOLINITIC
LIMESTONE
LITHIC TUFF
MARL - DOLO
MARL - CALC
METAMORPHICS
MUDSTONE
OBSIDIAN
PALEOSOL
PHOSPHATE
PORCELANITE
PORCELANEOUS CLYST
PYRITE
PYROCLASTICS
QUARTZ DIORITE
QUARTZ LATITE
QUARTZ MONZONITE
RECRYSTALLIZED CALCITE
RHYOLITE
SALT
SAND
SANDSTONE
SANDSTONE-TUFFACEOUS
SERICITIZATION
SERPENTINE
SHALE
SHALE TUFFACEOUS
SHELL FRAGMENTS
SIDERITE
SILICIFICATION
SILTSTONE
SILTST-TUFFACEOUS
TUFF
VOLCANICLASTICS SEDS
VOLCANICS


<150 ROP 0>
ft/hr
<50 Avg WOB 0>
klbs
Depth
Lithology
MGS
<0 Ttl Gas 1K>
units
<0 CO2 10K>
ppm
<0 Flare Ht. 100>
ft
<0 Meth C-1 100K>
ppm
<0 Ethn C-2 100K>
<10 Prop C-3 100K>
<0 Butn C-4 100K>
<0 Pent C-5 100K>
Interp. Lith
3400
3500
Remarks
Survey Data, Mud Reports, Other Info.
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 WITH
RESPECT TO PERCENTAGE IN SAMPLE. DEPTH
IS REFERENCED TO RKB.
CONNECTION GASES AS WELL AS TRIP GASES
AND DOWNTIME GASES ARE NOTED ON THE LOG.
LARGE CONNECTION GASES WHICH APPEAR ON
THE MUDLOG USUALLY REFLECT UPHOLE GAS
INTERVALS BLEEDING INTO THE BOREHOLE
DURING CONNECTIONS.
GAS CHROMATOGRAPHY EQUIPMENT IS
CALIBRATED TO A TEST GAS COMPOSED OF:
METHANE = 10000 PPM

3600

3700

ETHANE = 1000 PPM

PROPANE = 1000 PPM

I-BUTANE = 1000 PPM

N-BUTANE = 1000 PPM

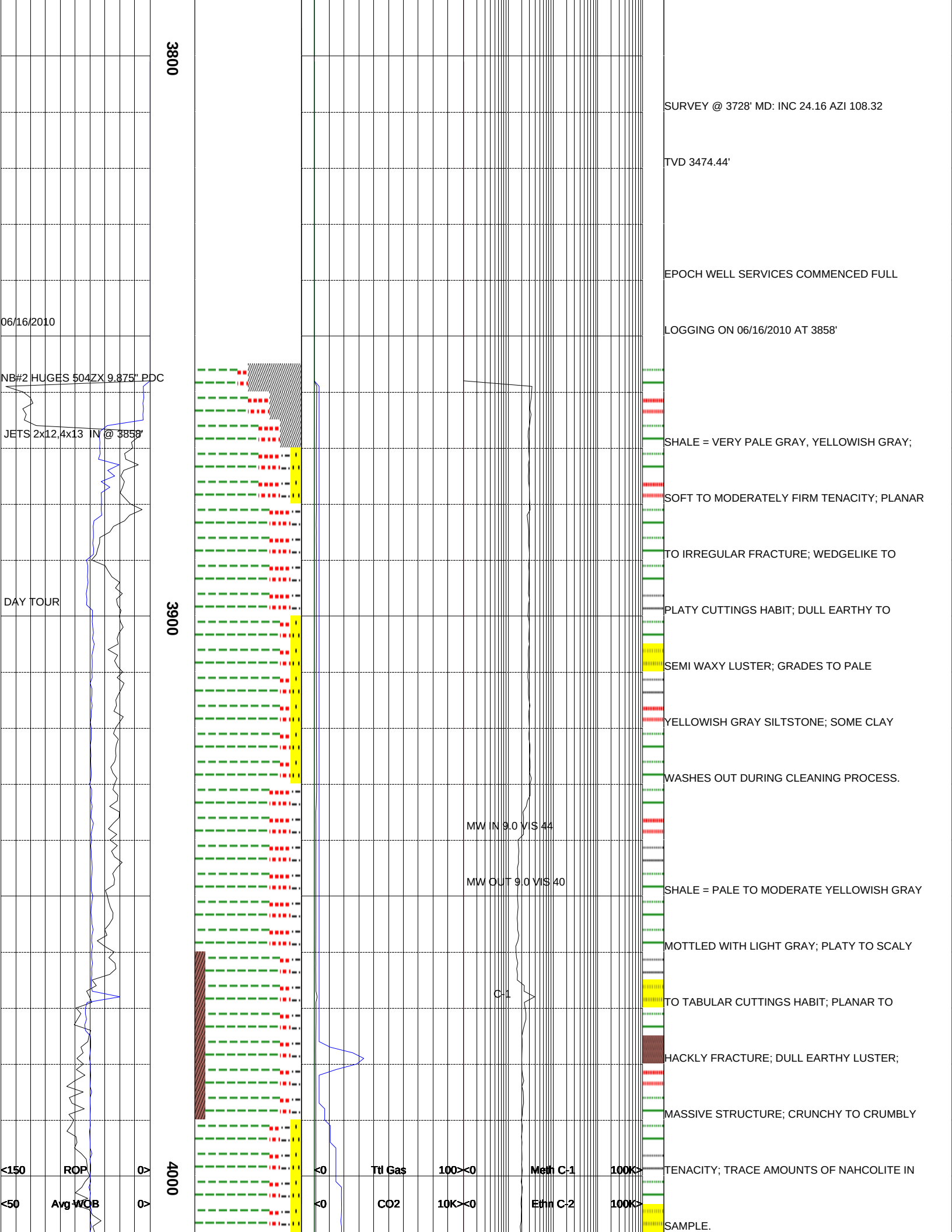
I-PENTANE = 1000 PPM

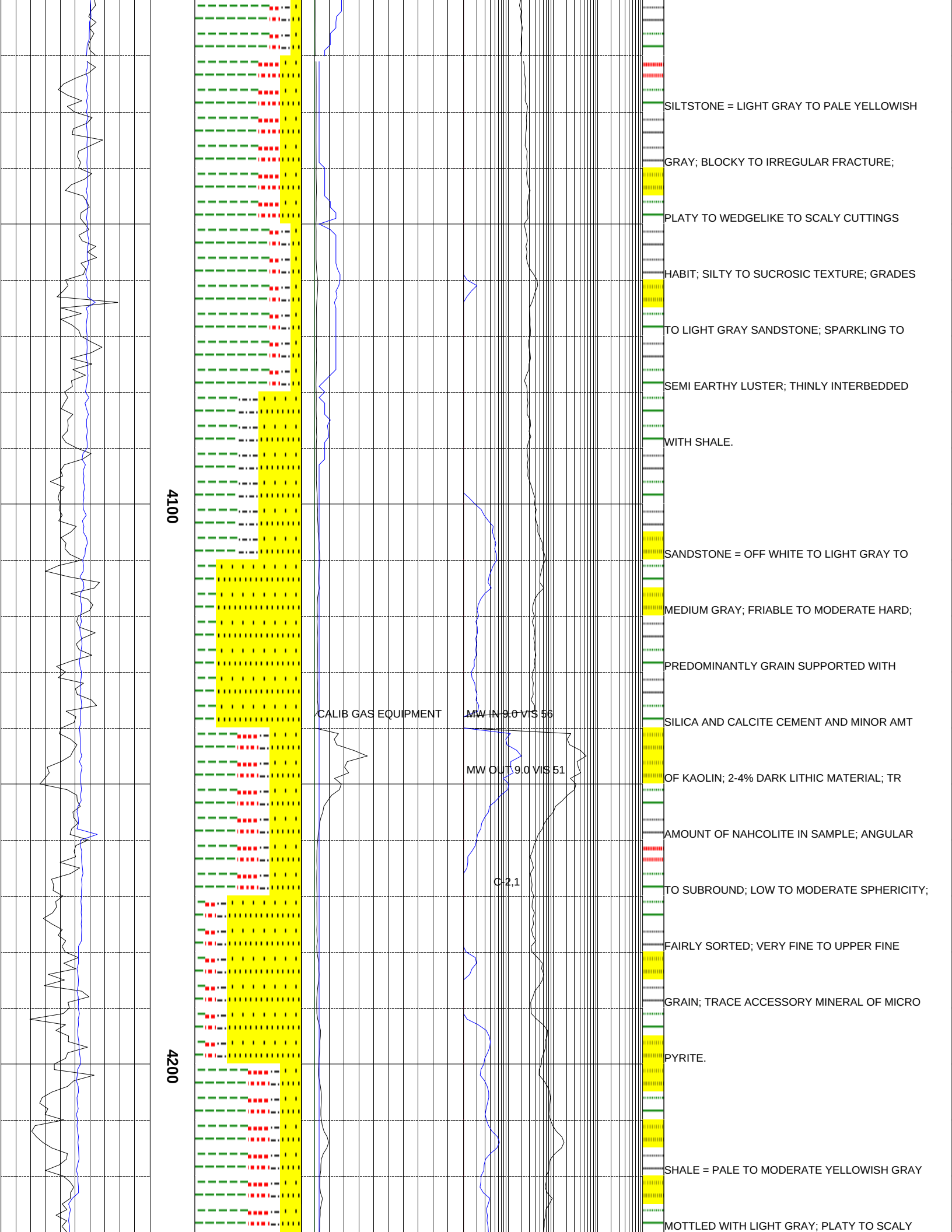
N-PENTANE = 1000 PPM

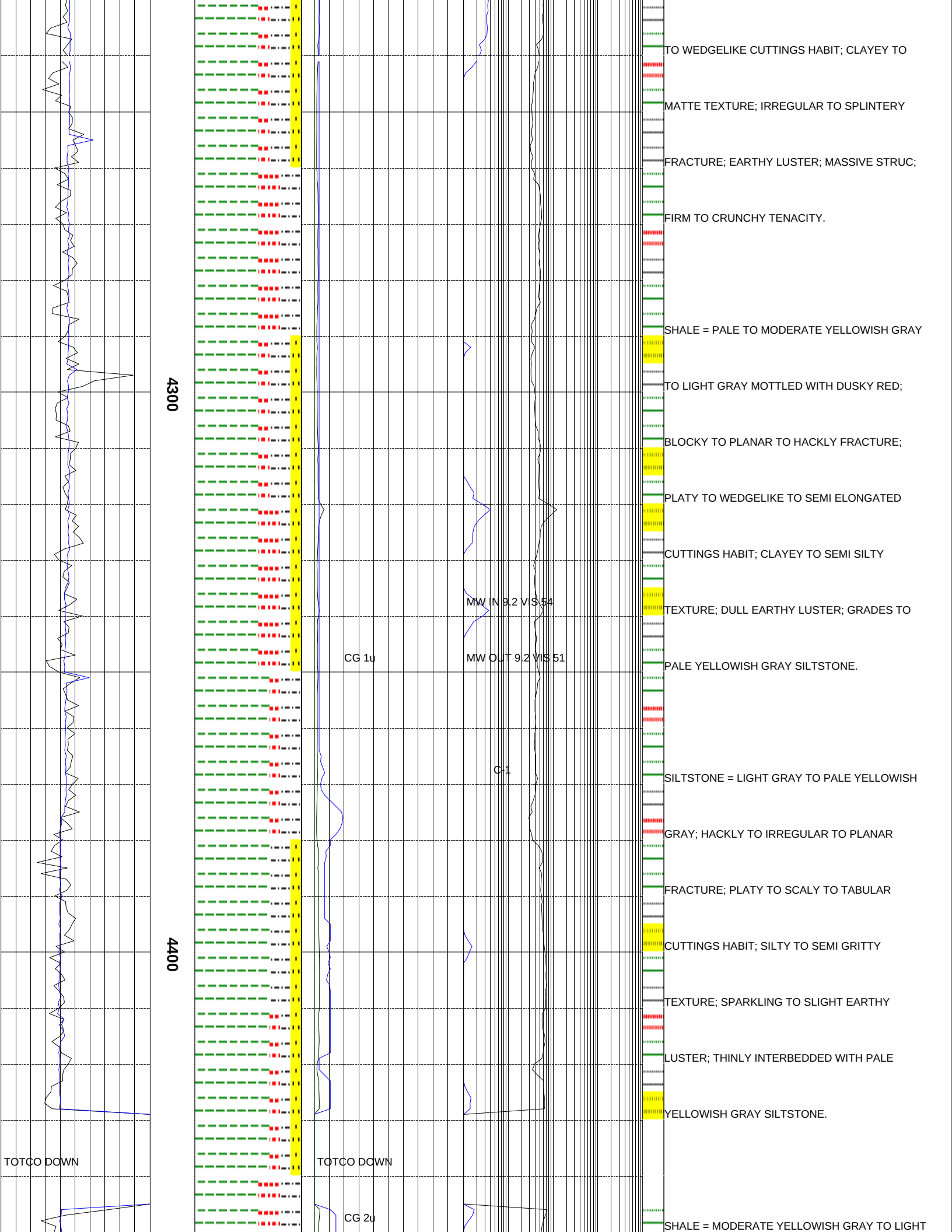
WHEN THE MUD IS RUN THROUGH THE MGS (MUD GAS SEPERATOR) THE INTERVAL IS MARKED ON THE LOG IN THE SLIDE COLUMN AND NOTED ON THE LOG.

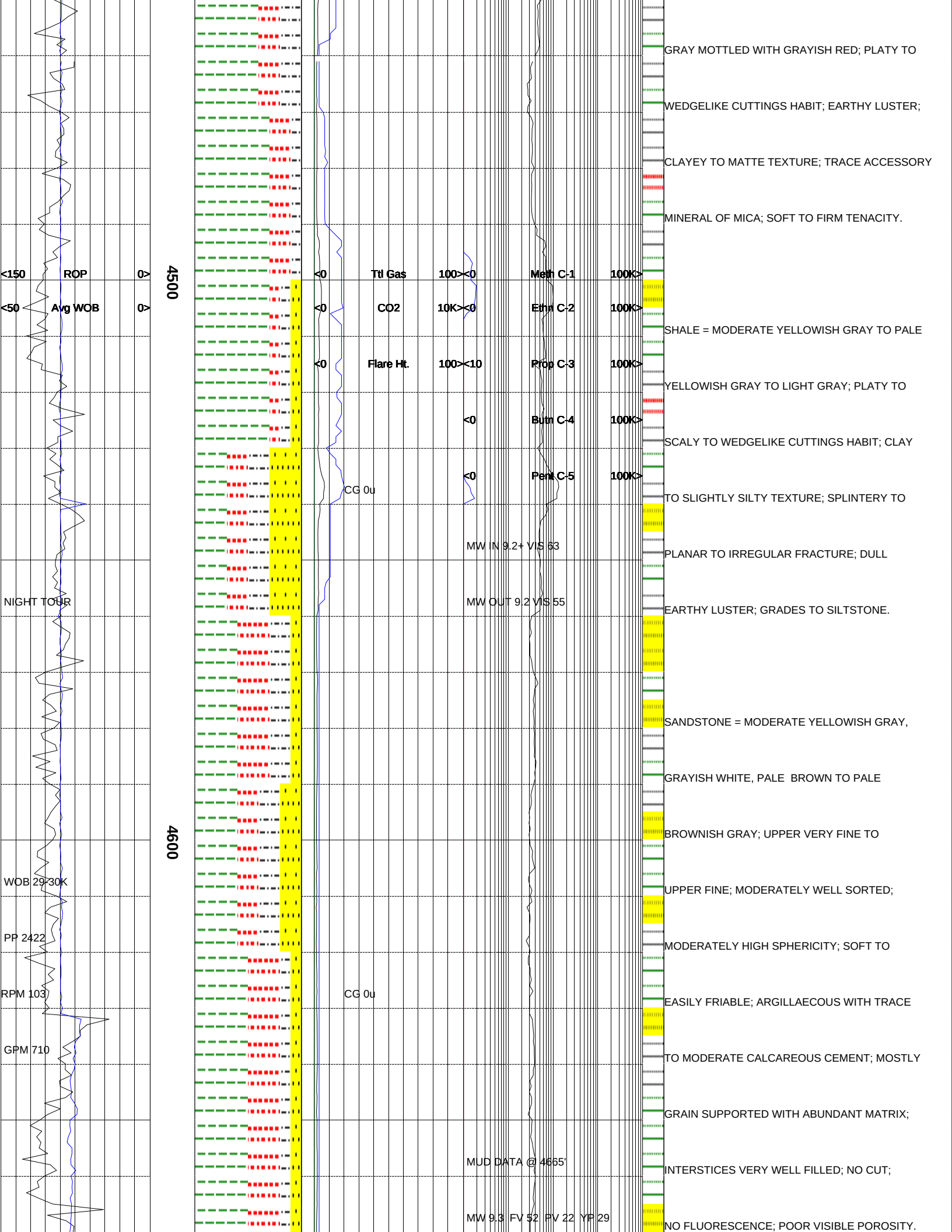
ALL SANDSTONE INTERVALS ARE EXAMINED FOR SAMPLE FLUORESCENCE IN THE UV SCOPE AND FOR HYDROCARBON FLUORESCENCE AND MINOR FLUORESCENCE FROM POSSIBLE FRACTURE FILL. ALL FLUORESCENCE IS NOTED ON THE MUDLOG.

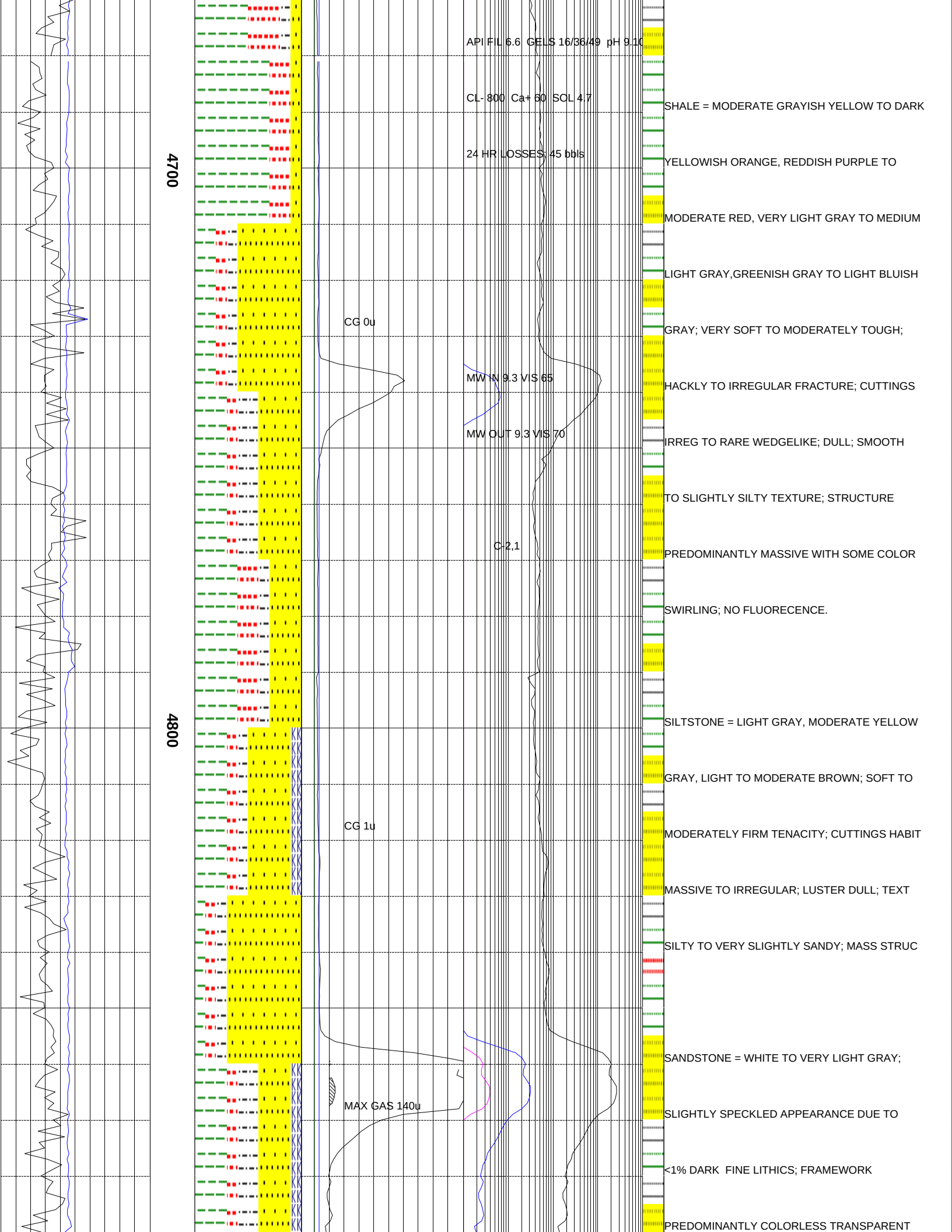
10.75" SURFACE CASING WAS SET AT 3853'. DRILLED 10' OF NEW FORMATION AND PERFORM F.I.T. - GOOD. DRILL AHEAD.

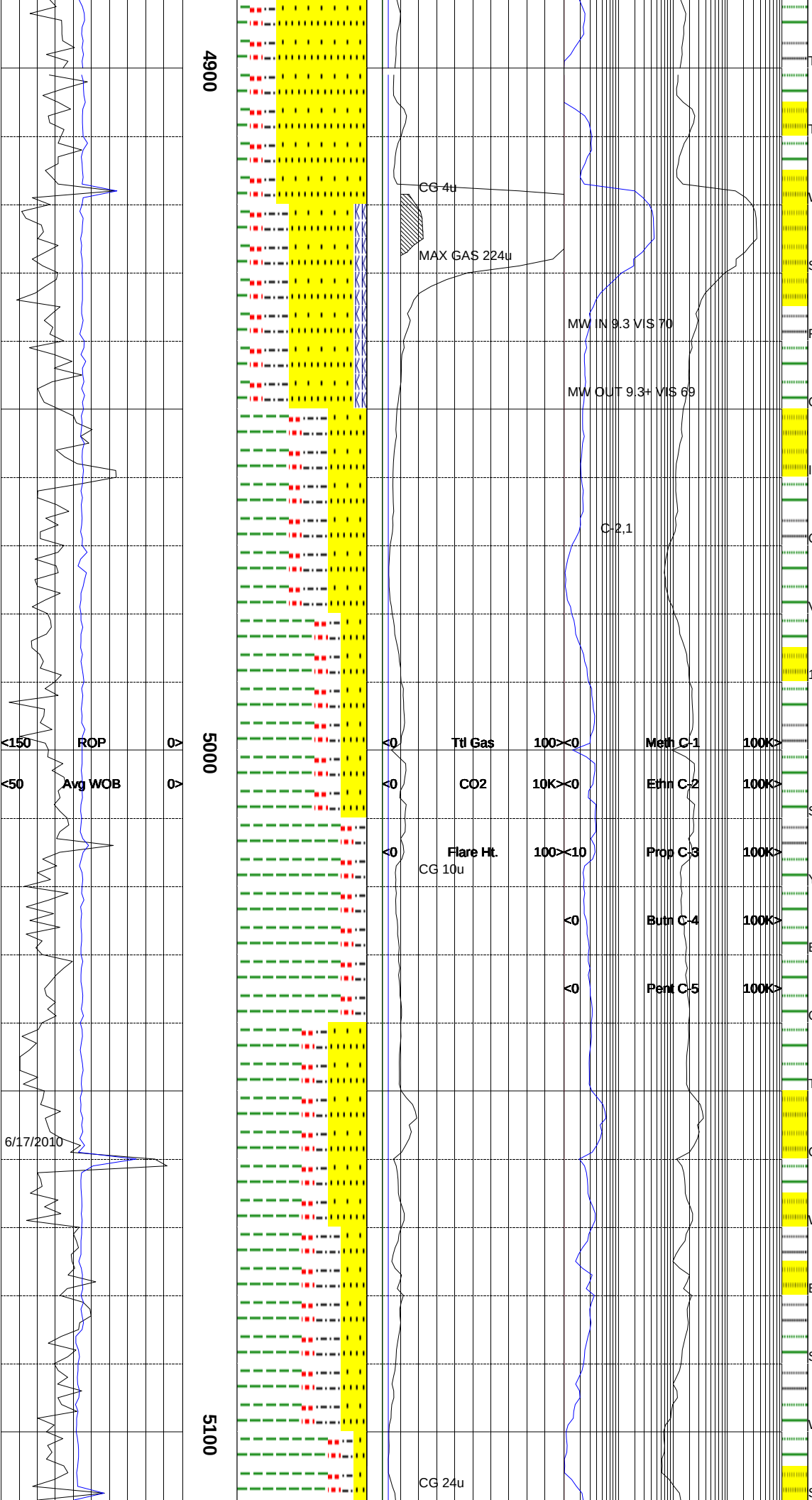

3800
3900
4000
SURVEY @ 3728' MD: INC 24.16 AZI 108.32
TVD 3474.44'
EPOCH WELL SERVICES COMMENCED FULL
06/16/2010
LOGGING ON 06/16/2010 AT 3858'
NB#2 HUGES 504ZX 9.875" PDC
JETS 2x12,4x13 IN @ 3858'
SHALE = VERY PALE GRAY, YELLOWISH GRAY;
SOFT TO MODERATELY FIRM TENACITY; PLANAR
TO IRREGULAR FRACTURE; WEDGELIKE TO
DAY TOUR
PLATY CUTTINGS HABIT; DULL EARTHY TO
SEMI WAXY LUSTER; GRADES TO PALE
YELLOWISH GRAY SILTSTONE; SOME CLAY
WASHES OUT DURING CLEANING PROCESS.
MW IN 9.0 VIS 44
MW OUT 9.0 VIS 40
SHALE = PALE TO MODERATE YELLOWISH GRAY
MOTTLED WITH LIGHT GRAY; PLATY TO SCALY
C-1
TO TABULAR CUTTINGS HABIT; PLANAR TO
HACKLY FRACTURE; DULL EARTHY LUSTER;
MASSIVE STRUCTURE; CRUNCHY TO CRUMBLY
<150 ROP 0>
<0 Ttl Gas 100><0 Meth C-1 100K>
TENACITY; TRACE AMOUNTS OF NAHCOLITE IN
<50 Avg WOB 0>
<0 CO2 10K><0 Ethn C-2 100K>
SAMPLE.


4100
4200
CALIB GAS EQUIPMENT
MW IN 9.0 VIS 56
MW OUT 9.0 VIS 51
C-2,1
SILTSTONE = LIGHT GRAY TO PALE YELLOWISH
GRAY; BLOCKY TO IRREGULAR FRACTURE;
PLATY TO WEDGELIKE TO SCALY CUTTINGS
HABIT; SILTY TO SUCROSIC TEXTURE; GRADES
TO LIGHT GRAY SANDSTONE; SPARKLING TO
SEMI EARTHY LUSTER; THINLY INTERBEDDED
WITH SHALE.
SANDSTONE = OFF WHITE TO LIGHT GRAY TO
MEDIUM GRAY; FRIABLE TO MODERATE HARD;
PREDOMINANTLY GRAIN SUPPORTED WITH
SILICA AND CALCITE CEMENT AND MINOR AMT
OF KAOLIN; 2-4% DARK LITHIC MATERIAL; TR
AMOUNT OF NAHCOLITE IN SAMPLE; ANGULAR
TO SUBROUND; LOW TO MODERATE SPHERICITY;
FAIRLY SORTED; VERY FINE TO UPPER FINE
GRAIN; TRACE ACCESSORY MINERAL OF MICRO
PYRITE.
SHALE = PALE TO MODERATE YELLOWISH GRAY
MOTTLED WITH LIGHT GRAY; PLATY TO SCALY


TO WEDGELIKE CUTTINGS HABIT; CLAYEY TO
MATTE TEXTURE; IRREGULAR TO SPLINTERY
FRACTURE; EARTHY LUSTER; MASSIVE STRUC;
FIRM TO CRUNCHY TENACITY.
SHALE = PALE TO MODERATE YELLOWISH GRAY
TO LIGHT GRAY MOTTLED WITH DUSKY RED;
BLOCKY TO PLANAR TO HACKLY FRACTURE;
PLATY TO WEDGELIKE TO SEMI ELONGATED
CUTTINGS HABIT; CLAYEY TO SEMI SILTY
TEXTURE; DULL EARTHY LUSTER; GRADES TO
PALE YELLOWISH GRAY SILTSTONE.
SILTSTONE = LIGHT GRAY TO PALE YELLOWISH
GRAY; HACKLY TO IRREGULAR TO PLANAR
FRACTURE; PLATY TO SCALY TO TABULAR
CUTTINGS HABIT; SILTY TO SEMI GRITTY
TEXTURE; SPARKLING TO SLIGHT EARTHY
LUSTER; THINLY INTERBEDDED WITH PALE
YELLOWISH GRAY SILTSTONE.
SHALE = MODERATE YELLOWISH GRAY TO LIGHT
4300
4400
MW IN 9.2 VIS 54
MW OUT 9.2 VIS 51
CG 1u
C-1
CG 2u
TOTCO DOWN
TOTCO DOWN


<150 ROP 0>
<50 Avg WOB 0>
4500
4600
<0 Ttl Gas 100><0 Meth C-1 100K>
<0 CO2 10K><0 Ethn C-2 100K>
<0 Flare Ht. 100><10 Prop C-3 100K>
<0 Butn C-4 100K>
<0 Pent C-5 100K>
CG 0u
CG 0u
MW IN 9.2+ VIS 63
MW OUT 9.2 VIS 55
MUD DATA @ 4665'
MW 9.3 FV 52 PV 22 YP 29
NIGHT TOUR
WOB 29-30K
PP 2422
RPM 103
GPM 710
GRAY MOTTLED WITH GRAYISH RED; PLATY TO
WEDGELIKE CUTTINGS HABIT; EARTHY LUSTER;
CLAYEY TO MATTE TEXTURE; TRACE ACCESSORY
MINERAL OF MICA; SOFT TO FIRM TENACITY.
SHALE = MODERATE YELLOWISH GRAY TO PALE
YELLOWISH GRAY TO LIGHT GRAY; PLATY TO
SCALY TO WEDGELIKE CUTTINGS HABIT; CLAY
TO SLIGHTLY SILTY TEXTURE; SPLINTERY TO
PLANAR TO IRREGULAR FRACTURE; DULL
EARTHY LUSTER; GRADES TO SILTSTONE.
SANDSTONE = MODERATE YELLOWISH GRAY,
GRAYISH WHITE, PALE BROWN TO PALE
BROWNISH GRAY; UPPER VERY FINE TO
UPPER FINE; MODERATELY WELL SORTED;
MODERATELY HIGH SPHERICITY; SOFT TO
EASILY FRIABLE; ARGILLAECOUS WITH TRACE
TO MODERATE CALCAREOUS CEMENT; MOSTLY
GRAIN SUPPORTED WITH ABUNDANT MATRIX;
INTERSTICES VERY WELL FILLED; NO CUT;
NO FLUORESCENCE; POOR VISIBLE POROSITY.


4700
4800
API FIL 6.6 GELS 16/36/49 pH 9.10
CL- 800 Ca+ 60 SOL 4.7
24 HR LOSSES: 45 bbls
CG 0u
MW IN 9.3 VIS 65
MW OUT 9.3 VIS 70
C-2,1
CG 1u
MAX GAS 140u
SHALE = MODERATE GRAYISH YELLOW TO DARK
YELLOWISH ORANGE, REDDISH PURPLE TO
MODERATE RED, VERY LIGHT GRAY TO MEDIUM
LIGHT GRAY,GREENISH GRAY TO LIGHT BLUISH
GRAY; VERY SOFT TO MODERATELY TOUGH;
HACKLY TO IRREGULAR FRACTURE; CUTTINGS
IRREG TO RARE WEDGELIKE; DULL; SMOOTH
TO SLIGHTLY SILTY TEXTURE; STRUCTURE
PREDOMINANTLY MASSIVE WITH SOME COLOR
SWIRLING; NO FLUORECENCE.
SILTSTONE = LIGHT GRAY, MODERATE YELLOW
GRAY, LIGHT TO MODERATE BROWN; SOFT TO
MODERATELY FIRM TENACITY; CUTTINGS HABIT
MASSIVE TO IRREGULAR; LUSTER DULL; TEXT
SILTY TO VERY SLIGHTLY SANDY; MASS STRUC
SANDSTONE = WHITE TO VERY LIGHT GRAY;
SLIGHTLY SPECKLED APPEARANCE DUE TO
<1% DARK FINE LITHICS; FRAMEWORK
PREDOMINANTLY COLORLESS TRANSPARENT



TO TRANSLUCENT QUARTZ; UPPER VERY FINE

TO UPPER FINE; MODERATELY TO MODERATELY

WELL SORTED; SUB ANGULAR TO SUB ROUND;

SHPERICITY MODERATELY HIGH; EASILY TO

FIRMLY FRIABLE; GRAIN SUPPORTED; CEMENT

CALCAREOUS W/ MODERATE REACTION TO HCL;

INTERSTICES MODERATELY WELL FILLED; NO

CUT; NO FLOURESCENCE; MODERATE TO POOR

VISIBLE POROSITY; ASSOCIATED GAS SHOWS

140 UNITS AND 223 UNITS.

SHALE = LIGHT TO MEDIUM GRAY, MODERATE

YELLOWISH GRAY TO MODERATE YELLOWISH

BROWN, LIGHT TO MODERATE RED, DARK

GRAY; MODERATELY SOFT TO CRUNCHY

TENACITY; FRACTURE IRREGULAR TO HACKLY;

CUTTINGS HABIT MASSIVE TO OCCASIONAL

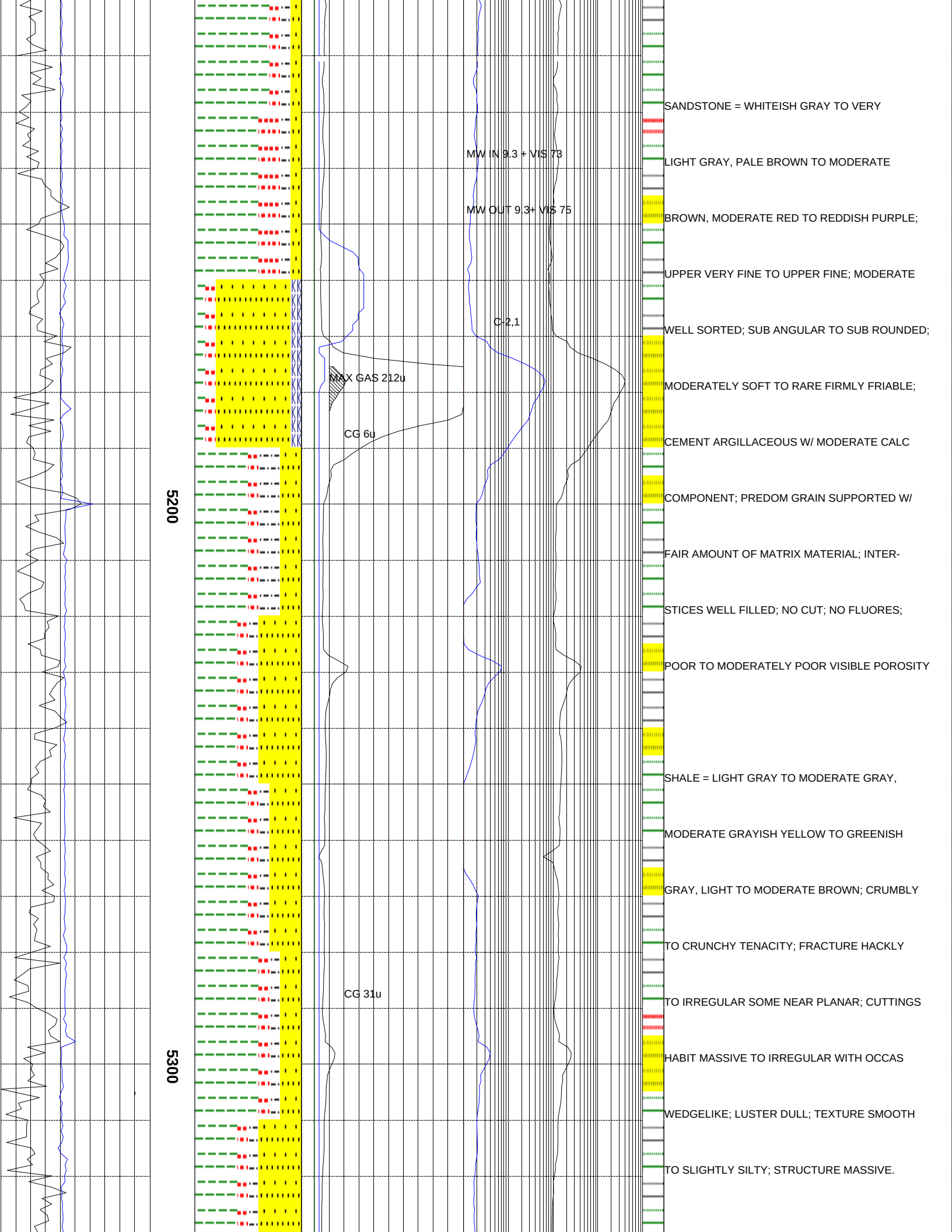
WEDGELIKE; LUSTER DULL WITH SOME

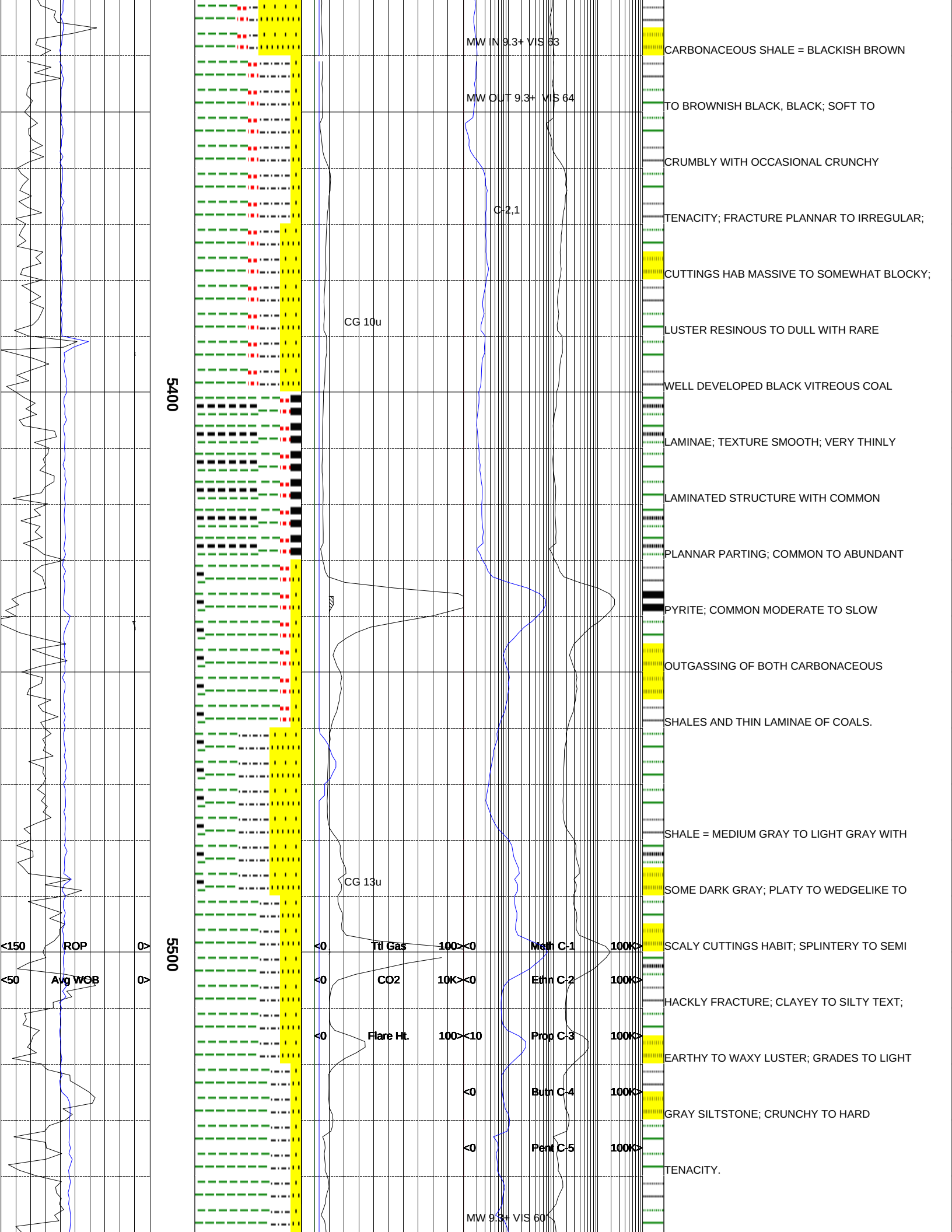
EARTHY; TEXTURE SMOOTH TO VERY SLIGHTLY

SILTY; STRUCTURE PREDOMINATELY MASSIVE

W/ RARE V THIN VARVE LIKE LAMINATIONS;

SOME MINERAL FLUORESCENCE OBSERVED.


MW IN 9.3 + VIS 73
MW OUT 9.3+ VIS 75
C-2,1
MAX GAS 212u
CG 6u
CG 31u
5200
5300
SANDSTONE = WHITEISH GRAY TO VERY
LIGHT GRAY, PALE BROWN TO MODERATE
BROWN, MODERATE RED TO REDDISH PURPLE;
UPPER VERY FINE TO UPPER FINE; MODERATE
WELL SORTED; SUB ANGULAR TO SUB ROUNDED;
MODERATELY SOFT TO RARE FIRMLY FRIABLE;
CEMENT ARGILLACEOUS W/ MODERATE CALC
COMPONENT; PREDOM GRAIN SUPPORTED W/
FAIR AMOUNT OF MATRIX MATERIAL; INTER-
STICES WELL FILLED; NO CUT; NO FLUORES;
POOR TO MODERATELY POOR VISIBLE POROSITY
SHALE = LIGHT GRAY TO MODERATE GRAY,
MODERATE GRAYISH YELLOW TO GREENISH
GRAY, LIGHT TO MODERATE BROWN; CRUMBLY
TO CRUNCHY TENACITY; FRACTURE HACKLY
TO IRREGULAR SOME NEAR PLANAR; CUTTINGS
HABIT MASSIVE TO IRREGULAR WITH OCCAS
WEDGELIKE; LUSTER DULL; TEXTURE SMOOTH
TO SLIGHTLY SILTY; STRUCTURE MASSIVE.



CARBONACEOUS SHALE = BLACKISH BROWN

TO BROWNISH BLACK, BLACK; SOFT TO

CRUMBLY WITH OCCASIONAL CRUNCHY

TENACITY; FRACTURE PLANNAR TO IRREGULAR;

CUTTINGS HAB MASSIVE TO SOMEWHAT BLOCKY;

LUSTER RESINOUS TO DULL WITH RARE

WELL DEVELOPED BLACK VITREOUS COAL

LAMINAE; TEXTURE SMOOTH; VERY THINLY

LAMINATED STRUCTURE WITH COMMON

PLANNAR PARTING; COMMON TO ABUNDANT

PYRITE; COMMON MODERATE TO SLOW

OUTGASSING OF BOTH CARBONACEOUS

SHALES AND THIN LAMINAE OF COALS.

SHALE = MEDIUM GRAY TO LIGHT GRAY WITH

SOME DARK GRAY; PLATY TO WEDGELIKE TO

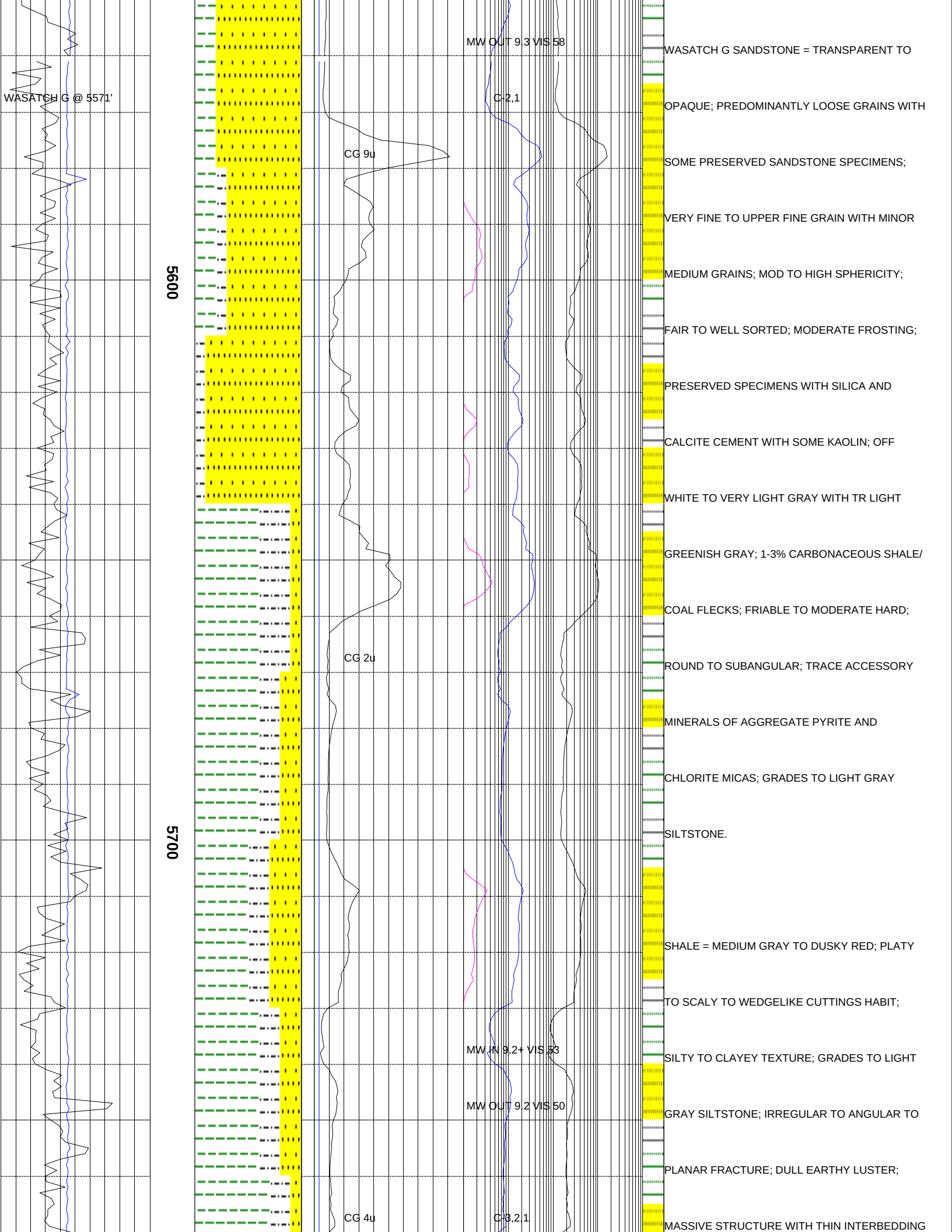
SCALY CUTTINGS HABIT; SPLINTERY TO SEMI

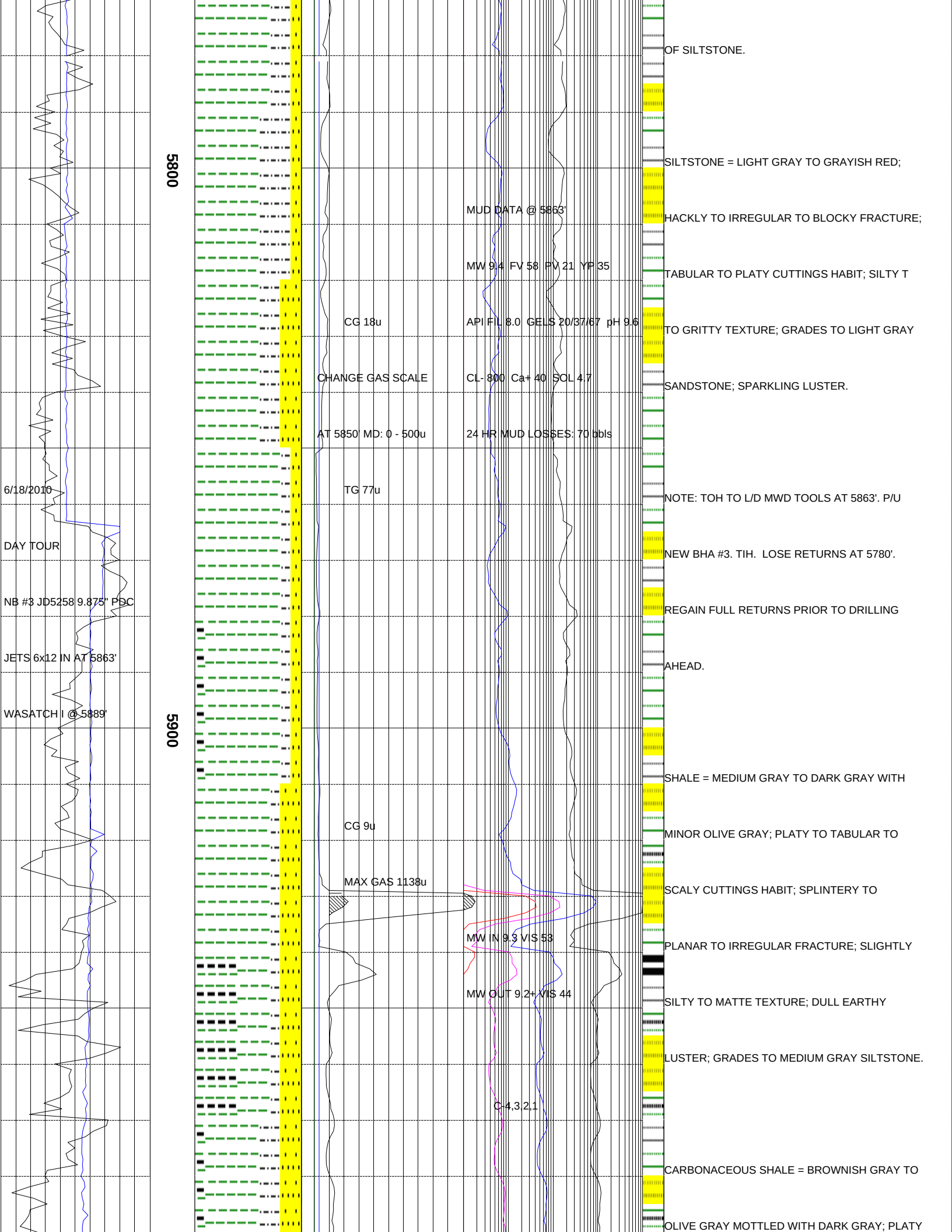
HACKLY FRACTURE; CLAYEY TO SILTY TEXT;

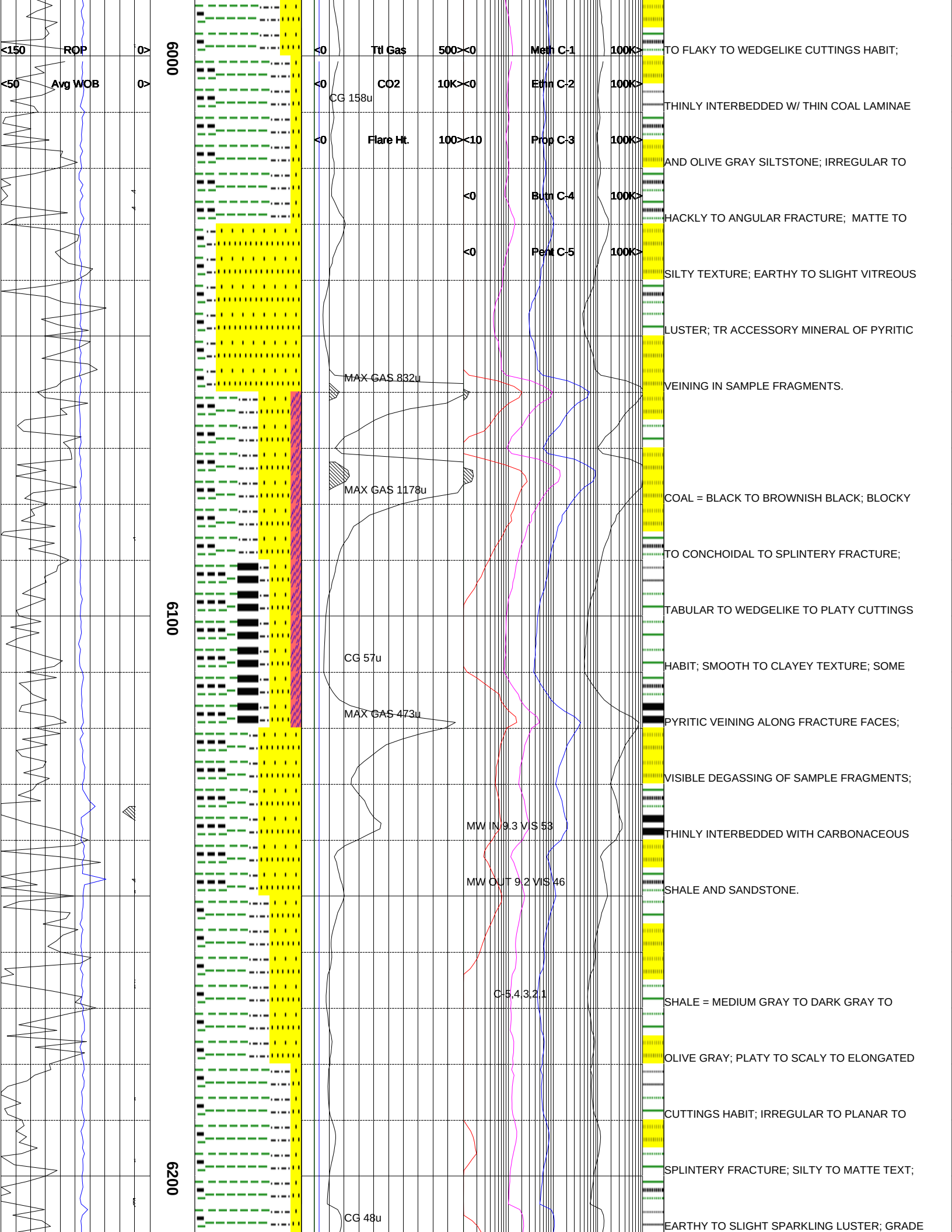
EARTHY TO WAXY LUSTER; GRADES TO LIGHT

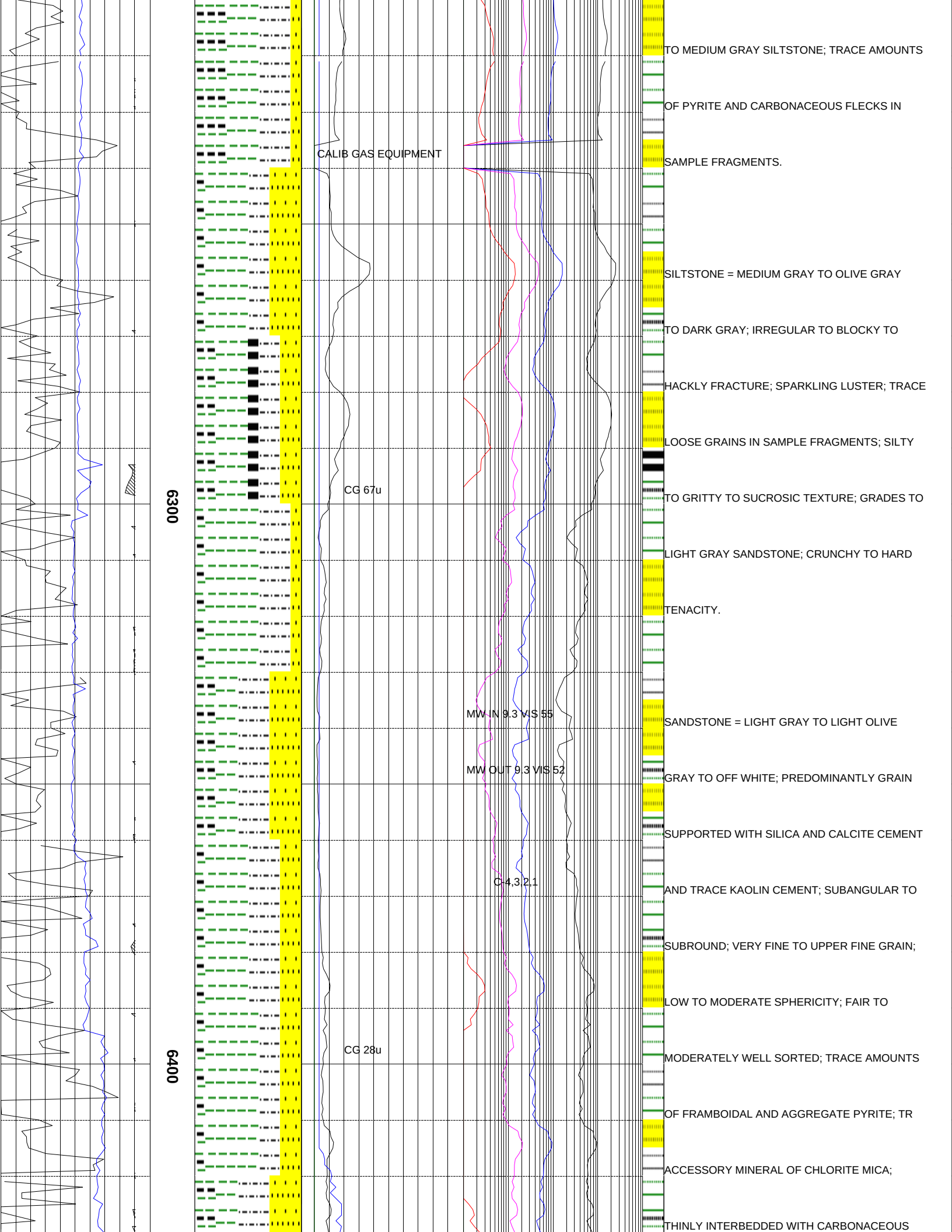
GRAY SILTSTONE; CRUNCHY TO HARD

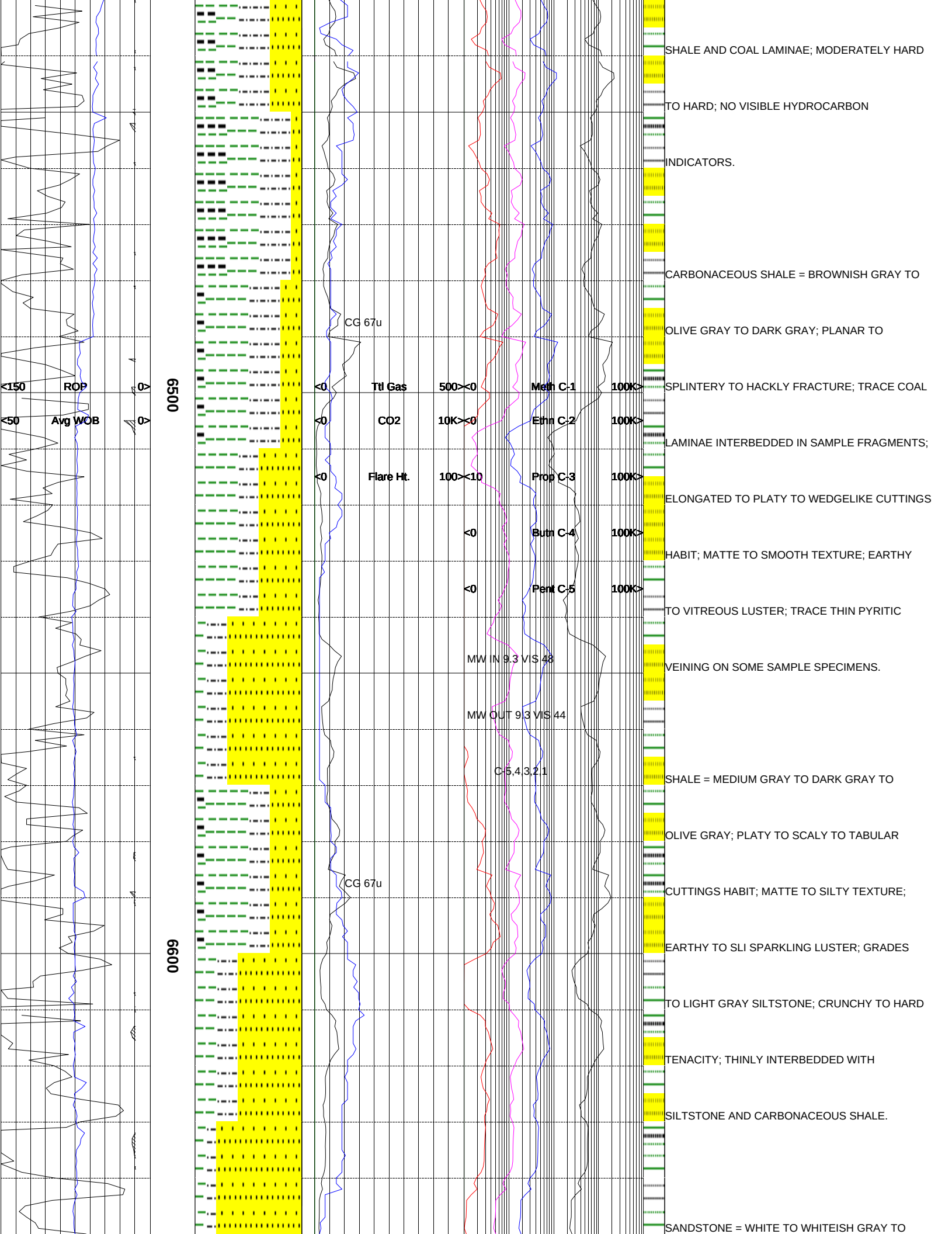
TENACITY.

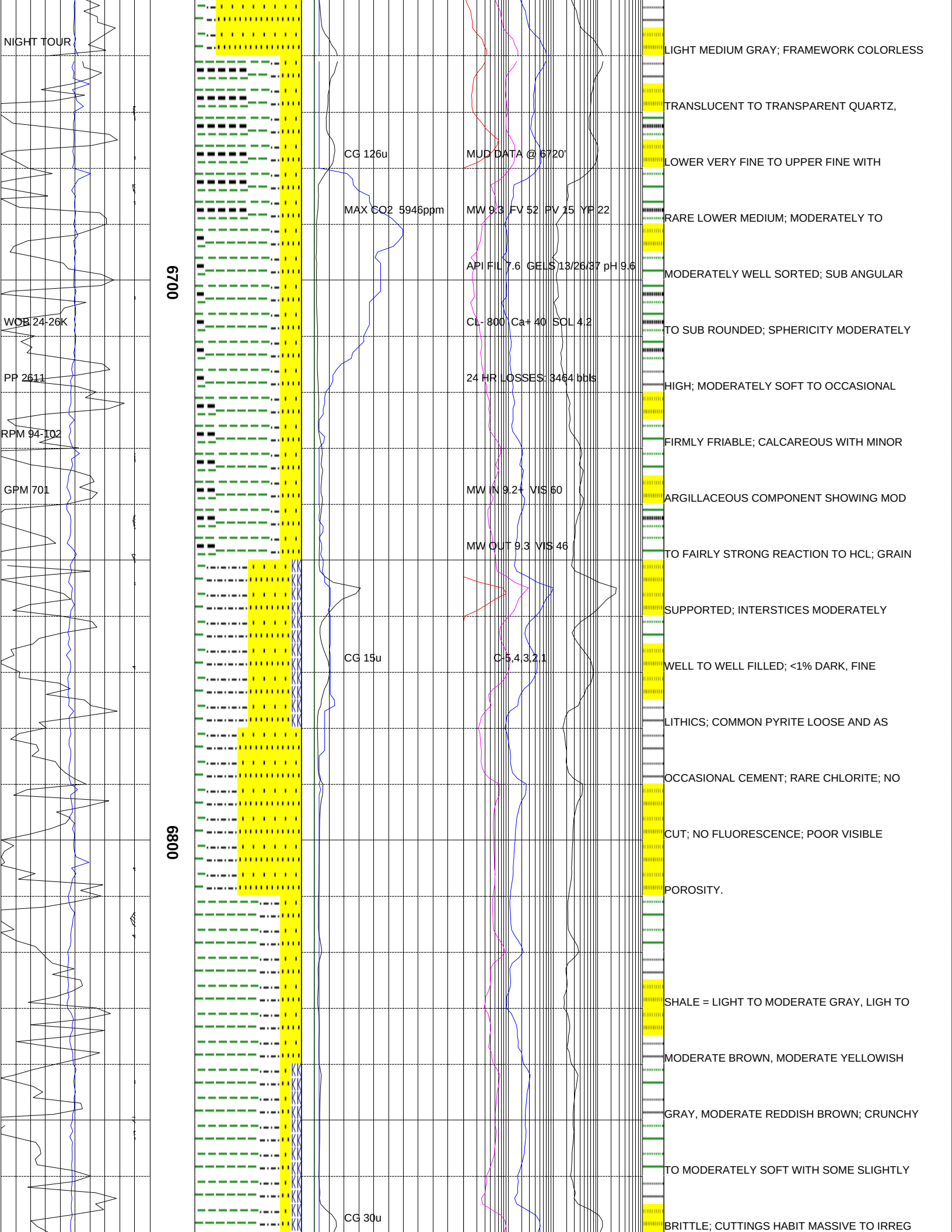

WASATCH G @ 5571'
5600
5700
MW OUT 9.3 VIS 58
C-2,1
CG 9u
CG 2u
MW IN 9.2+ VIS 53
MW OUT 9.2 VIS 50
CG 4u
C-3,2,1
WASATCH G SANDSTONE = TRANSPARENT TO
OPAQUE; PREDOMINANTLY LOOSE GRAINS WITH
SOME PRESERVED SANDSTONE SPECIMENS;
VERY FINE TO UPPER FINE GRAIN WITH MINOR
MEDIUM GRAINS; MOD TO HIGH SPHERICITY;
FAIR TO WELL SORTED; MODERATE FROSTING;
PRESERVED SPECIMENS WITH SILICA AND
CALCITE CEMENT WITH SOME KAOLIN; OFF
WHITE TO VERY LIGHT GRAY WITH TR LIGHT
GREENISH GRAY; 1-3% CARBONACEOUS SHALE/
COAL FLECKS; FRIABLE TO MODERATE HARD;
ROUND TO SUBANGULAR; TRACE ACCESSORY
MINERALS OF AGGREGATE PYRITE AND
CHLORITE MICAS; GRADES TO LIGHT GRAY
SILTSTONE.
SHALE = MEDIUM GRAY TO DUSKY RED; PLATY
TO SCALY TO WEDGELIKE CUTTINGS HABIT;
SILTY TO CLAYEY TEXTURE; GRADES TO LIGHT
GRAY SILTSTONE; IRREGULAR TO ANGULAR TO
PLANAR FRACTURE; DULL EARTHY LUSTER;
MASSIVE STRUCTURE WITH THIN INTERBEDDING

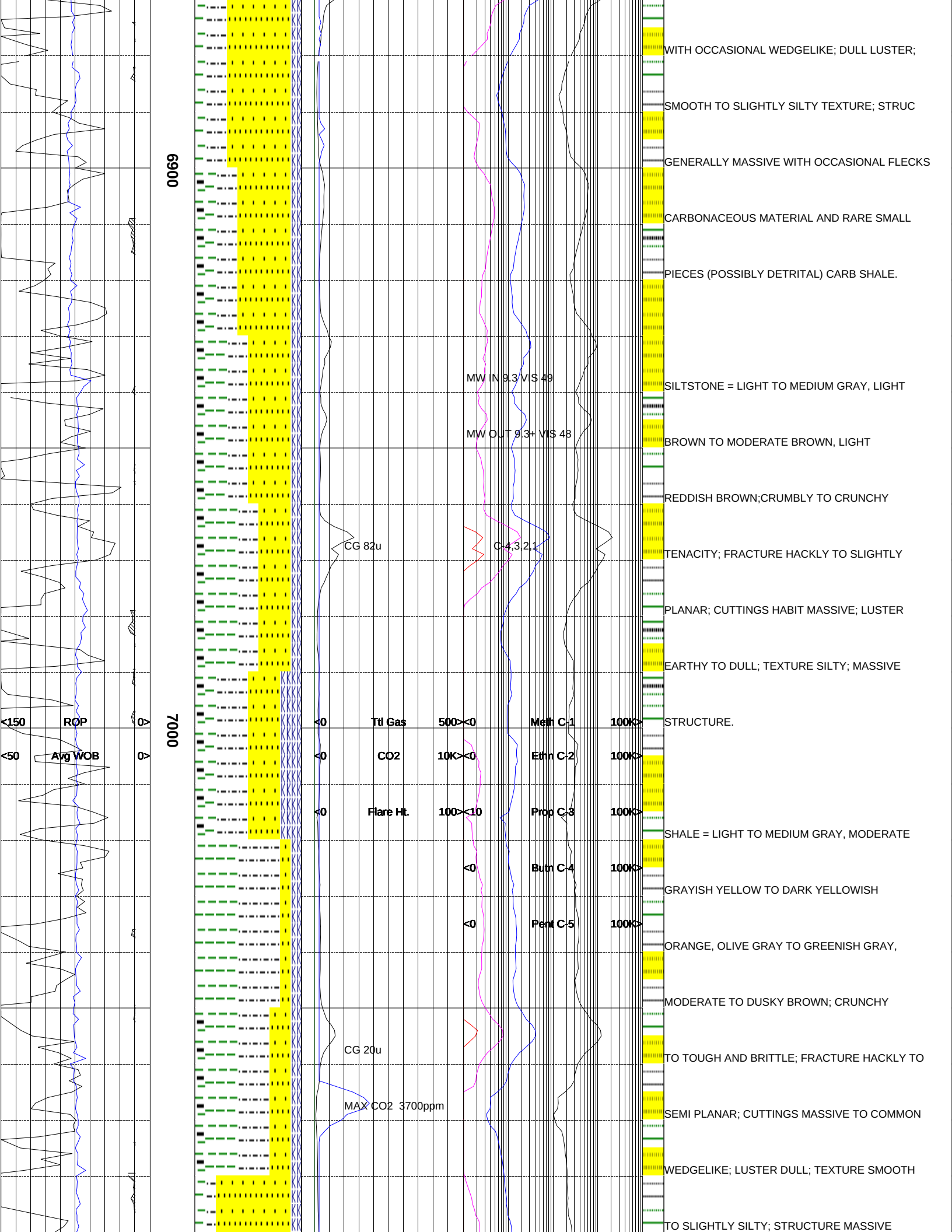

5800
5900
6/18/2010
DAY TOUR
NB #3 JD5258 9.875" PDC
JETS 6x12 IN AT 5863'
WASATCH I @ 5889'
CG 18u
CHANGE GAS SCALE
AT 5850' MD: 0 - 500u
TG 77u
CG 9u
MAX GAS 1138u
MUD DATA @ 5863'
MW 9.4 FV 58 PV 21 YP 35
API FL 8.0 GELS 20/37/67 pH 9.6
CL- 800 Ca+ 40 SOL 4.7
24 HR MUD LOSSES: 70 bbls
MW IN 9.3 VIS 53
MW OUT 9.2+ VIS 44
C-4,3,2,1
OF SILTSTONE.
SILTSTONE = LIGHT GRAY TO GRAYISH RED;
HACKLY TO IRREGULAR TO BLOCKY FRACTURE;
TABULAR TO PLATY CUTTINGS HABIT; SILTY T
TO GRITTY TEXTURE; GRADES TO LIGHT GRAY
SANDSTONE; SPARKLING LUSTER.
NOTE: TOH TO L/D MWD TOOLS AT 5863'. P/U
NEW BHA #3. TIH. LOSE RETURNS AT 5780'.
REGAIN FULL RETURNS PRIOR TO DRILLING
AHEAD.
SHALE = MEDIUM GRAY TO DARK GRAY WITH
MINOR OLIVE GRAY; PLATY TO TABULAR TO
SCALY CUTTINGS HABIT; SPLINTERY TO
PLANAR TO IRREGULAR FRACTURE; SLIGHTLY
SILTY TO MATTE TEXTURE; DULL EARTHY
LUSTER; GRADES TO MEDIUM GRAY SILTSTONE.
CARBONACEOUS SHALE = BROWNISH GRAY TO
OLIVE GRAY MOTTLED WITH DARK GRAY; PLATY

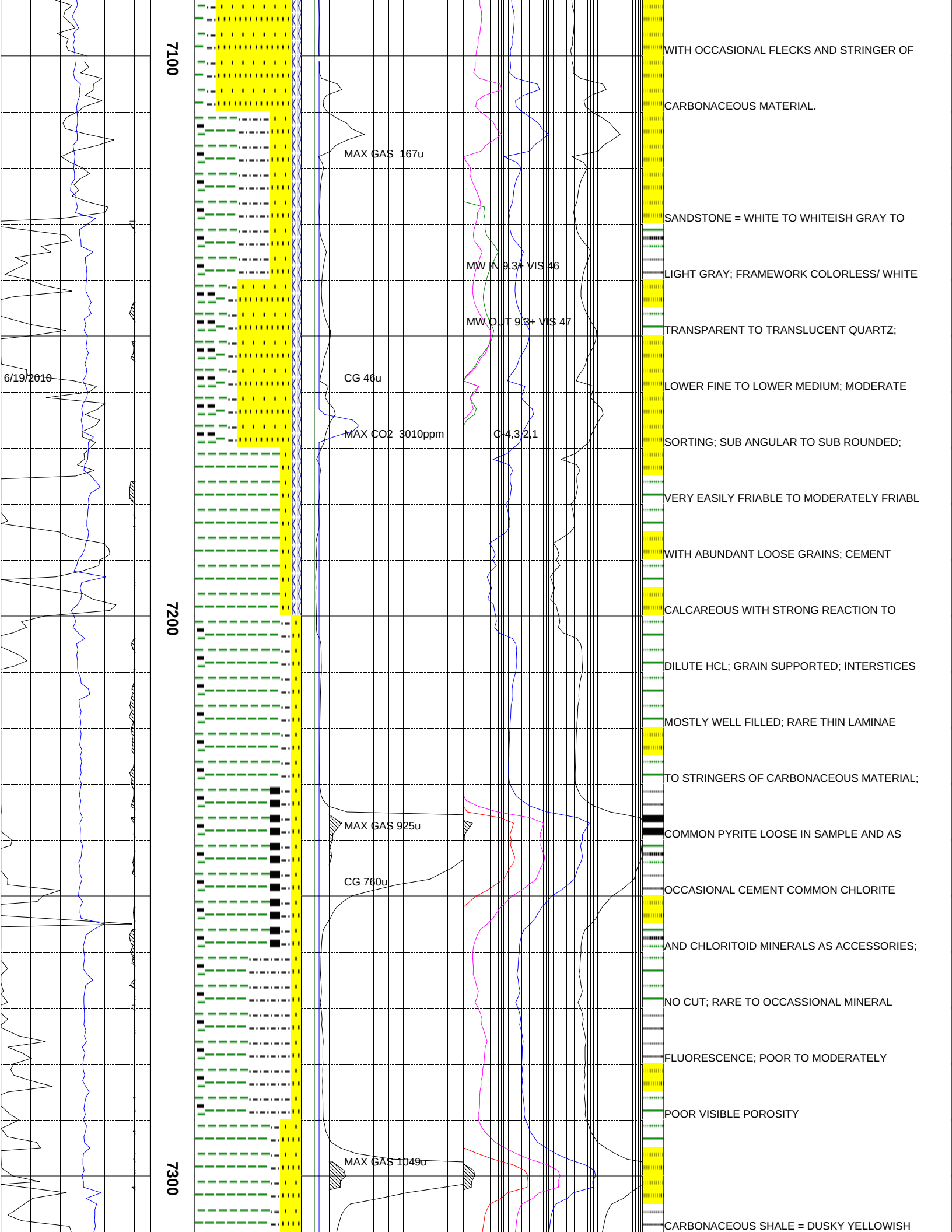

<150 ROP 0>
<50 Avg WOB 0>
6000
<0 Ttl Gas 500><0 Meth C-1 100K>
<0 CO2 10K><0 Ethn C-2 100K>
<0 Flare Ht. 100><10 Prop C-3 100K>
<0 Butn C-4 100K>
<0 Pent C-5 100K>
CG 158u
MAX GAS 832u
MAX GAS 1178u
6100
CG 57u
MAX GAS 473u
MW IN 9.3 VIS 53
MW OUT 9.2 VIS 46
C-5,4,3,2,1
6200
CG 48u
TO FLAKY TO WEDGELIKE CUTTINGS HABIT;
THINLY INTERBEDDED W/ THIN COAL LAMINAE
AND OLIVE GRAY SILTSTONE; IRREGULAR TO
HACKLY TO ANGULAR FRACTURE; MATTE TO
SILTY TEXTURE; EARTHY TO SLIGHT VITREOUS
LUSTER; TR ACCESSORY MINERAL OF PYRITIC
VEINING IN SAMPLE FRAGMENTS.
COAL = BLACK TO BROWNISH BLACK; BLOCKY
TO CONCHOIDAL TO SPLINTERY FRACTURE;
TABULAR TO WEDGELIKE TO PLATY CUTTINGS
HABIT; SMOOTH TO CLAYEY TEXTURE; SOME
PYRITIC VEINING ALONG FRACTURE FACES;
VISIBLE DEGASSING OF SAMPLE FRAGMENTS;
THINLY INTERBEDDED WITH CARBONACEOUS
SHALE AND SANDSTONE.
SHALE = MEDIUM GRAY TO DARK GRAY TO
OLIVE GRAY; PLATY TO SCALY TO ELONGATED
CUTTINGS HABIT; IRREGULAR TO PLANAR TO
SPLINTERY FRACTURE; SILTY TO MATTE TEXT;
EARTHY TO SLIGHT SPARKLING LUSTER; GRADE

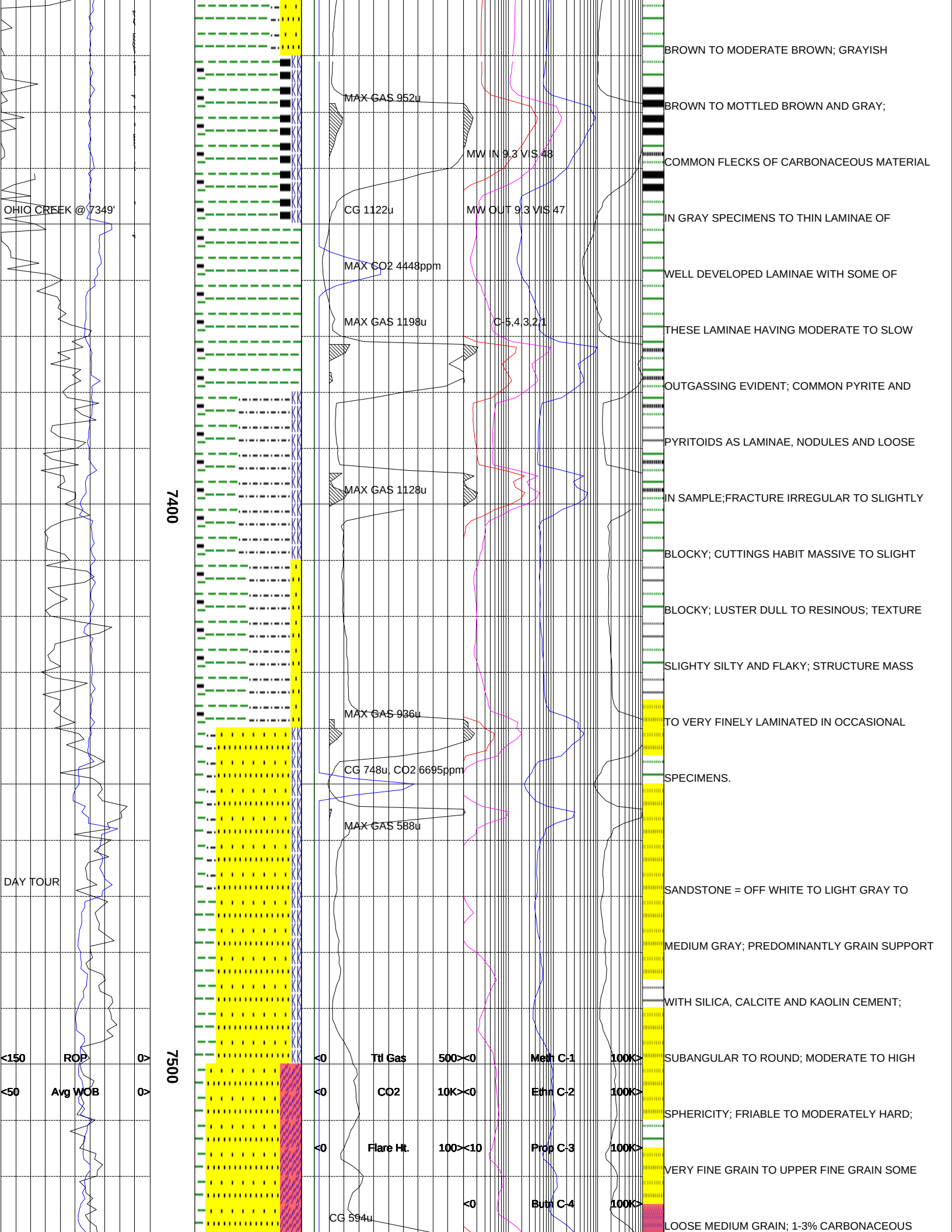

TO MEDIUM GRAY SILTSTONE; TRACE AMOUNTS
OF PYRITE AND CARBONACEOUS FLECKS IN
SAMPLE FRAGMENTS.
CALIB GAS EQUIPMENT
SILTSTONE = MEDIUM GRAY TO OLIVE GRAY
TO DARK GRAY; IRREGULAR TO BLOCKY TO
HACKLY FRACTURE; SPARKLING LUSTER; TRACE
LOOSE GRAINS IN SAMPLE FRAGMENTS; SILTY
CG 67u
6300
TO GRITTY TO SUCROSIC TEXTURE; GRADES TO
LIGHT GRAY SANDSTONE; CRUNCHY TO HARD
TENACITY.
MW IN 9.3 VIS 55
SANDSTONE = LIGHT GRAY TO LIGHT OLIVE
MW OUT 9.3 VIS 52
GRAY TO OFF WHITE; PREDOMINANTLY GRAIN
SUPPORTED WITH SILICA AND CALCITE CEMENT
C-4,3,2,1
AND TRACE KAOLIN CEMENT; SUBANGULAR TO
SUBROUND; VERY FINE TO UPPER FINE GRAIN;
LOW TO MODERATE SPHERICITY; FAIR TO
CG 28u
6400
MODERATELY WELL SORTED; TRACE AMOUNTS
OF FRAMBOIDAL AND AGGREGATE PYRITE; TR
ACCESSORY MINERAL OF CHLORITE MICA;
THINLY INTERBEDDED WITH CARBONACEOUS

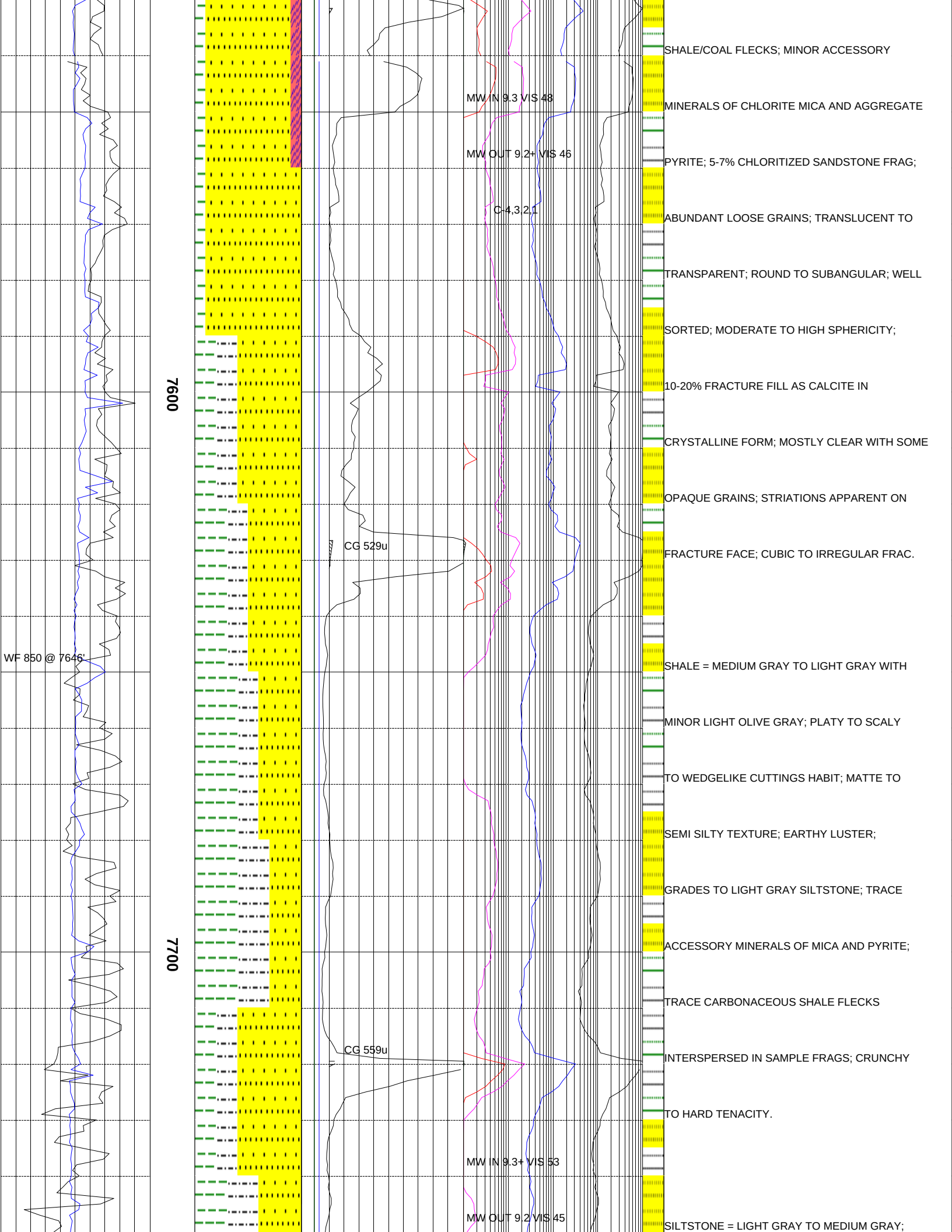

<150 ROP 0>
<50 Avg WOB 0>
6500
6600
CG 67u
CG 67u
<0 Ttl Gas 500><0 Meth C-1 100K>
<0 CO2 10K><0 Ethn C-2 100K>
<0 Flare Ht. 100><10 Prop C-3 100K>
<0 Butn C-4 100K>
<0 Pent C-5 100K>
MW IN 9.3 VIS 48
MW OUT 9.3 VIS 44
C-5,4,3,2,1
SHALE AND COAL LAMINAE; MODERATELY HARD
TO HARD; NO VISIBLE HYDROCARBON
INDICATORS.
CARBONACEOUS SHALE = BROWNISH GRAY TO
OLIVE GRAY TO DARK GRAY; PLANAR TO
SPLINTERY TO HACKLY FRACTURE; TRACE COAL
LAMINAE INTERBEDDED IN SAMPLE FRAGMENTS;
ELONGATED TO PLATY TO WEDGELIKE CUTTINGS
HABIT; MATTE TO SMOOTH TEXTURE; EARTHY
TO VITREOUS LUSTER; TRACE THIN PYRITIC
VEINING ON SOME SAMPLE SPECIMENS.
SHALE = MEDIUM GRAY TO DARK GRAY TO
OLIVE GRAY; PLATY TO SCALY TO TABULAR
CUTTINGS HABIT; MATTE TO SILTY TEXTURE;
EARTHY TO SLI SPARKLING LUSTER; GRADES
TO LIGHT GRAY SILTSTONE; CRUNCHY TO HARD
TENACITY; THINLY INTERBEDDED WITH
SILTSTONE AND CARBONACEOUS SHALE.
SANDSTONE = WHITE TO WHITEISH GRAY TO

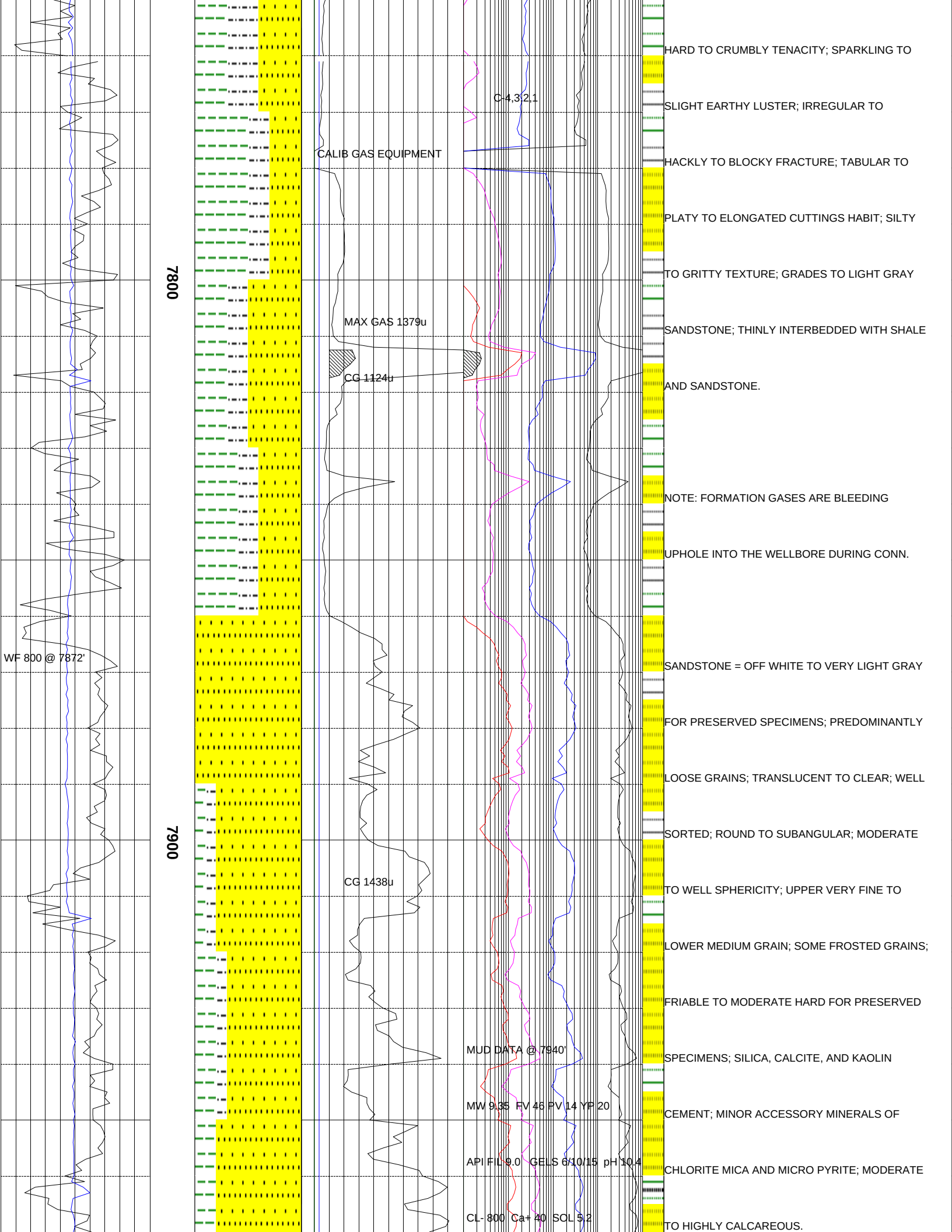

NIGHT TOUR
WOB 24-26K
PP 2611
RPM 94-102
GPM 701
6700
6800
CG 126u
MAX CO2 5946ppm
CG 15u
CG 30u
MUD DATA @ 6720'
MW 9.3 FV 52 PV 15 YP 22
API FL 7.6 GELS 13/26/37 pH 9.6
CL- 800 Ca+ 40 SOL 4.2
24 HR LOSSES: 3464 bbls
MW IN 9.2+ VIS 60
MW OUT 9.3 VIS 46
C-5,4,3,2,1
LIGHT MEDIUM GRAY; FRAMEWORK COLORLESS
TRANSLUCENT TO TRANSPARENT QUARTZ,
LOWER VERY FINE TO UPPER FINE WITH
RARE LOWER MEDIUM; MODERATELY TO
MODERATELY WELL SORTED; SUB ANGULAR
TO SUB ROUNDED; SPHERICITY MODERATELY
HIGH; MODERATELY SOFT TO OCCASIONAL
FIRMLY FRIABLE; CALCAREOUS WITH MINOR
ARGILLACEOUS COMPONENT SHOWING MOD
TO FAIRLY STRONG REACTION TO HCL; GRAIN
SUPPORTED; INTERSTICES MODERATELY
WELL TO WELL FILLED; <1% DARK, FINE
LITHICS; COMMON PYRITE LOOSE AND AS
OCCASIONAL CEMENT; RARE CHLORITE; NO
CUT; NO FLUORESCENCE; POOR VISIBLE
POROSITY.
SHALE = LIGHT TO MODERATE GRAY, LIGH TO
MODERATE BROWN, MODERATE YELLOWISH
GRAY, MODERATE REDDISH BROWN; CRUNCHY
TO MODERATELY SOFT WITH SOME SLIGHTLY
BRITTLE; CUTTINGS HABIT MASSIVE TO IRREG

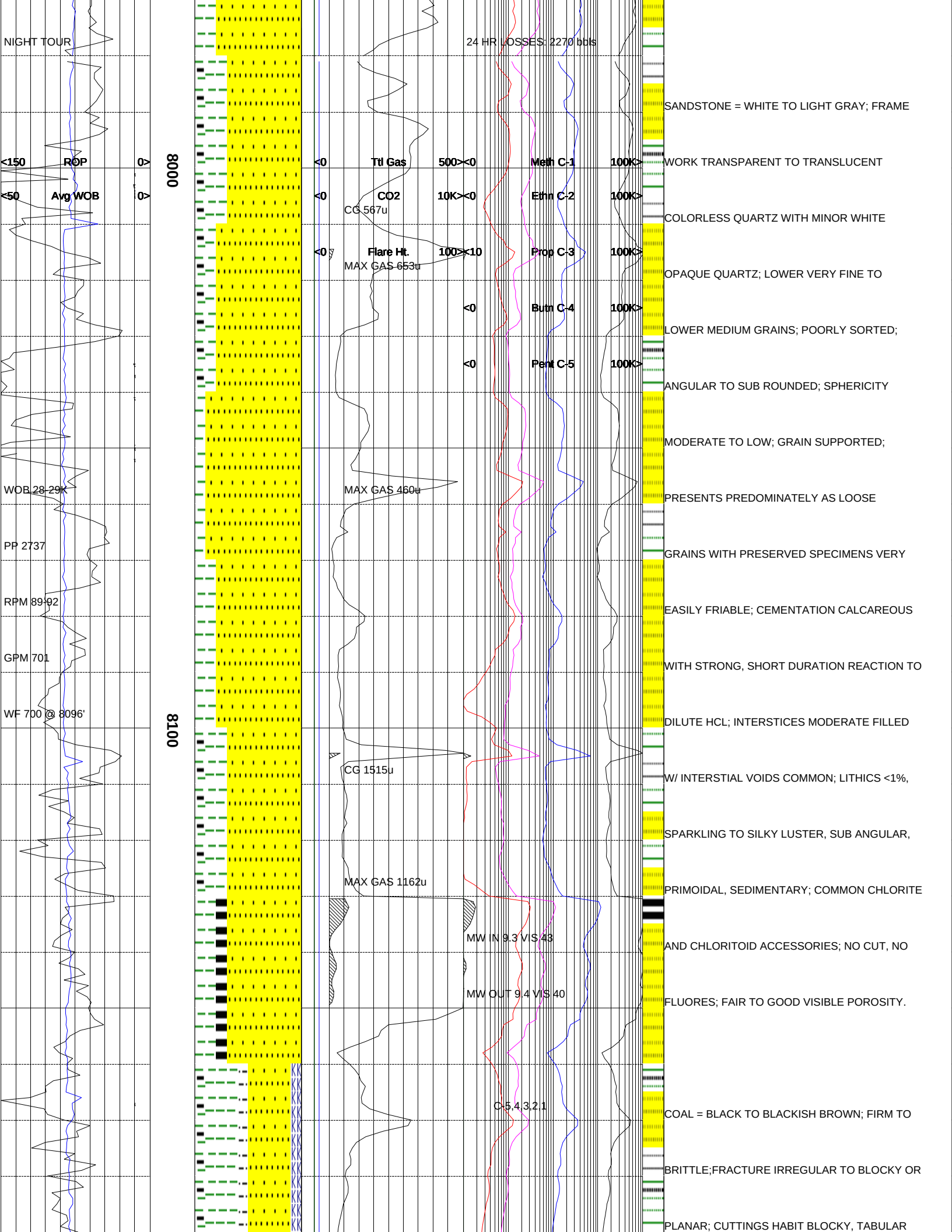

6900
7000
<150
ROP
0>
<50
Avg WOB
0>
<0
Ttl Gas
500><0
Meth C-1
100K>
<0
CO2
10K><0
Ethn C-2
100K>
<0
Flare Ht.
100><10
Prop C-3
100K>
<0
Butn C-4
100K>
<0
Pent C-5
100K>
MW IN 9.3 VIS 49
MW OUT 9.3+ VIS 48
CG 82u
C-4,3,2,1
CG 20u
MAX CO2 3700ppm
WITH OCCASIONAL WEDGELIKE; DULL LUSTER;
SMOOTH TO SLIGHTLY SILTY TEXTURE; STRUC
GENERALLY MASSIVE WITH OCCASIONAL FLECKS
CARBONACEOUS MATERIAL AND RARE SMALL
PIECES (POSSIBLY DETRITAL) CARB SHALE.
SILTSTONE = LIGHT TO MEDIUM GRAY, LIGHT
BROWN TO MODERATE BROWN, LIGHT
REDDISH BROWN;CRUMBLY TO CRUNCHY
TENACITY; FRACTURE HACKLY TO SLIGHTLY
PLANAR; CUTTINGS HABIT MASSIVE; LUSTER
EARTHY TO DULL; TEXTURE SILTY; MASSIVE
STRUCTURE.
SHALE = LIGHT TO MEDIUM GRAY, MODERATE
GRAYISH YELLOW TO DARK YELLOWISH
ORANGE, OLIVE GRAY TO GREENISH GRAY,
MODERATE TO DUSKY BROWN; CRUNCHY
TO TOUGH AND BRITTLE; FRACTURE HACKLY TO
SEMI PLANAR; CUTTINGS MASSIVE TO COMMON
WEDGELIKE; LUSTER DULL; TEXTURE SMOOTH
TO SLIGHTLY SILTY; STRUCTURE MASSIVE

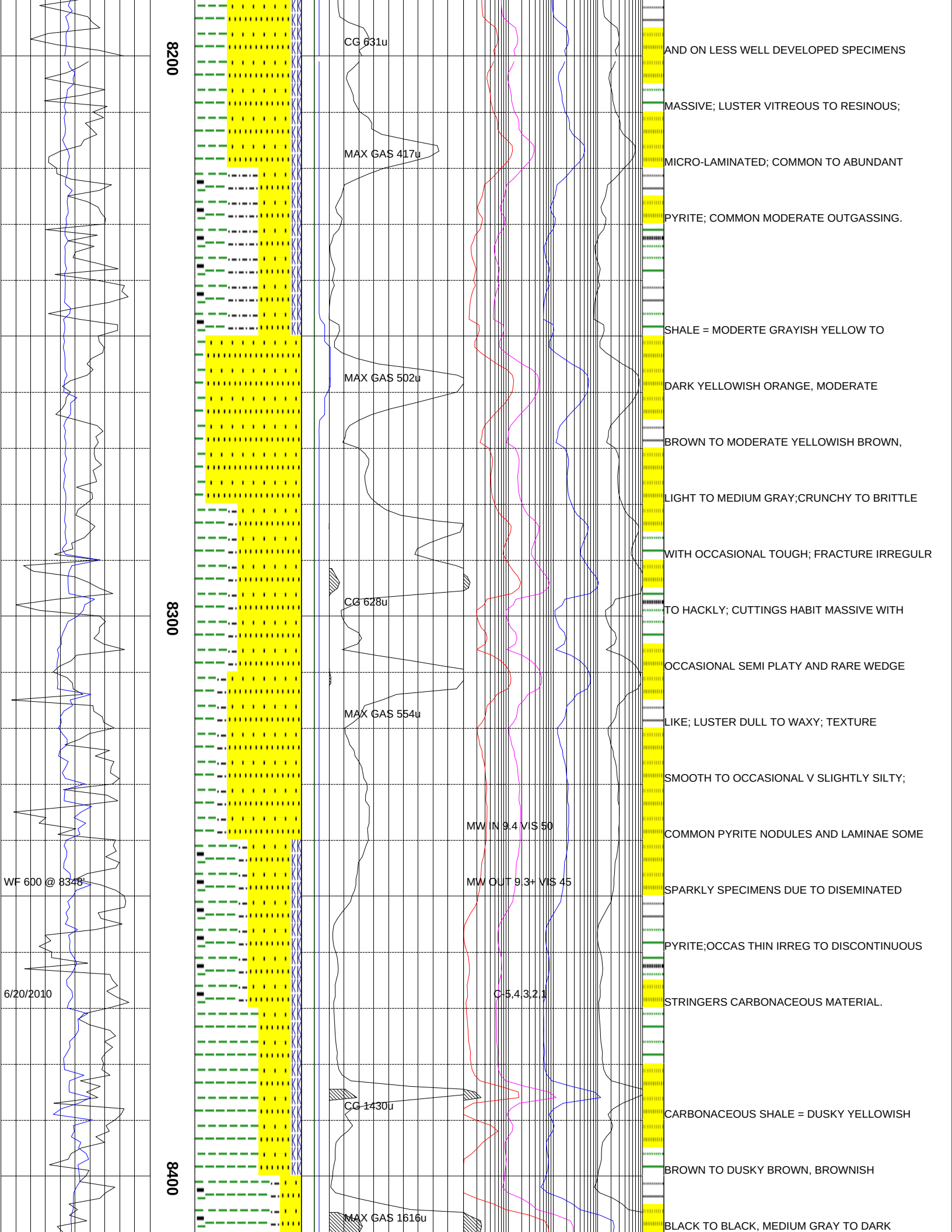

7100
7200
7300
6/19/2010
MAX GAS 167u
MW IN 9.3+ VIS 46
MW OUT 9.3+ VIS 47
CG 46u
MAX CO2 3010ppm
C-4,3,2,1
MAX GAS 925u
CG 760u
MAX GAS 1049u
WITH OCCASIONAL FLECKS AND STRINGER OF
CARBONACEOUS MATERIAL.
SANDSTONE = WHITE TO WHITEISH GRAY TO
LIGHT GRAY; FRAMEWORK COLORLESS/ WHITE
TRANSPARENT TO TRANSLUCENT QUARTZ;
LOWER FINE TO LOWER MEDIUM; MODERATE
SORTING; SUB ANGULAR TO SUB ROUNDED;
VERY EASILY FRIABLE TO MODERATELY FRIABL
WITH ABUNDANT LOOSE GRAINS; CEMENT
CALCAREOUS WITH STRONG REACTION TO
DILUTE HCL; GRAIN SUPPORTED; INTERSTICES
MOSTLY WELL FILLED; RARE THIN LAMINAE
TO STRINGERS OF CARBONACEOUS MATERIAL;
COMMON PYRITE LOOSE IN SAMPLE AND AS
OCCASIONAL CEMENT COMMON CHLORITE
AND CHLORITOID MINERALS AS ACCESSORIES;
NO CUT; RARE TO OCCASSIONAL MINERAL
FLUORESCENCE; POOR TO MODERATELY
POOR VISIBLE POROSITY
CARBONACEOUS SHALE = DUSKY YELLOWISH

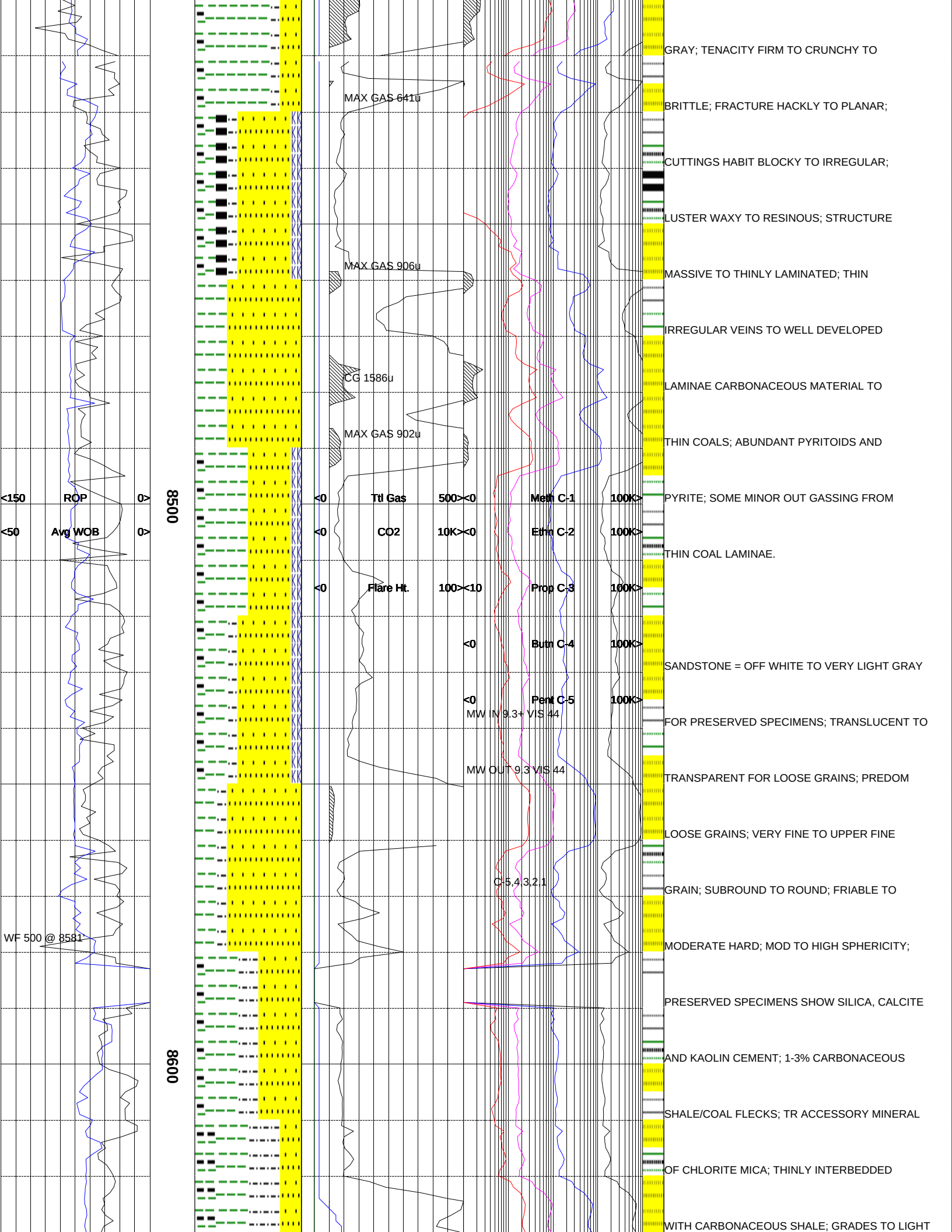

OHIO CREEK @ 7349'
MAX GAS 952u
MW IN 9.3 VIS 48
CG 1122u
MW OUT 9.3 VIS 47
MAX CO2 4448ppm
MAX GAS 1198u
C-5,4,3,2,1
MAX GAS 1128u
7400
MAX GAS 936u
CG 748u, CO2 6695ppm
MAX GAS 588u
DAY TOUR
7500
<150 ROP 0>
<50 Avg WOB 0>
<0 Ttl Gas 500><0 Meth C-1 100K>
<0 CO2 10K><0 Ethn C-2 100K>
<0 Flare Ht. 100><10 Prop C-3 100K>
<0 Buth C-4 100K>
CG 594u
BROWN TO MODERATE BROWN; GRAYISH
BROWN TO MOTTLED BROWN AND GRAY;
COMMON FLECKS OF CARBONACEOUS MATERIAL
IN GRAY SPECIMENS TO THIN LAMINAE OF
WELL DEVELOPED LAMINAE WITH SOME OF
THESE LAMINAE HAVING MODERATE TO SLOW
OUTGASSING EVIDENT; COMMON PYRITE AND
PYRITOIDS AS LAMINAE, NODULES AND LOOSE
IN SAMPLE;FRACTURE IRREGULAR TO SLIGHTLY
BLOCKY; CUTTINGS HABIT MASSIVE TO SLIGHT
BLOCKY; LUSTER DULL TO RESINOUS; TEXTURE
SLIGHTY SILTY AND FLAKY; STRUCTURE MASS
TO VERY FINELY LAMINATED IN OCCASIONAL
SPECIMENS.
SANDSTONE = OFF WHITE TO LIGHT GRAY TO
MEDIUM GRAY; PREDOMINANTLY GRAIN SUPPORT
WITH SILICA, CALCITE AND KAOLIN CEMENT;
SUBANGULAR TO ROUND; MODERATE TO HIGH
SPHERICITY; FRIABLE TO MODERATELY HARD;
VERY FINE GRAIN TO UPPER FINE GRAIN SOME
LOOSE MEDIUM GRAIN; 1-3% CARBONACEOUS

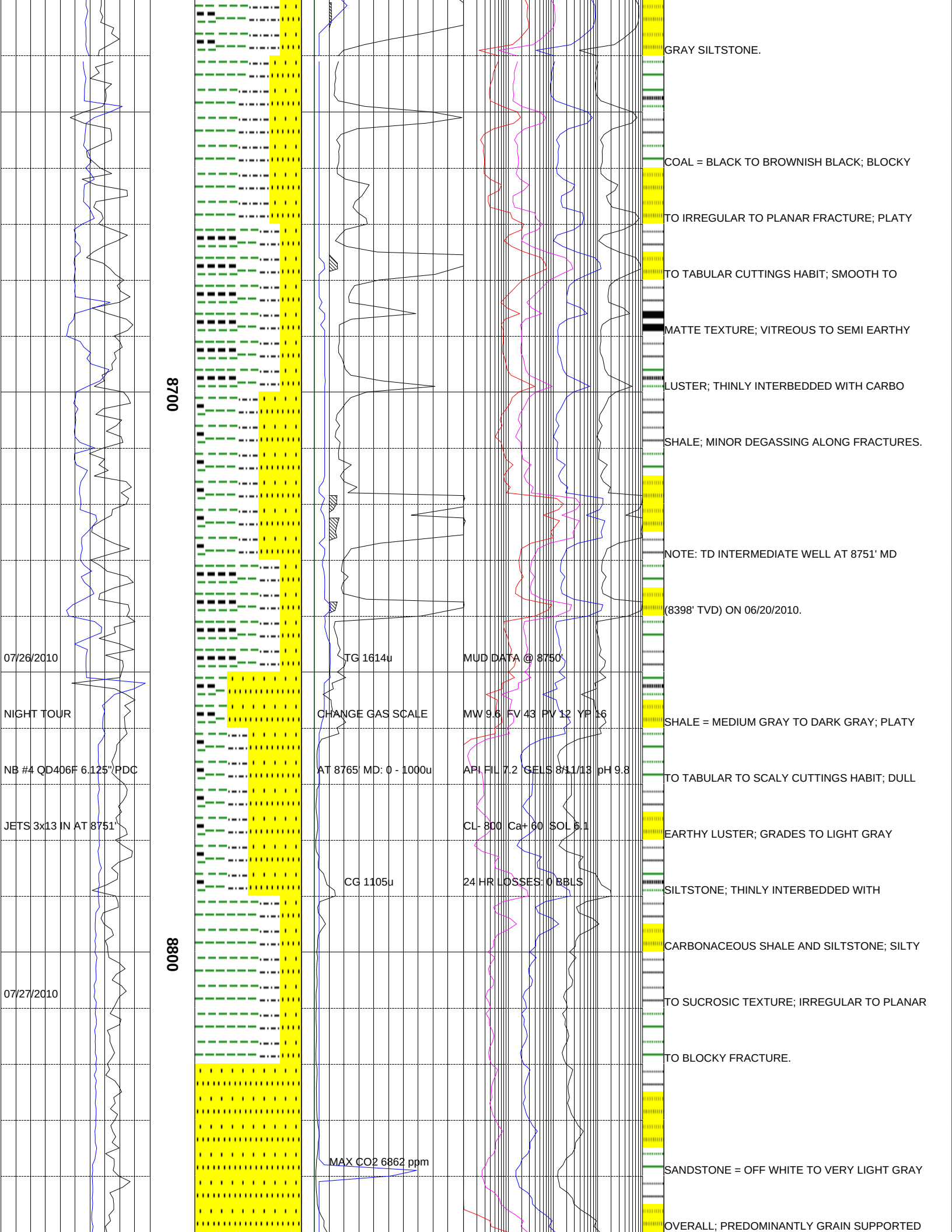

7600
7700
WF 850 @ 7646'
CG 529u
CG 559u
MW IN 9.3 VIS 48
MW OUT 9.2+ VIS 46
C-4,3,2,1
MW IN 9.3+ VIS 53
MW OUT 9.2 VIS 45
SHALE/COAL FLECKS; MINOR ACCESSORY
MINERALS OF CHLORITE MICA AND AGGREGATE
PYRITE; 5-7% CHLORITIZED SANDSTONE FRAG;
ABUNDANT LOOSE GRAINS; TRANSLUCENT TO
TRANSPARENT; ROUND TO SUBANGULAR; WELL
SORTED; MODERATE TO HIGH SPHERICITY;
10-20% FRACTURE FILL AS CALCITE IN
CRYSTALLINE FORM; MOSTLY CLEAR WITH SOME
OPAQUE GRAINS; STRIATIONS APPARENT ON
FRACTURE FACE; CUBIC TO IRREGULAR FRAC.
SHALE = MEDIUM GRAY TO LIGHT GRAY WITH
MINOR LIGHT OLIVE GRAY; PLATY TO SCALY
TO WEDGELIKE CUTTINGS HABIT; MATTE TO
SEMI SILTY TEXTURE; EARTHY LUSTER;
GRADES TO LIGHT GRAY SILTSTONE; TRACE
ACCESSORY MINERALS OF MICA AND PYRITE;
TRACE CARBONACEOUS SHALE FLECKS
INTERSPERSED IN SAMPLE FRAGS; CRUNCHY
TO HARD TENACITY.
SILTSTONE = LIGHT GRAY TO MEDIUM GRAY;

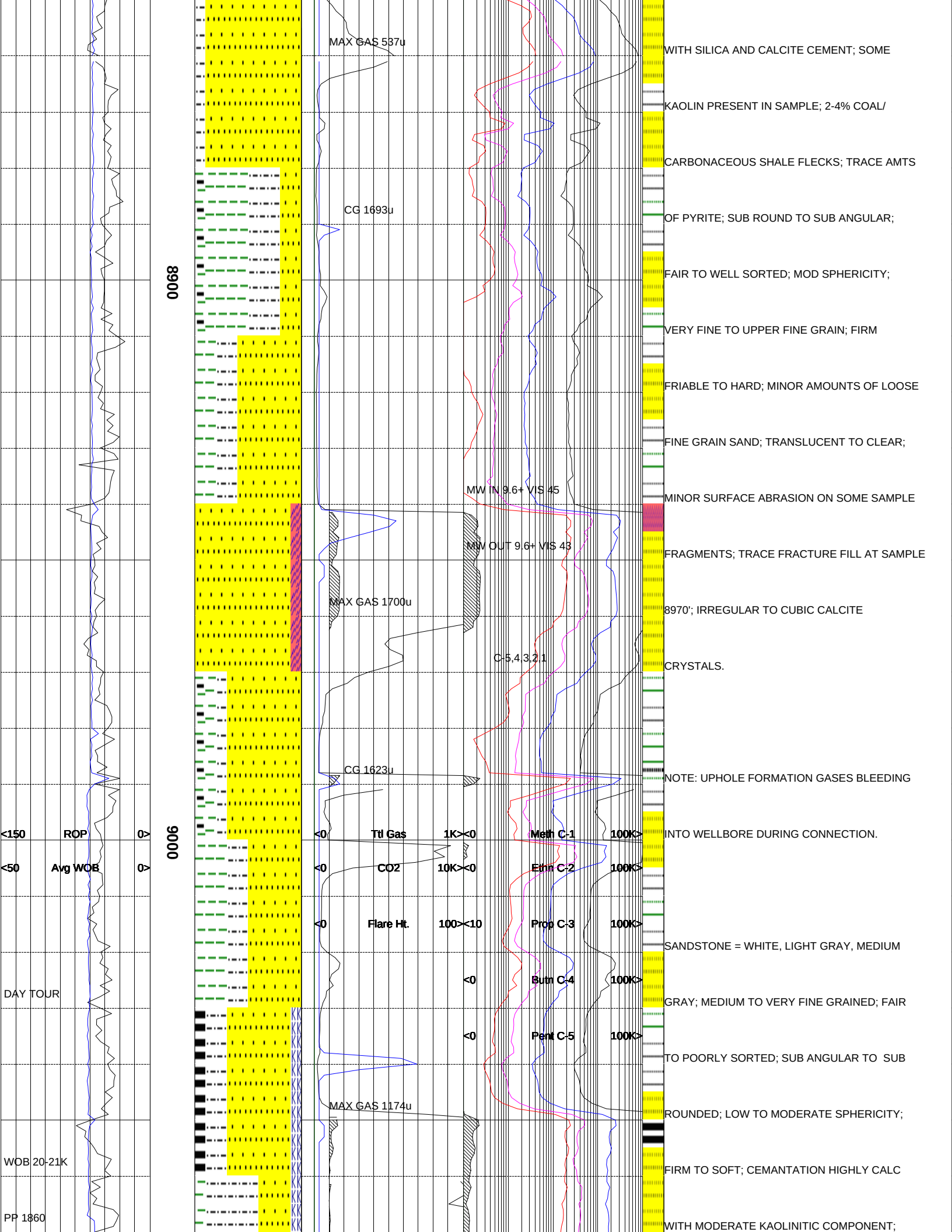

7800
7900
C-4,3,2,1
CALIB GAS EQUIPMENT
MAX GAS 1379u
CG 1124u
CG 1438u
WF 800 @ 7872'
MUD DATA @ 7940'
MW 9.35 FV 46 PV 14 YP 20
API FL 9.0 GELS 6/10/15 pH 10.4
CL- 800 Ca+ 40 SOL 5.2
HARD TO CRUMBLY TENACITY; SPARKLING TO
SLIGHT EARTHY LUSTER; IRREGULAR TO
HACKLY TO BLOCKY FRACTURE; TABULAR TO
PLATY TO ELONGATED CUTTINGS HABIT; SILTY
TO GRITTY TEXTURE; GRADES TO LIGHT GRAY
SANDSTONE; THINLY INTERBEDDED WITH SHALE
AND SANDSTONE.
NOTE: FORMATION GASES ARE BLEEDING
UPHOLE INTO THE WELLBORE DURING CONN.
SANDSTONE = OFF WHITE TO VERY LIGHT GRAY
FOR PRESERVED SPECIMENS; PREDOMINANTLY
LOOSE GRAINS; TRANSLUCENT TO CLEAR; WELL
SORTED; ROUND TO SUBANGULAR; MODERATE
TO WELL SPHERICITY; UPPER VERY FINE TO
LOWER MEDIUM GRAIN; SOME FROSTED GRAINS;
FRIABLE TO MODERATE HARD FOR PRESERVED
SPECIMENS; SILICA, CALCITE, AND KAOLIN
CEMENT; MINOR ACCESSORY MINERALS OF
CHLORITE MICA AND MICRO PYRITE; MODERATE
TO HIGHLY CALCAREOUS.

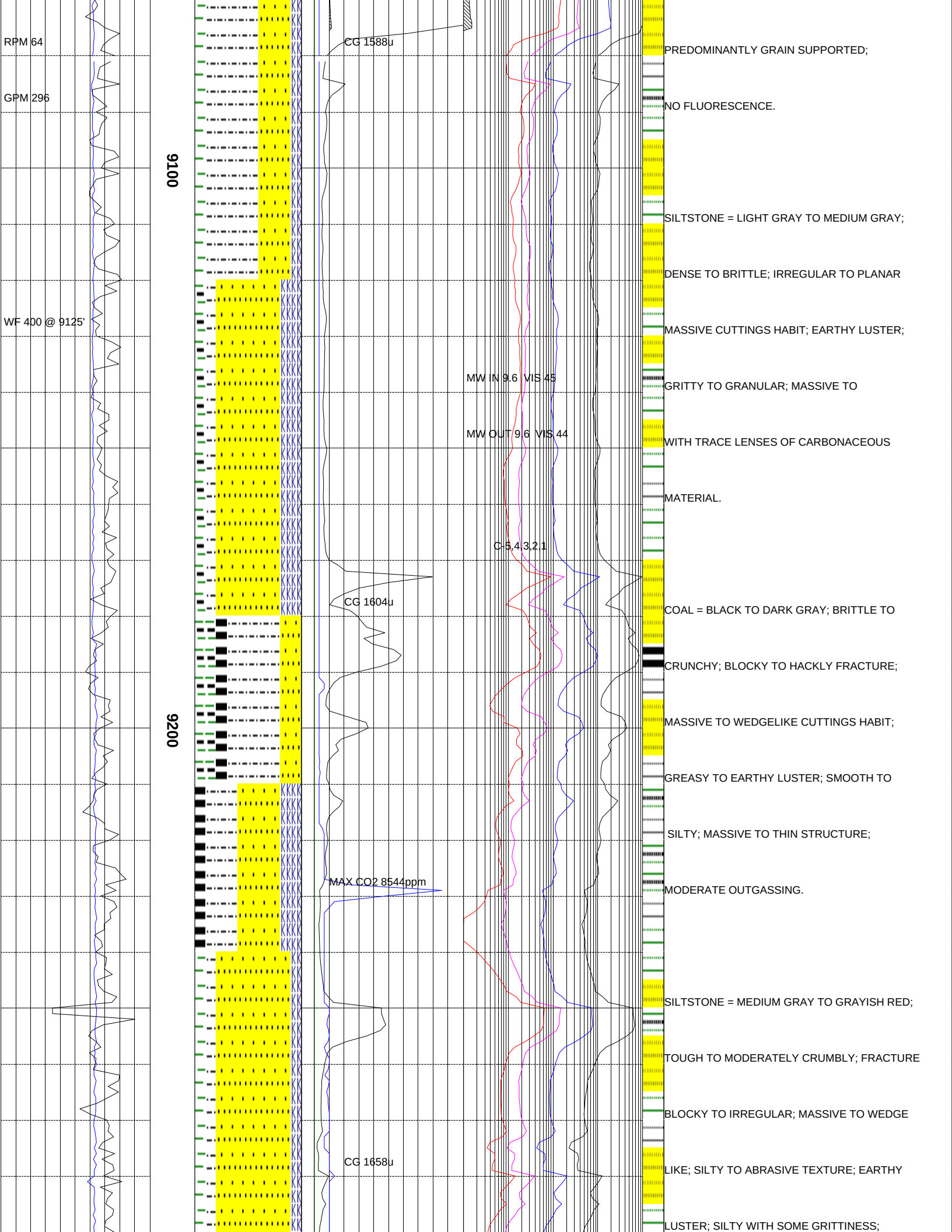

NIGHT TOUR
24 HR LOSSES: 2270 bbls
<150 ROP 0>
<50 Avg WOB 0>
8000
<0 Ttl Gas 500><0 Meth C-1 100K>
<0 CO2 10K><0 Ethn C-2 100K>
CG 567u
<0 Flare Ht. 100><10 Prop C-3 100K>
MAX GAS 653u
<0 Butn C-4 100K>
<0 Pent C-5 100K>
WOB 28-29K
MAX GAS 460u
PP 2737
RPM 89-92
GPM 701
WF 700 @ 8096'
8100
CG 1515u
MAX GAS 1162u
MW IN 9.3 VIS 43
MW OUT 9.4 VIS 40
C-5,4,3,2,1
SANDSTONE = WHITE TO LIGHT GRAY; FRAME
WORK TRANSPARENT TO TRANSLUCENT
COLORLESS QUARTZ WITH MINOR WHITE
OPAQUE QUARTZ; LOWER VERY FINE TO
LOWER MEDIUM GRAINS; POORLY SORTED;
ANGULAR TO SUB ROUNDED; SPHERICITY
MODERATE TO LOW; GRAIN SUPPORTED;
PRESENTS PREDOMINATELY AS LOOSE
GRAINS WITH PRESERVED SPECIMENS VERY
EASILY FRIABLE; CEMENTATION CALCAREOUS
WITH STRONG, SHORT DURATION REACTION TO
DILUTE HCL; INTERSTICES MODERATE FILLED
W/ INTERSTIAL VOIDS COMMON; LITHICS <1%,
SPARKLING TO SILKY LUSTER, SUB ANGULAR,
PRIMOIDAL, SEDIMENTARY; COMMON CHLORITE
AND CHLORITOID ACCESSORIES; NO CUT, NO
FLUORES; FAIR TO GOOD VISIBLE POROSITY.
COAL = BLACK TO BLACKISH BROWN; FIRM TO
BRITTLE;FRACTURE IRREGULAR TO BLOCKY OR
PLANAR; CUTTINGS HABIT BLOCKY, TABULAR

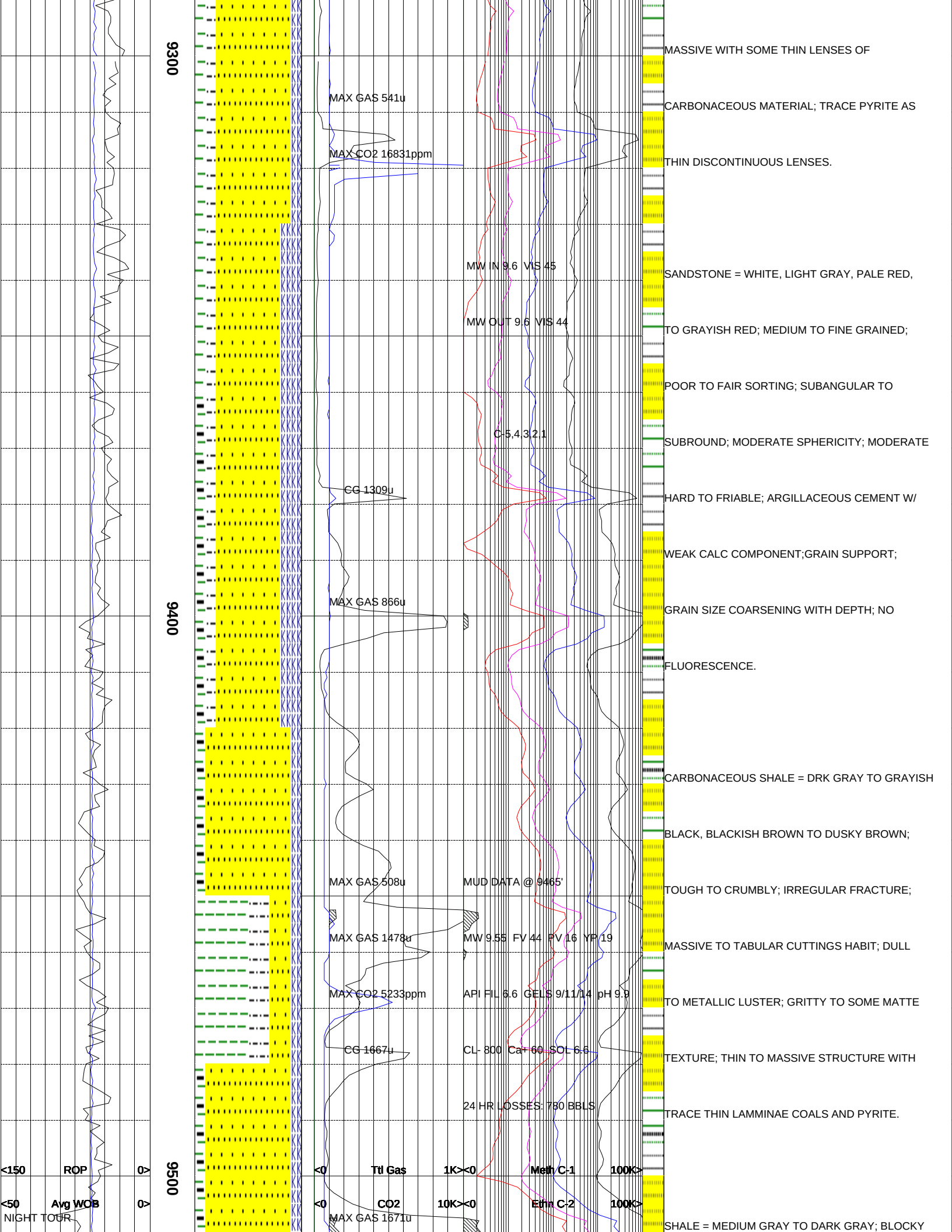

8200
CG 631u
AND ON LESS WELL DEVELOPED SPECIMENS
MASSIVE; LUSTER VITREOUS TO RESINOUS;
MAX GAS 417u
MICRO-LAMINATED; COMMON TO ABUNDANT
PYRITE; COMMON MODERATE OUTGASSING.
SHALE = MODERTE GRAYISH YELLOW TO
MAX GAS 502u
DARK YELLOWISH ORANGE, MODERATE
BROWN TO MODERATE YELLOWISH BROWN,
LIGHT TO MEDIUM GRAY;CRUNCHY TO BRITTLE
WITH OCCASIONAL TOUGH; FRACTURE IRREGULR
CG 628u
8300
TO HACKLY; CUTTINGS HABIT MASSIVE WITH
OCCASIONAL SEMI PLATY AND RARE WEDGE
MAX GAS 554u
LIKE; LUSTER DULL TO WAXY; TEXTURE
SMOOTH TO OCCASIONAL V SLIGHTLY SILTY;
MW IN 9.4 VIS 50
COMMON PYRITE NODULES AND LAMINAE SOME
WF 600 @ 8348'
MW OUT 9.3+ VIS 45
SPARKLY SPECIMENS DUE TO DISEMINATED
PYRITE;OCCAS THIN IRREG TO DISCONTINUOUS
6/20/2010
C-5,4,3,2,1
STRINGERS CARBONACEOUS MATERIAL.
CG 1430u
CARBONACEOUS SHALE = DUSKY YELLOWISH
8400
BROWN TO DUSKY BROWN, BROWNISH
MAX GAS 1616u
BLACK TO BLACK, MEDIUM GRAY TO DARK

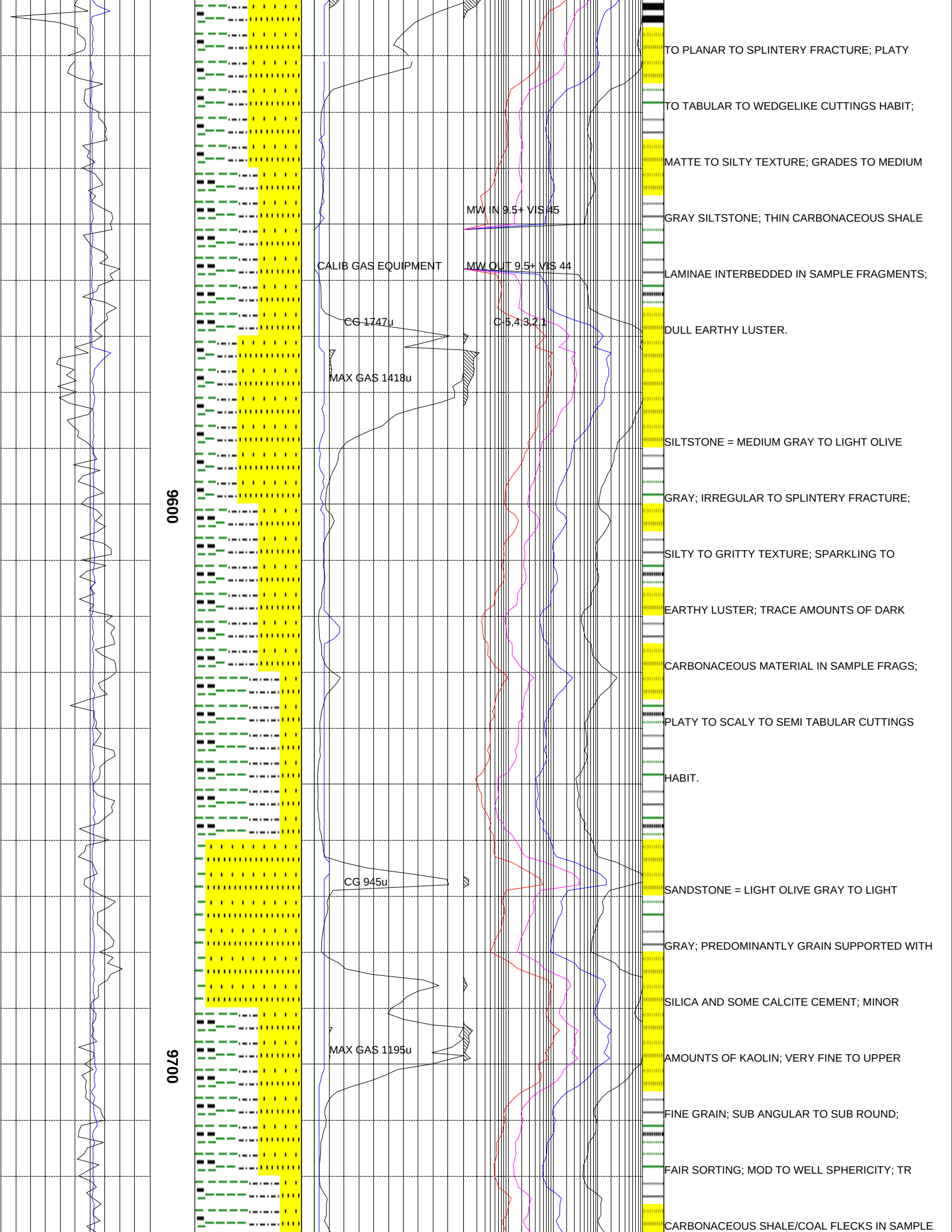

MAX GAS 641u
MAX GAS 906u
CG 1586u
MAX GAS 902u
<150 ROP 0>
<50 Avg WOB 0>
8500
<0 Ttl Gas 500><0 Meth C-1 100K>
<0 CO2 10K><0 Ethn C-2 100K>
<0 Flare Ht. 100><10 Prop C-3 100K>
<0 Buth C-4 100K>
<0 Pent C-5 100K>
MW IN 9.3+ VIS 44
MW OUT 9.3 VIS 44
C-5,4,3,2,1
WF 500 @ 8581'
8600
GRAY; TENACITY FIRM TO CRUNCHY TO
BRITTLE; FRACTURE HACKLY TO PLANAR;
CUTTINGS HABIT BLOCKY TO IRREGULAR;
LUSTER WAXY TO RESINOUS; STRUCTURE
MASSIVE TO THINLY LAMINATED; THIN
IRREGULAR VEINS TO WELL DEVELOPED
LAMINAE CARBONACEOUS MATERIAL TO
THIN COALS; ABUNDANT PYRITOIDS AND
PYRITE; SOME MINOR OUT GASSING FROM
THIN COAL LAMINAE.
SANDSTONE = OFF WHITE TO VERY LIGHT GRAY
FOR PRESERVED SPECIMENS; TRANSLUCENT TO
TRANSPARENT FOR LOOSE GRAINS; PREDOM
LOOSE GRAINS; VERY FINE TO UPPER FINE
GRAIN; SUBROUND TO ROUND; FRIABLE TO
MODERATE HARD; MOD TO HIGH SPHERICITY;
PRESERVED SPECIMENS SHOW SILICA, CALCITE
AND KAOLIN CEMENT; 1-3% CARBONACEOUS
SHALE/COAL FLECKS; TR ACCESSORY MINERAL
OF CHLORITE MICA; THINLY INTERBEDDED
WITH CARBONACEOUS SHALE; GRADES TO LIGHT

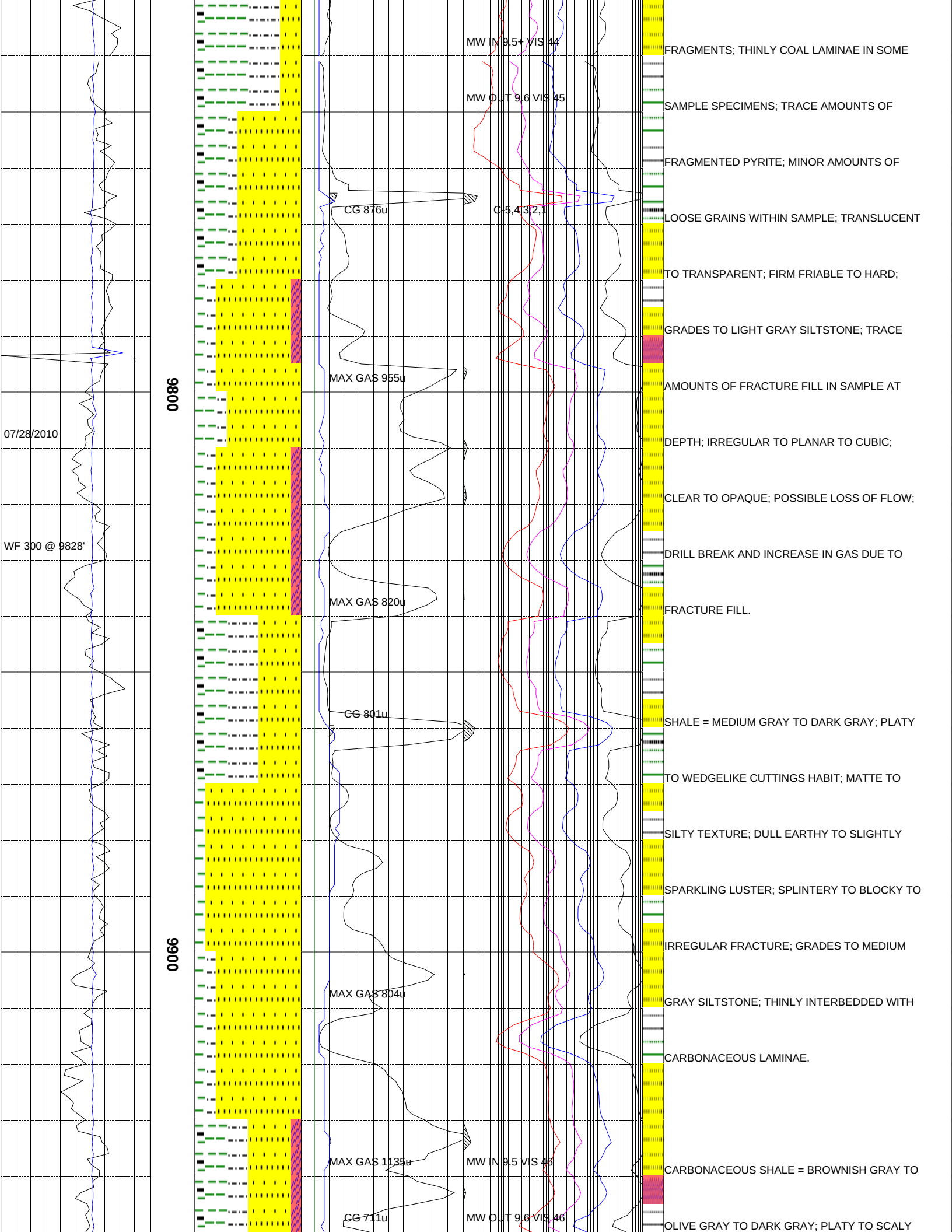

8700
8800
07/26/2010
NIGHT TOUR
NB #4 QD406F 6.125" PDC
JETS 3x13 IN AT 8751'
07/27/2010
TG 1614u
CHANGE GAS SCALE
AT 8765' MD: 0 - 1000u
CG 1105u
MAX CO2 6862 ppm
MUD DATA @ 8750'
MW 9.6 FV 43 PV 12 YP 16
API FIL 7.2 GELS 8/11/13 pH 9.8
CL- 800 Ca+ 60 SOL 6.1
24 HR LOSSES: 0 BBLS
GRAY SILTSTONE.
COAL = BLACK TO BROWNISH BLACK; BLOCKY
TO IRREGULAR TO PLANAR FRACTURE; PLATY
TO TABULAR CUTTINGS HABIT; SMOOTH TO
MATTE TEXTURE; VITREOUS TO SEMI EARTHY
LUSTER; THINLY INTERBEDDED WITH CARBO
SHALE; MINOR DEGASSING ALONG FRACTURES.
NOTE: TD INTERMEDIATE WELL AT 8751' MD
(8398' TVD) ON 06/20/2010.
SHALE = MEDIUM GRAY TO DARK GRAY; PLATY
TO TABULAR TO SCALY CUTTINGS HABIT; DULL
EARTHY LUSTER; GRADES TO LIGHT GRAY
SILTSTONE; THINLY INTERBEDDED WITH
CARBONACEOUS SHALE AND SILTSTONE; SILTY
TO SUCROSIC TEXTURE; IRREGULAR TO PLANAR
TO BLOCKY FRACTURE.
SANDSTONE = OFF WHITE TO VERY LIGHT GRAY
OVERALL; PREDOMINANTLY GRAIN SUPPORTED

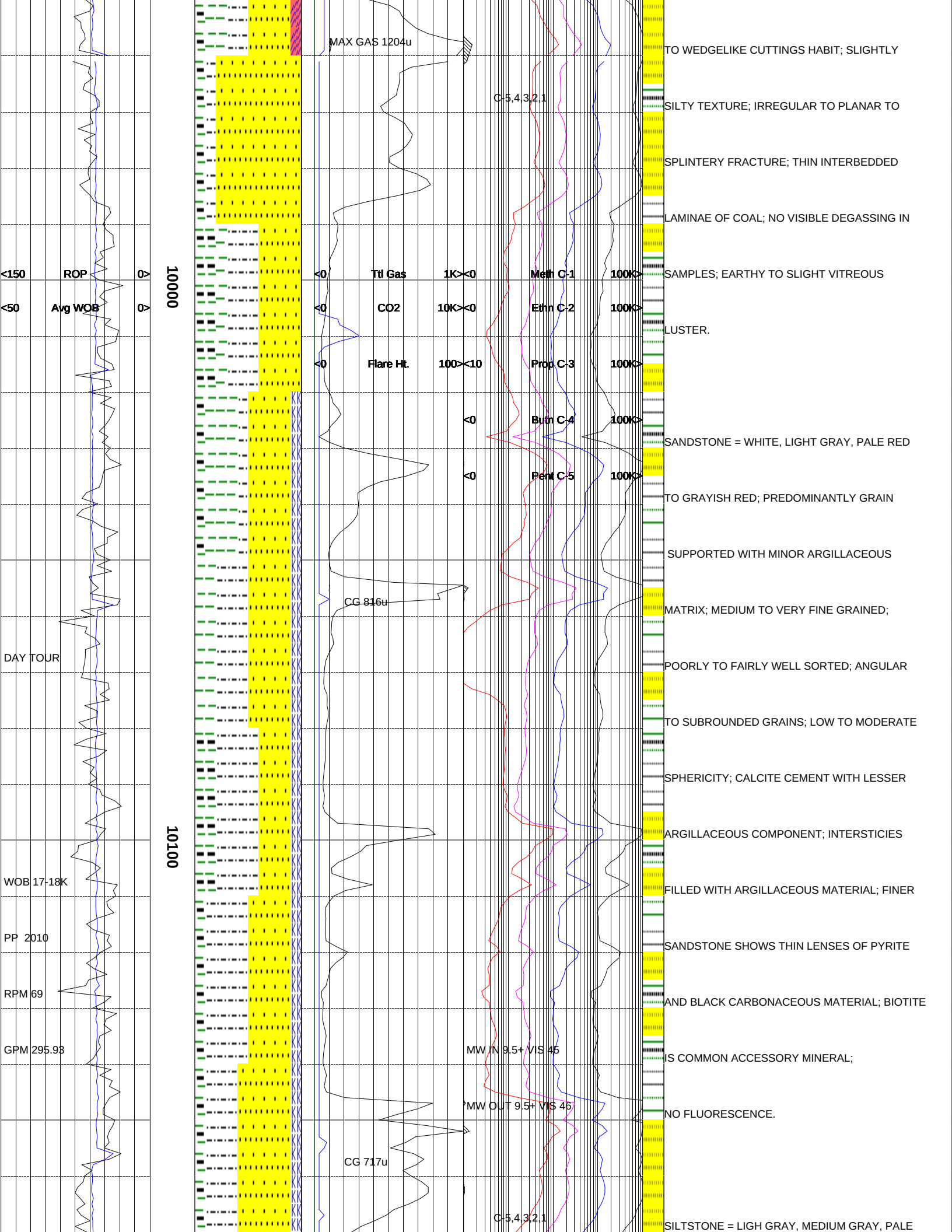

MAX GAS 537u
CG 1693u
8968
MW IN 9.6+ VIS 45
MW OUT 9.6+ VIS 43
MAX GAS 1700u
C-5,4,3,2,1
CG 1623u
<150 ROP 0>
<50 Avg WOB 0>
<0 Ttl Gas 1K>
<0 CO2 10K>
<0 Flare Ht. 100>
<0 Meth C-1 100K>
<0 Eth C-2 100K>
<10 Prop C-3 100K>
<0 Butn C-4 100K>
<0 Pent C-5 100K>
8900
DAY TOUR
MAX GAS 1174u
WOB 20-21K
PP 1860
WITH SILICA AND CALCITE CEMENT; SOME
KAOLIN PRESENT IN SAMPLE; 2-4% COAL/
CARBONACEOUS SHALE FLECKS; TRACE AMTS
OF PYRITE; SUB ROUND TO SUB ANGULAR;
FAIR TO WELL SORTED; MOD SPHERICITY;
VERY FINE TO UPPER FINE GRAIN; FIRM
FRIABLE TO HARD; MINOR AMOUNTS OF LOOSE
FINE GRAIN SAND; TRANSLUCENT TO CLEAR;
MINOR SURFACE ABRASION ON SOME SAMPLE
FRAGMENTS; TRACE FRACTURE FILL AT SAMPLE
8970'; IRREGULAR TO CUBIC CALCITE
CRYSTALS.
NOTE: UPHOLE FORMATION GASES BLEEDING
INTO WELLBORE DURING CONNECTION.
SANDSTONE = WHITE, LIGHT GRAY, MEDIUM
GRAY; MEDIUM TO VERY FINE GRAINED; FAIR
TO POORLY SORTED; SUB ANGULAR TO SUB
ROUNDED; LOW TO MODERATE SPHERICITY;
FIRM TO SOFT; CEMANTATION HIGHLY CALC
WITH MODERATE KAOLINITIC COMPONENT;

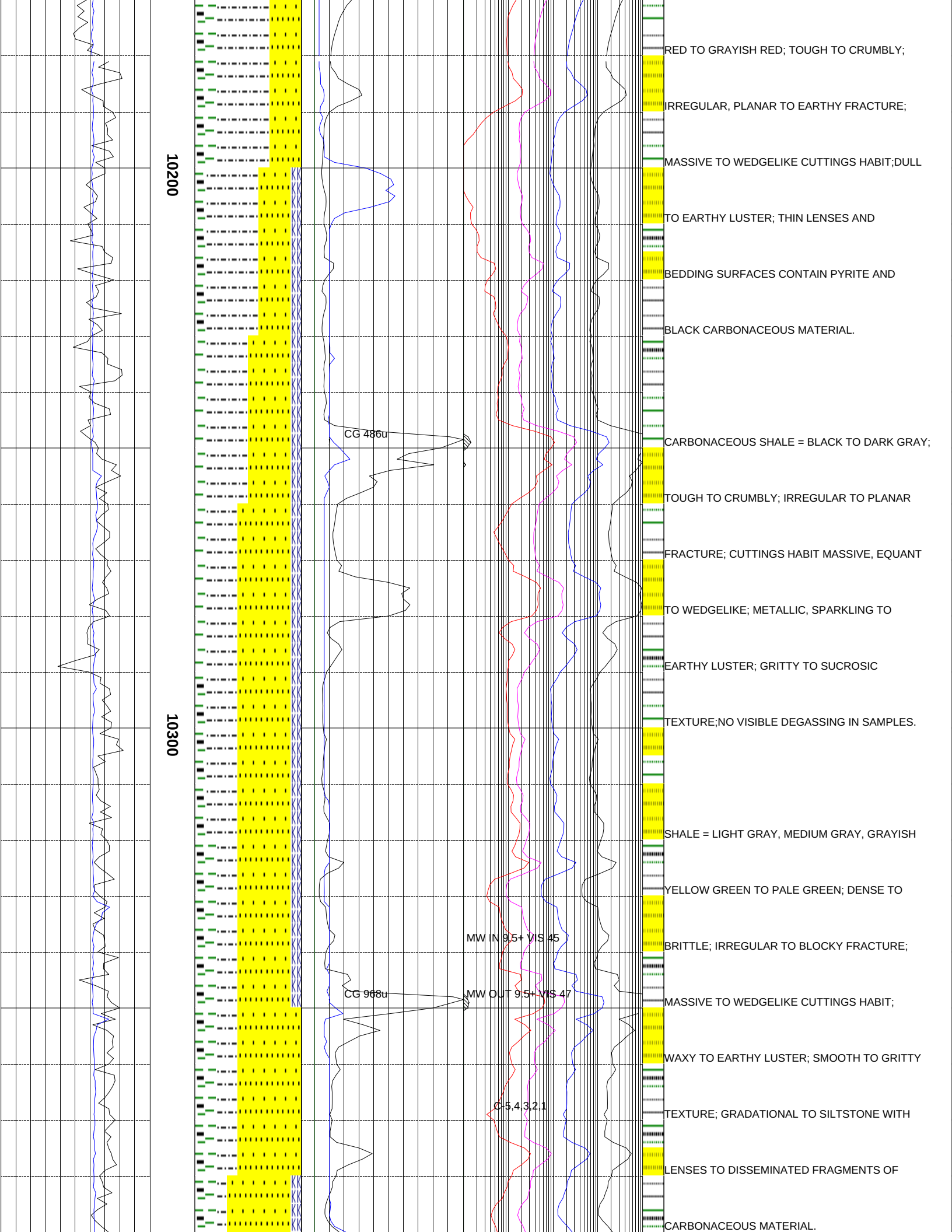

RPM 64
GPM 296
WF 400 @ 9125'
9100
9200
CG 1588u
MW IN 9.6 VIS 45
MW OUT 9.6 VIS 44
C-5,4,3,2,1
CG 1604u
MAX CO2 8544ppm
CG 1658u
PREDOMINANTLY GRAIN SUPPORTED;
NO FLUORESCENCE.
SILTSTONE = LIGHT GRAY TO MEDIUM GRAY;
DENSE TO BRITTLE; IRREGULAR TO PLANAR
MASSIVE CUTTINGS HABIT; EARTHY LUSTER;
GRITTY TO GRANULAR; MASSIVE TO
WITH TRACE LENSES OF CARBONACEOUS
MATERIAL.
COAL = BLACK TO DARK GRAY; BRITTLE TO
CRUNCHY; BLOCKY TO HACKLY FRACTURE;
MASSIVE TO WEDGELIKE CUTTINGS HABIT;
GREASY TO EARTHY LUSTER; SMOOTH TO
SILTY; MASSIVE TO THIN STRUCTURE;
MODERATE OUTGASSING.
SILTSTONE = MEDIUM GRAY TO GRAYISH RED;
TOUGH TO MODERATELY CRUMBLY; FRACTURE
BLOCKY TO IRREGULAR; MASSIVE TO WEDGE
LIKE; SILTY TO ABRASIVE TEXTURE; EARTHY
LUSTER; SILTY WITH SOME GRITTINESS;

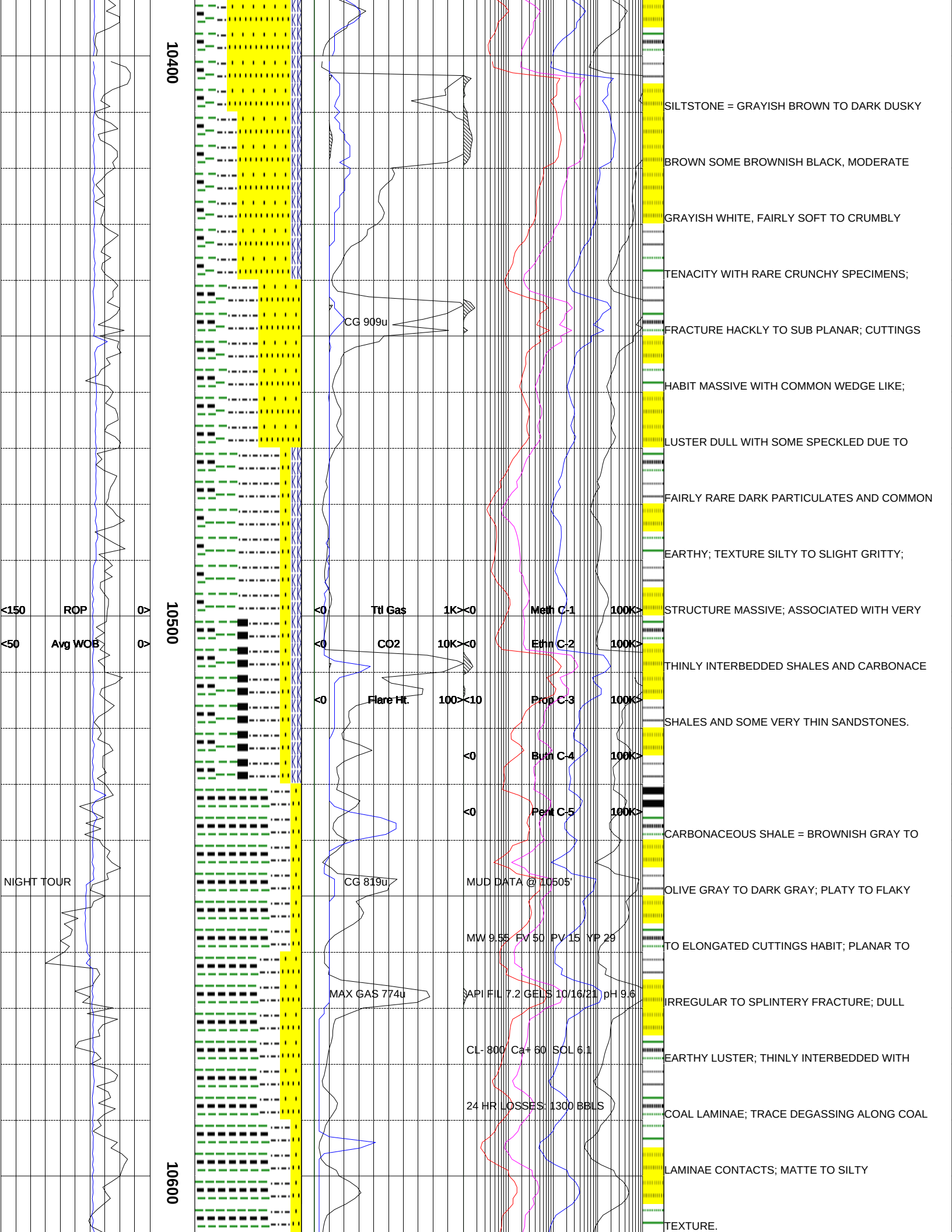

9300
MAX GAS 541u
MAX CO2 16831ppm
MW IN 9.6 VIS 45
MW OUT 9.6 VIS 44
C-5,4,3,2,1
CG 1309u
9400
MAX GAS 866u
MAX GAS 508u
MUD DATA @ 9465'
MAX GAS 1478u
MW 9.55 FV 44 PV 16 YP 19
MAX CO2 5233ppm
API FIL 6.6 GELS 9/11/14 pH 9.9
CG 1667u
CL- 800 Ca+ 60 SOL 6.6
24 HR LOSSES: 780 BBLS
9500
MAX GAS 1671u
MASSIVE WITH SOME THIN LENSES OF
CARBONACEOUS MATERIAL; TRACE PYRITE AS
THIN DISCONTINUOUS LENSES.
SANDSTONE = WHITE, LIGHT GRAY, PALE RED,
TO GRAYISH RED; MEDIUM TO FINE GRAINED;
POOR TO FAIR SORTING; SUBANGULAR TO
SUBROUND; MODERATE SPHERICITY; MODERATE
HARD TO FRIABLE; ARGILLACEOUS CEMENT W/
WEAK CALC COMPONENT;GRAIN SUPPORT;
GRAIN SIZE COARSENING WITH DEPTH; NO
FLUORESCENCE.
CARBONACEOUS SHALE = DRK GRAY TO GRAYISH
BLACK, BLACKISH BROWN TO DUSKY BROWN;
TOUGH TO CRUMBLY; IRREGULAR FRACTURE;
MASSIVE TO TABULAR CUTTINGS HABIT; DULL
TO METALLIC LUSTER; GRITTY TO SOME MATTE
TEXTURE; THIN TO MASSIVE STRUCTURE WITH
TRACE THIN LAMMINAE COALS AND PYRITE.
SHALE = MEDIUM GRAY TO DARK GRAY; BLOCKY
<150 ROP 0>
<50 Avg WOB 0>
NIGHT TOUR
<0 Ttl Gas 1K><0 Meth C-1 100K>
<0 CO2 10K><0 Eth C-2 100K>

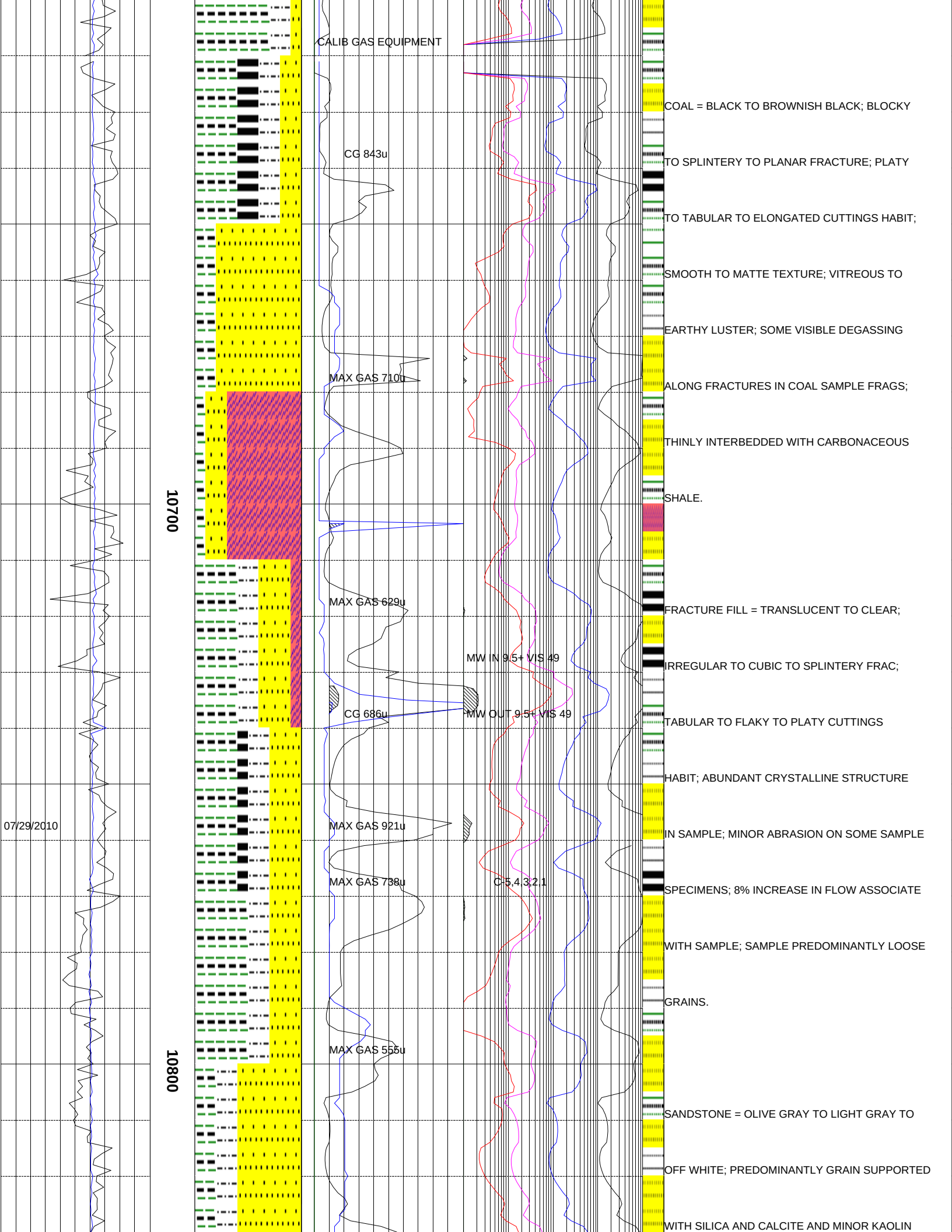

MW IN 9.5+ VIS 45
CALIB GAS EQUIPMENT
MW OUT 9.5+ VIS 44
CG 1747u
C-5,4,3,2,1
MAX GAS 1418u
9600
CG 945u
MAX GAS 1195u
9700
TO PLANAR TO SPLINTERY FRACTURE; PLATY
TO TABULAR TO WEDGELIKE CUTTINGS HABIT;
MATTE TO SILTY TEXTURE; GRADES TO MEDIUM
GRAY SILTSTONE; THIN CARBONACEOUS SHALE
LAMINAE INTERBEDDED IN SAMPLE FRAGMENTS;
DULL EARTHY LUSTER.
SILTSTONE = MEDIUM GRAY TO LIGHT OLIVE
GRAY; IRREGULAR TO SPLINTERY FRACTURE;
SILTY TO GRITTY TEXTURE; SPARKLING TO
EARTHY LUSTER; TRACE AMOUNTS OF DARK
CARBONACEOUS MATERIAL IN SAMPLE FRAGS;
PLATY TO SCALY TO SEMI TABULAR CUTTINGS
HABIT.
SANDSTONE = LIGHT OLIVE GRAY TO LIGHT
GRAY; PREDOMINANTLY GRAIN SUPPORTED WITH
SILICA AND SOME CALCITE CEMENT; MINOR
AMOUNTS OF KAOLIN; VERY FINE TO UPPER
FINE GRAIN; SUB ANGULAR TO SUB ROUND;
FAIR SORTING; MOD TO WELL SPHERICITY; TR
CARBONACEOUS SHALE/COAL FLECKS IN SAMPLE

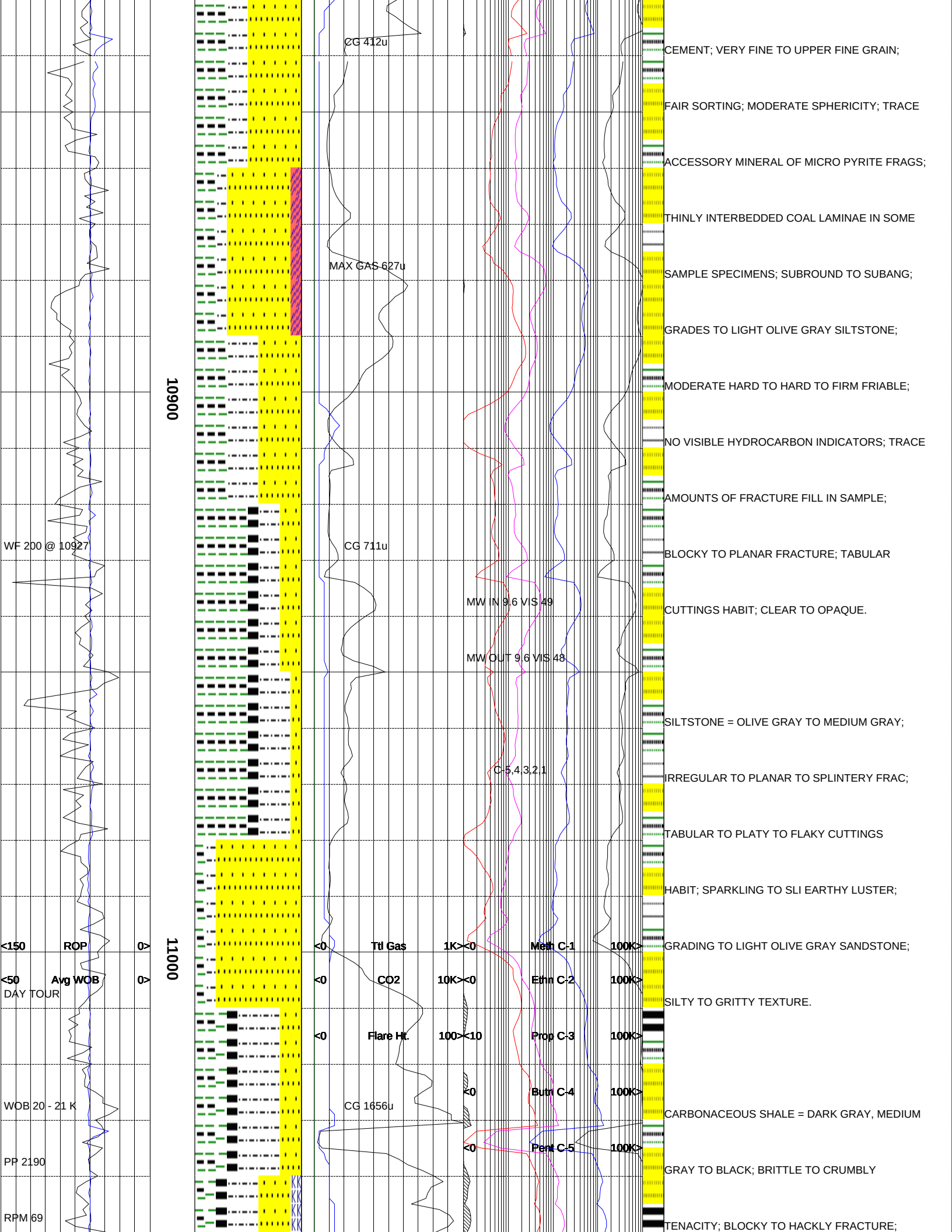

MW IN 9.5+ VIS 44
MW OUT 9.6 VIS 45
CG 876u
C-5,4,3,2,1
MAX GAS 955u
0086
07/28/2010
WF 300 @ 9828'
MAX GAS 820u
CG 801u
0066
MAX GAS 804u
MAX GAS 1135u
MW IN 9.5 VIS 46
CG 711u
MW OUT 9.6 VIS 46
FRAGMENTS; THINLY COAL LAMINAE IN SOME
SAMPLE SPECIMENS; TRACE AMOUNTS OF
FRAGMENTED PYRITE; MINOR AMOUNTS OF
LOOSE GRAINS WITHIN SAMPLE; TRANSLUCENT
TO TRANSPARENT; FIRM FRIABLE TO HARD;
GRADES TO LIGHT GRAY SILTSTONE; TRACE
AMOUNTS OF FRACTURE FILL IN SAMPLE AT
DEPTH; IRREGULAR TO PLANAR TO CUBIC;
CLEAR TO OPAQUE; POSSIBLE LOSS OF FLOW;
DRILL BREAK AND INCREASE IN GAS DUE TO
FRACTURE FILL.
SHALE = MEDIUM GRAY TO DARK GRAY; PLATY
TO WEDGELIKE CUTTINGS HABIT; MATTE TO
SILTY TEXTURE; DULL EARTHY TO SLIGHTLY
SPARKLING LUSTER; SPLINTERY TO BLOCKY TO
IRREGULAR FRACTURE; GRADES TO MEDIUM
GRAY SILTSTONE; THINLY INTERBEDDED WITH
CARBONACEOUS LAMINAE.
CARBONACEOUS SHALE = BROWNISH GRAY TO
OLIVE GRAY TO DARK GRAY; PLATY TO SCALY

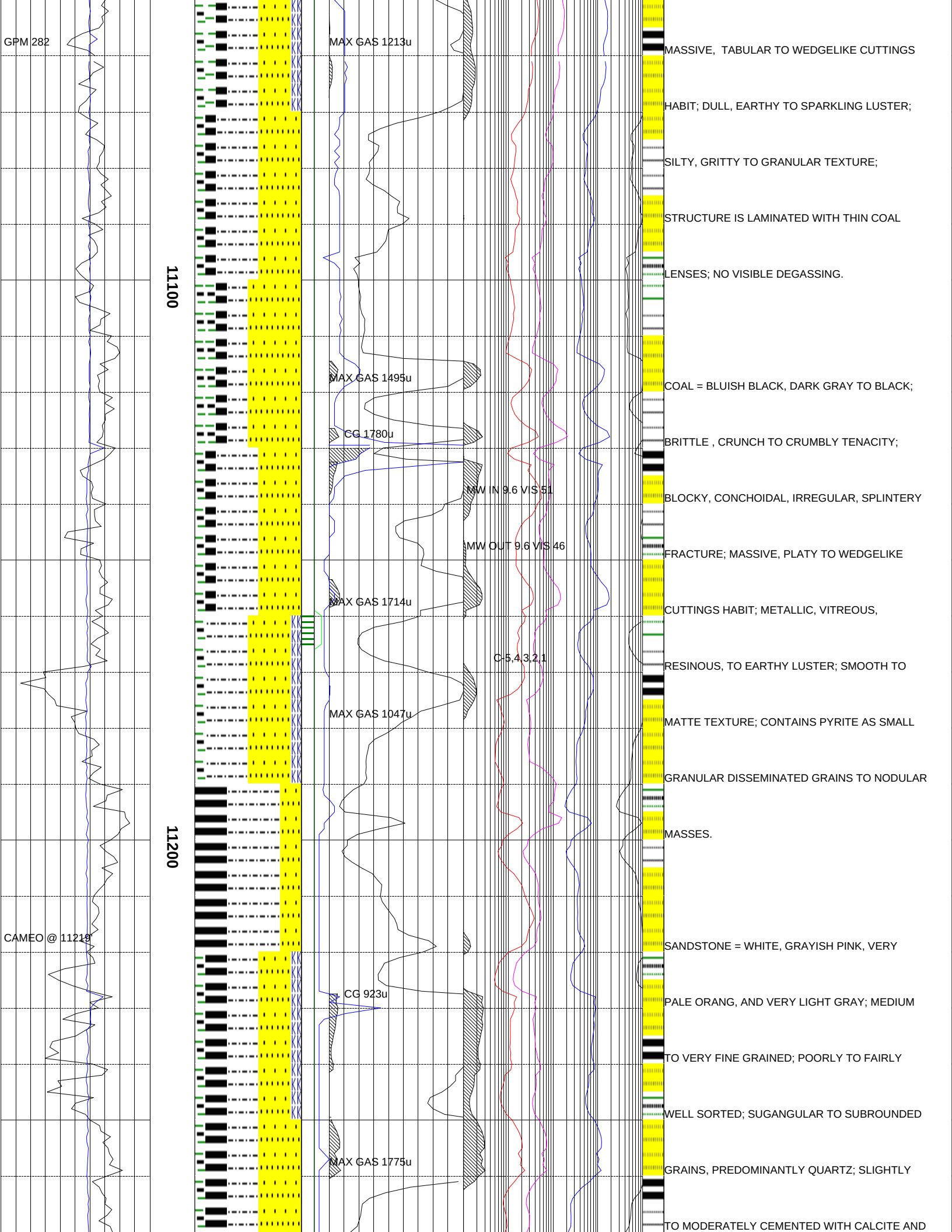

<150 ROP 0>
<50 Avg WOB 0>
10000
10100
DAY TOUR
WOB 17-18K
PP 2010
RPM 69
GPM 295.93
MAX GAS 1204u
CG 816u
CG 717u
<0 Ttl Gas 1K><0 Meth C-1 100K>
<0 CO2 10K><0 Ethn C-2 100K>
<0 Flare Ht. 100><10 Prop C-3 100K>
<0 Butn C-4 100K>
<0 Pent C-5 100K>
C-5,4,3,2,1
C-5,4,3,2,1
MW IN 9.5+ VIS 45
MW OUT 9.5+ VIS 46
TO WEDGELIKE CUTTINGS HABIT; SLIGHTLY
SILTY TEXTURE; IRREGULAR TO PLANAR TO
SPLINTERY FRACTURE; THIN INTERBEDDED
LAMINAE OF COAL; NO VISIBLE DEGASSING IN
SAMPLES; EARTHY TO SLIGHT VITREOUS
LUSTER.
SANDSTONE = WHITE, LIGHT GRAY, PALE RED
TO GRAYISH RED; PREDOMINANTLY GRAIN
SUPPORTED WITH MINOR ARGILLACEOUS
MATRIX; MEDIUM TO VERY FINE GRAINED;
POORLY TO FAIRLY WELL SORTED; ANGULAR
TO SUBROUNDED GRAINS; LOW TO MODERATE
SPHERICITY; CALCITE CEMENT WITH LESSER
ARGILLACEOUS COMPONENT; INTERSTICIES
FILLED WITH ARGILLACEOUS MATERIAL; FINER
SANDSTONE SHOWS THIN LENSES OF PYRITE
AND BLACK CARBONACEOUS MATERIAL; BIOTITE
IS COMMON ACCESSORY MINERAL;
NO FLUORESCENCE.
SILTSTONE = LIGH GRAY, MEDIUM GRAY, PALE

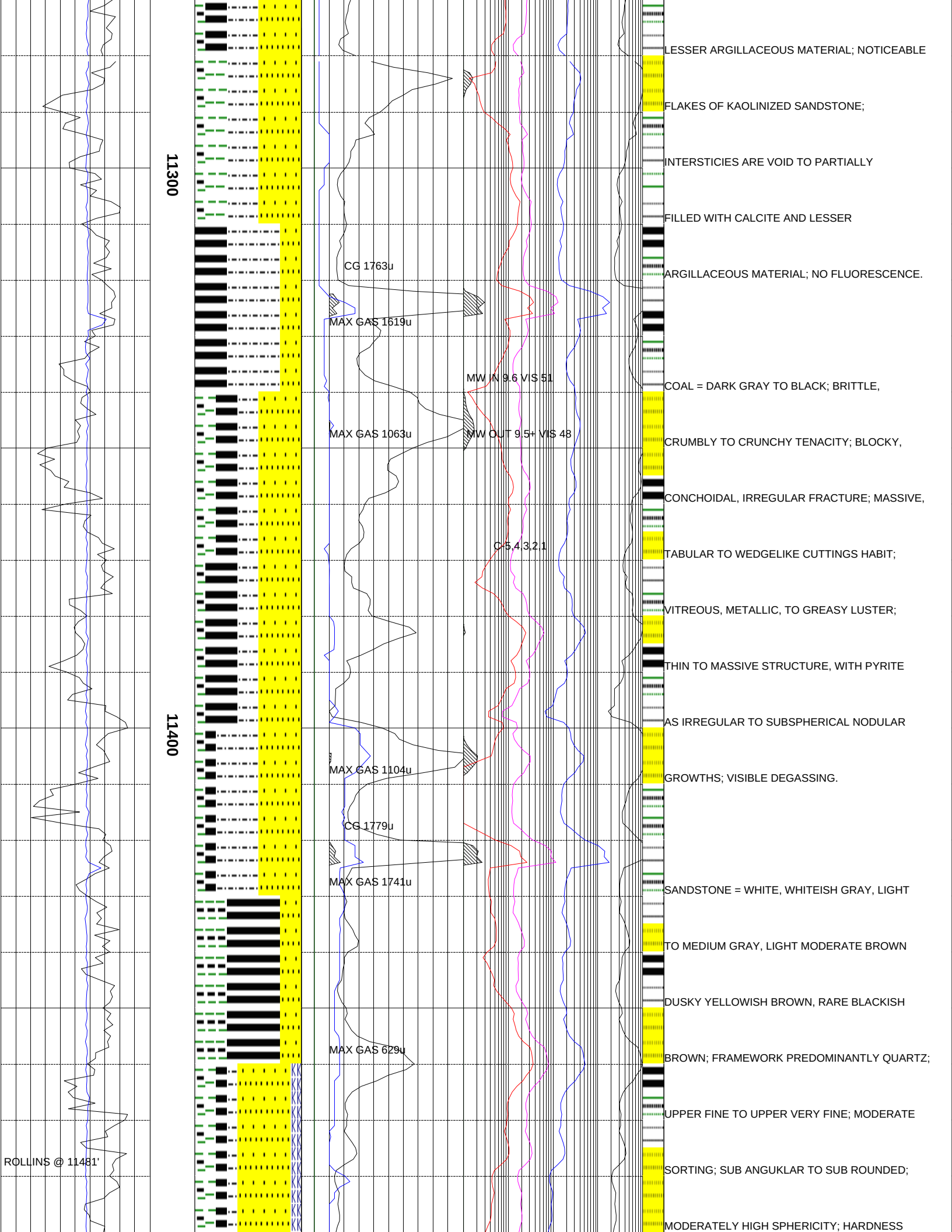

10200
10300
CG 486u
CG 968u
MW IN 9.5+ VIS 45
MW OUT 9.5+ VIS 47
C-5,4,3,2,1
RED TO GRAYISH RED; TOUGH TO CRUMBLY;
IRREGULAR, PLANAR TO EARTHY FRACTURE;
MASSIVE TO WEDGELIKE CUTTINGS HABIT;DULL
TO EARTHY LUSTER; THIN LENSES AND
BEDDING SURFACES CONTAIN PYRITE AND
BLACK CARBONACEOUS MATERIAL.
CARBONACEOUS SHALE = BLACK TO DARK GRAY;
TOUGH TO CRUMBLY; IRREGULAR TO PLANAR
FRACTURE; CUTTINGS HABIT MASSIVE, EQUANT
TO WEDGELIKE; METALLIC, SPARKLING TO
EARTHY LUSTER; GRITTY TO SUCROSIC
TEXTURE;NO VISIBLE DEGASSING IN SAMPLES.
SHALE = LIGHT GRAY, MEDIUM GRAY, GRAYISH
YELLOW GREEN TO PALE GREEN; DENSE TO
BRITTLE; IRREGULAR TO BLOCKY FRACTURE;
MASSIVE TO WEDGELIKE CUTTINGS HABIT;
WAXY TO EARTHY LUSTER; SMOOTH TO GRITTY
TEXTURE; GRADATIONAL TO SILTSTONE WITH
LENSES TO DISSEMINATED FRAGMENTS OF
CARBONACEOUS MATERIAL.

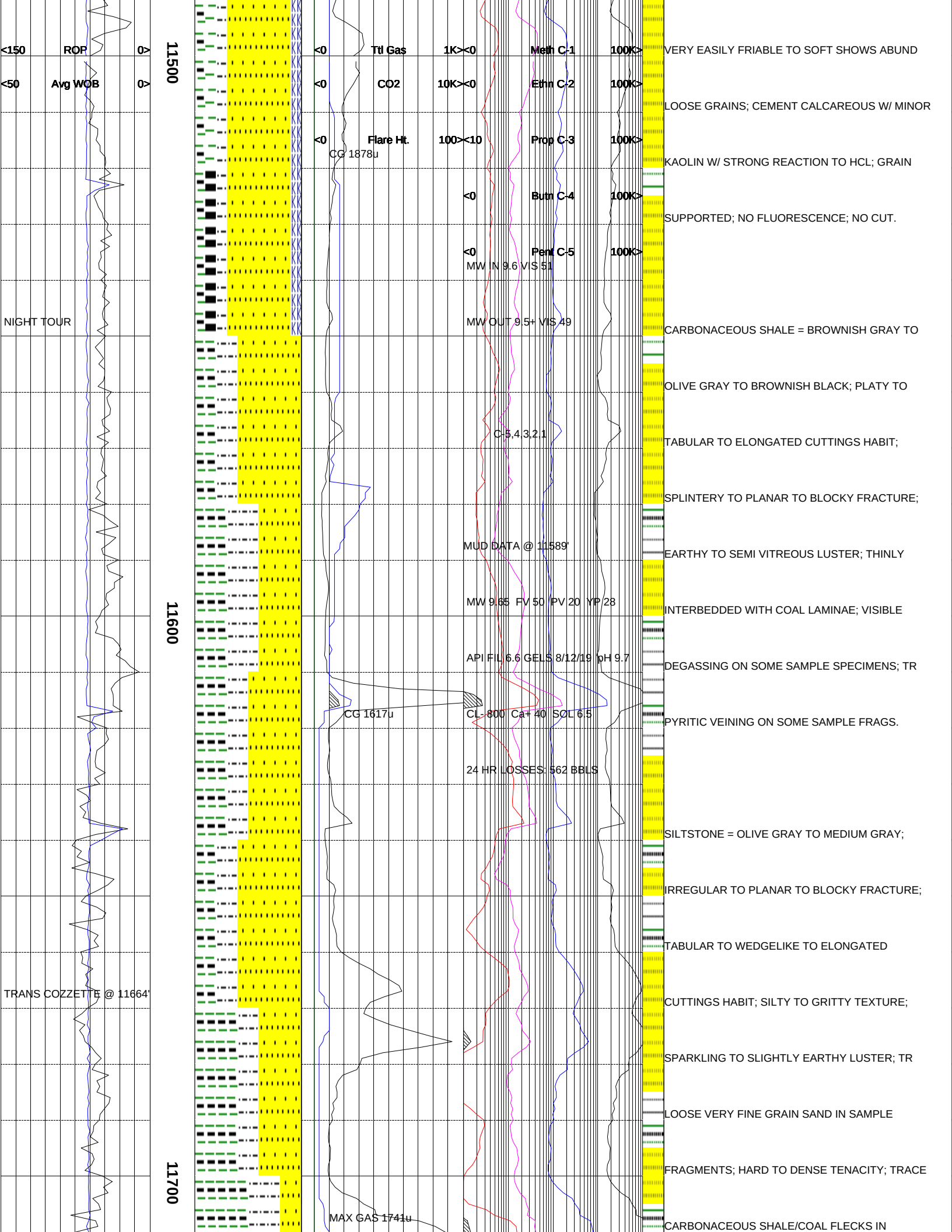

10400
10500
10600
<150 ROP 0>
<50 Avg WOB 0>
<0 Ttl Gas 1K><0 Meth C-1 100K>
<0 CO2 10K><0 Ethn C-2 100K>
<0 Flare Ht. 100><10 Prop C-3 100K>
<0 Butn C-4 100K>
<0 Pent C-5 100K>
CG 909u
CG 819u
MAX GAS 774u
NIGHT TOUR
MUD DATA @ 10505'
MW 9.55 FV 50 PV 15 YP 29
API FIL 7.2 GELS 10/16/21 pH 9.6
CL- 800 Ca+ 60 SOL 6.1
24 HR LOSSES: 1300 BBLS
SILTSTONE = GRAYISH BROWN TO DARK DUSKY
BROWN SOME BROWNISH BLACK, MODERATE
GRAYISH WHITE, FAIRLY SOFT TO CRUMBLY
TENACITY WITH RARE CRUNCHY SPECIMENS;
FRACTURE HACKLY TO SUB PLANAR; CUTTINGS
HABIT MASSIVE WITH COMMON WEDGE LIKE;
LUSTER DULL WITH SOME SPECKLED DUE TO
FAIRLY RARE DARK PARTICULATES AND COMMON
EARTHY; TEXTURE SILTY TO SLIGHT GRITTY;
STRUCTURE MASSIVE; ASSOCIATED WITH VERY
THINLY INTERBEDDED SHALES AND CARBONACE
SHALES AND SOME VERY THIN SANDSTONES.
CARBONACEOUS SHALE = BROWNISH GRAY TO
OLIVE GRAY TO DARK GRAY; PLATY TO FLAKY
TO ELONGATED CUTTINGS HABIT; PLANAR TO
IRREGULAR TO SPLINTERY FRACTURE; DULL
EARTHY LUSTER; THINLY INTERBEDDED WITH
COAL LAMINAE; TRACE DEGASSING ALONG COAL
LAMINAE CONTACTS; MATTE TO SILTY
TEXTURE.

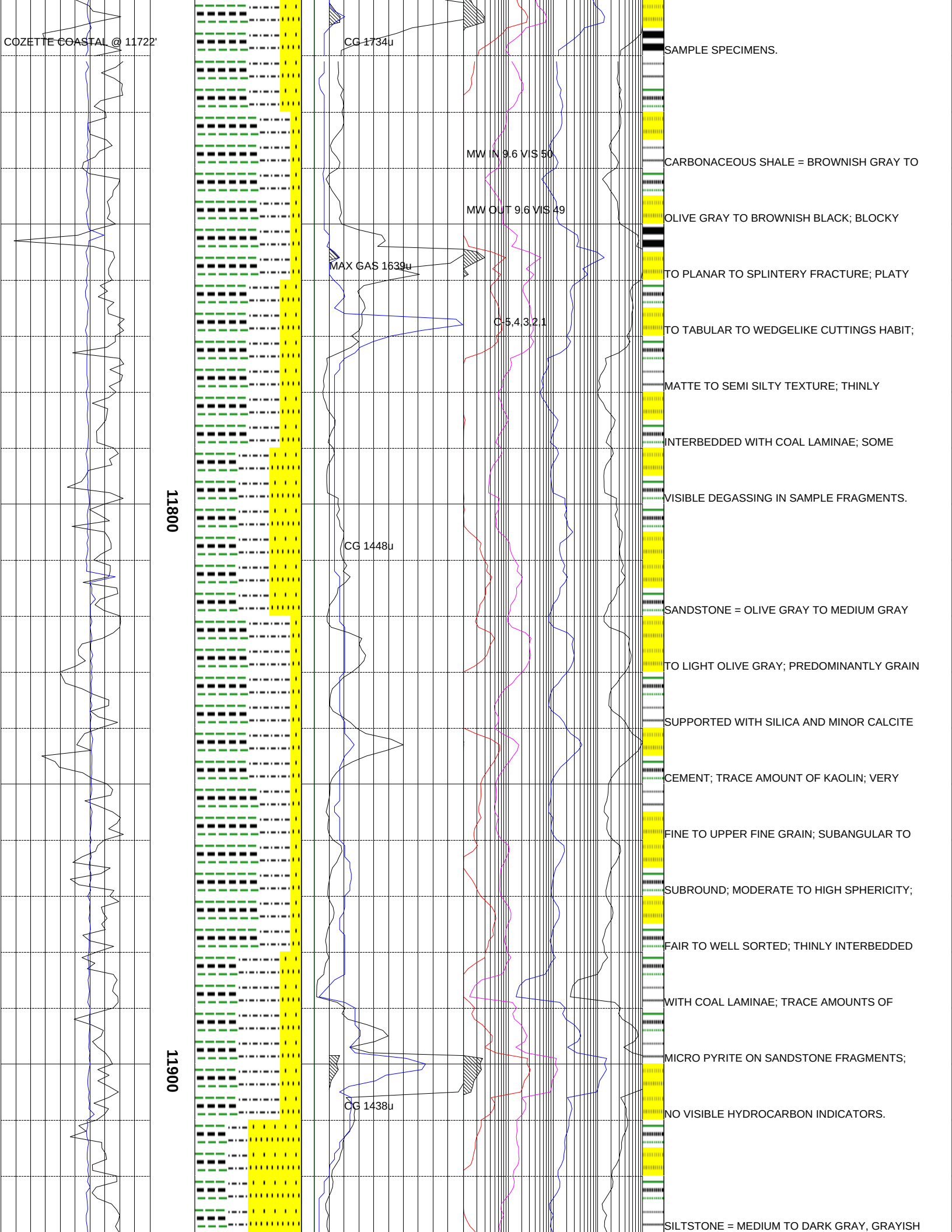

CALIB GAS EQUIPMENT
CG 843u
MAX GAS 710u
10700
MAX GAS 629u
MW IN 9.5+ VIS 49
CG 686u
MW OUT 9.5+ VIS 49
07/29/2010
MAX GAS 921u
MAX GAS 738u
C-5,4,3,2,1
MAX GAS 555u
10800
COAL = BLACK TO BROWNISH BLACK; BLOCKY
TO SPLINTERY TO PLANAR FRACTURE; PLATY
TO TABULAR TO ELONGATED CUTTINGS HABIT;
SMOOTH TO MATTE TEXTURE; VITREOUS TO
EARTHY LUSTER; SOME VISIBLE DEGASSING
ALONG FRACTURES IN COAL SAMPLE FRAGS;
THINLY INTERBEDDED WITH CARBONACEOUS
SHALE.
FRACTURE FILL = TRANSLUCENT TO CLEAR;
IRREGULAR TO CUBIC TO SPLINTERY FRAC;
TABULAR TO FLAKY TO PLATY CUTTINGS
HABIT; ABUNDANT CRYSTALLINE STRUCTURE
IN SAMPLE; MINOR ABRASION ON SOME SAMPLE
SPECIMENS; 8% INCREASE IN FLOW ASSOCIATE
WITH SAMPLE; SAMPLE PREDOMINANTLY LOOSE
GRAINS.
SANDSTONE = OLIVE GRAY TO LIGHT GRAY TO
OFF WHITE; PREDOMINANTLY GRAIN SUPPORTED
WITH SILICA AND CALCITE AND MINOR KAOLIN

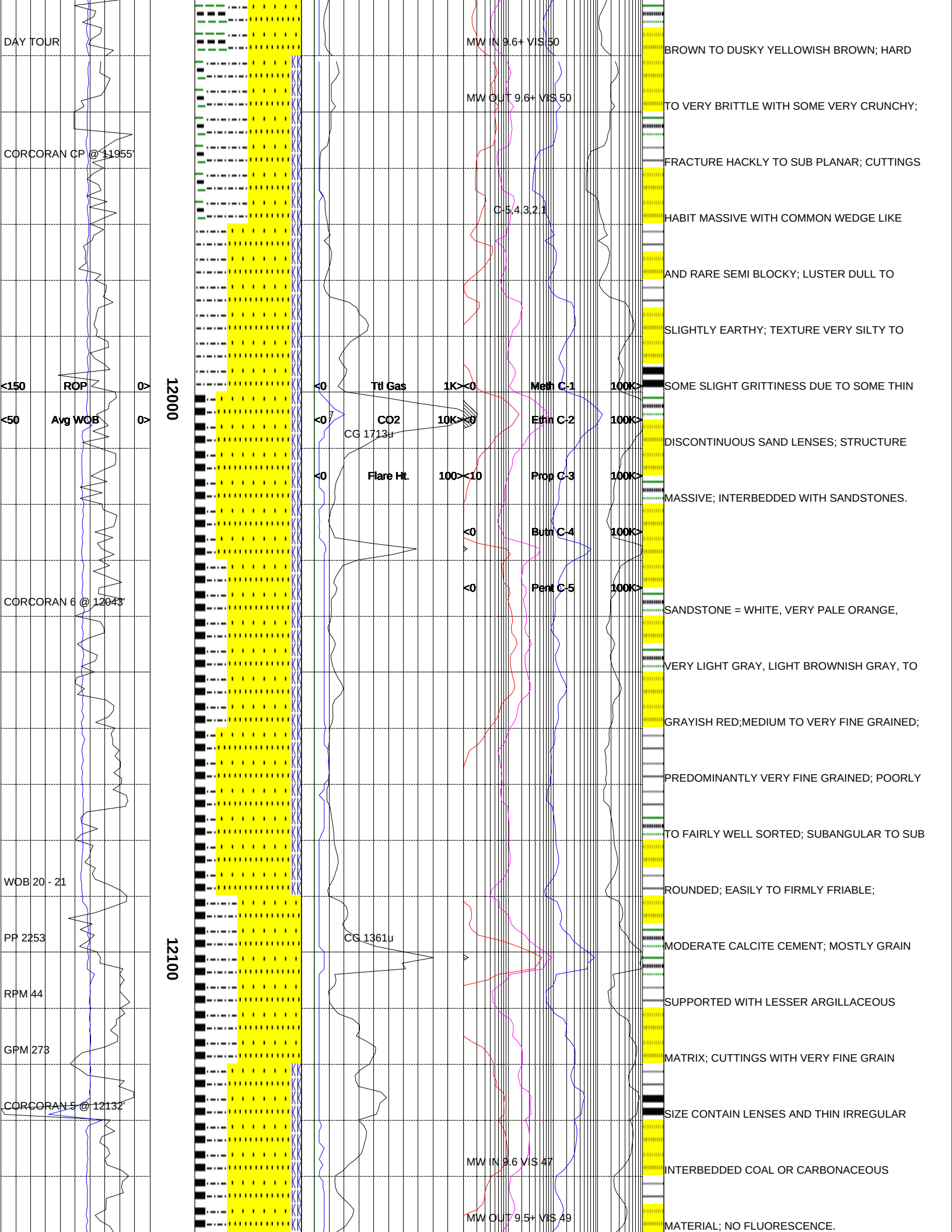

CG 412u
MAX GAS 627u
10900
WF 200 @ 10927
CG 711u
MW IN 9.6 VIS 49
MW OUT 9.6 VIS 48
C-5,4,3,2,1
11000
<150 ROP 0>
<50 Avg WOB 0>
DAY TOUR
WOB 20 - 21 K
PP 2190
RPM 69
<0 Ttl Gas 1K><0 Meth C-1 100K>
<0 CO2 10K><0 Ethn C-2 100K>
<0 Flare Ht. 100><10 Prop C-3 100K>
<0 Buth C-4 100K>
<0 Pent C-5 100K>
CEMENT; VERY FINE TO UPPER FINE GRAIN;
FAIR SORTING; MODERATE SPHERICITY; TRACE
ACCESSORY MINERAL OF MICRO PYRITE FRAGS;
THINLY INTERBEDDED COAL LAMINAE IN SOME
SAMPLE SPECIMENS; SUBROUND TO SUBANG;
GRADES TO LIGHT OLIVE GRAY SILTSTONE;
MODERATE HARD TO HARD TO FIRM FRIABLE;
NO VISIBLE HYDROCARBON INDICATORS; TRACE
AMOUNTS OF FRACTURE FILL IN SAMPLE;
BLOCKY TO PLANAR FRACTURE; TABULAR
CUTTINGS HABIT; CLEAR TO OPAQUE.
SILTSTONE = OLIVE GRAY TO MEDIUM GRAY;
IRREGULAR TO PLANAR TO SPLINTERY FRAC;
TABULAR TO PLATY TO FLAKY CUTTINGS
HABIT; SPARKLING TO SLI EARTHY LUSTER;
GRADING TO LIGHT OLIVE GRAY SANDSTONE;
SILTY TO GRITTY TEXTURE.
CARBONACEOUS SHALE = DARK GRAY, MEDIUM
GRAY TO BLACK; BRITTLE TO CRUMBLY
TENACITY; BLOCKY TO HACKLY FRACTURE;

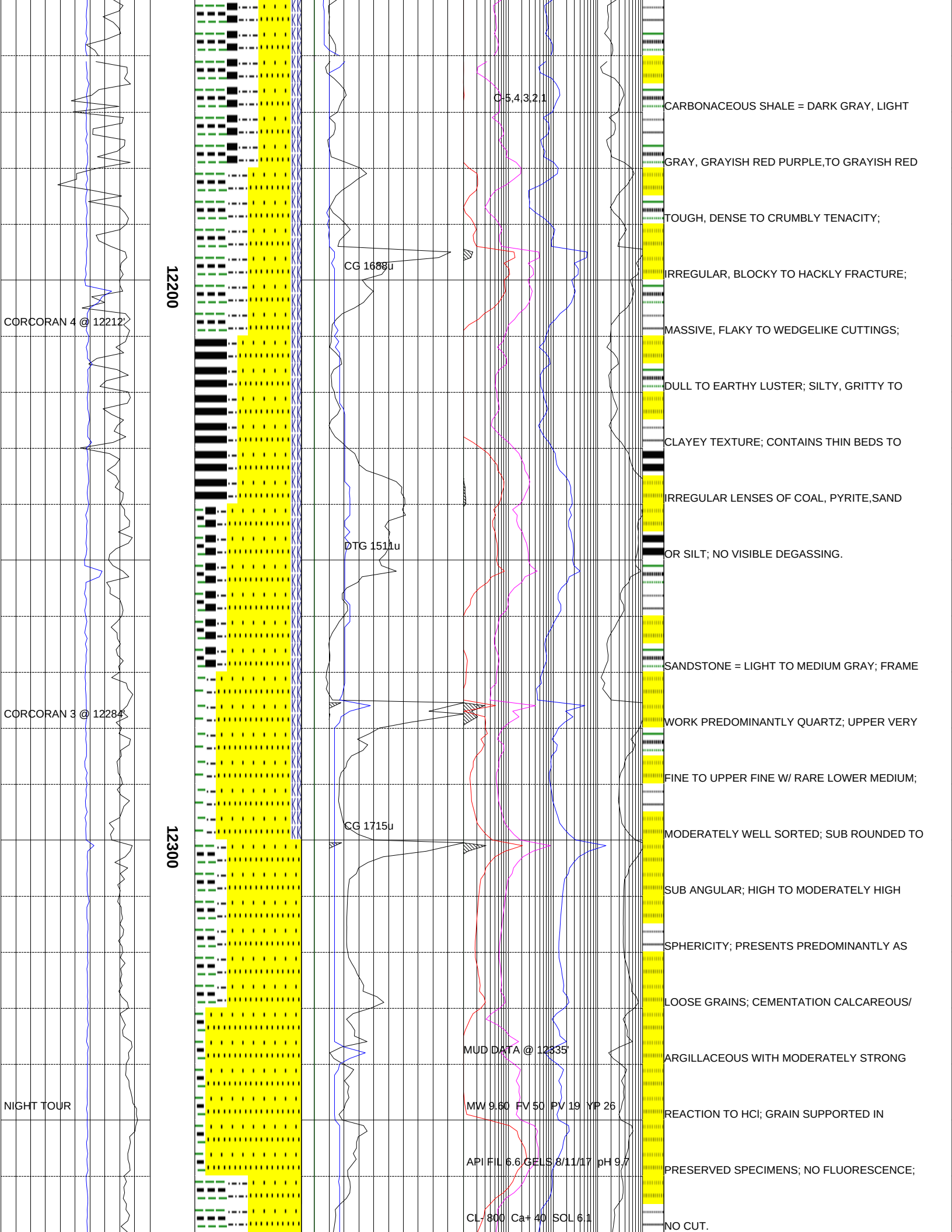

GPM 282
MAX GAS 1213u
MASSIVE, TABULAR TO WEDGELIKE CUTTINGS
HABIT; DULL, EARTHY TO SPARKLING LUSTER;
SILTY, GRITTY TO GRANULAR TEXTURE;
STRUCTURE IS LAMINATED WITH THIN COAL
LENSES; NO VISIBLE DEGASSING.
11100
MAX GAS 1495u
COAL = BLUISH BLACK, DARK GRAY TO BLACK;
CG 1780u
BRITTLE , CRUNCH TO CRUMBLY TENACITY;
MW IN 9.6 VIS 51
BLOCKY, CONCHOIDAL, IRREGULAR, SPLINTERY
MW OUT 9.6 VIS 46
FRACTURE; MASSIVE, PLATY TO WEDGELIKE
MAX GAS 1714u
CUTTINGS HABIT; METALLIC, VITREOUS,
C-5,4,3,2,1
RESINOUS, TO EARTHY LUSTER; SMOOTH TO
MAX GAS 1047u
MATTE TEXTURE; CONTAINS PYRITE AS SMALL
GRANULAR DISSEMINATED GRAINS TO NODULAR
MASSES.
11200
CAMEO @ 11219'
SANDSTONE = WHITE, GRAYISH PINK, VERY
CG 923u
PALE ORANG, AND VERY LIGHT GRAY; MEDIUM
TO VERY FINE GRAINED; POORLY TO FAIRLY
WELL SORTED; SUGANGULAR TO SUBROUNDED
MAX GAS 1775u
GRAINS, PREDOMINANTLY QUARTZ; SLIGHTLY
TO MODERATELY CEMENTED WITH CALCITE AND

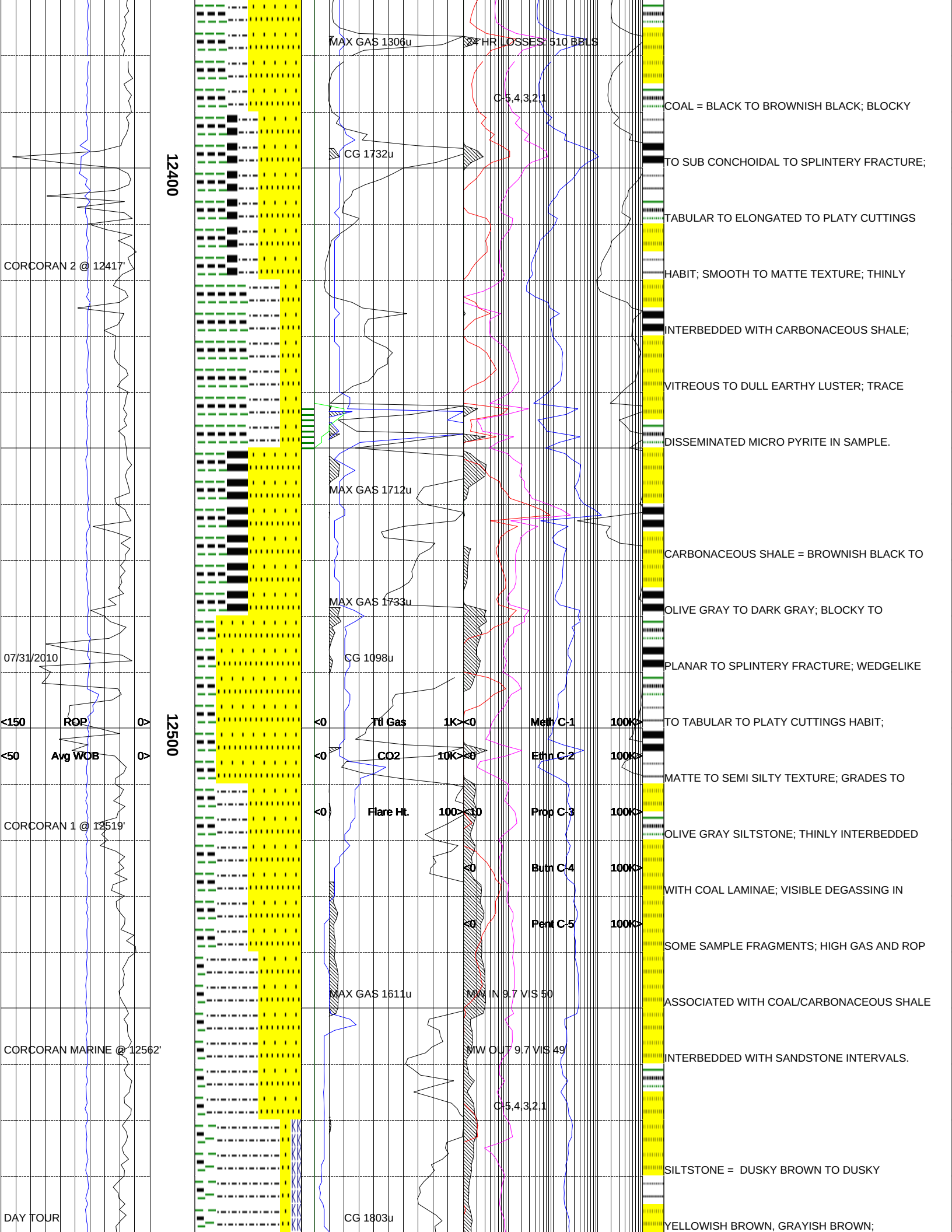

11300
11400
CG 1763u
MAX GAS 1619u
MW IN 9.6 VIS 51
MAX GAS 1063u
MW OUT 9.5+ VIS 48
C-5,4,3,2,1
MAX GAS 1104u
CG 1779u
MAX GAS 1741u
MAX GAS 629u
ROLLINS @ 11481'
LESSER ARGILLACEOUS MATERIAL; NOTICEABLE
FLAKES OF KAOLINIZED SANDSTONE;
INTERSTICIES ARE VOID TO PARTIALLY
FILLED WITH CALCITE AND LESSER
ARGILLACEOUS MATERIAL; NO FLUORESCENCE.
COAL = DARK GRAY TO BLACK; BRITTLE,
CRUMBLY TO CRUNCHY TENACITY; BLOCKY,
CONCHOIDAL, IRREGULAR FRACTURE; MASSIVE,
TABULAR TO WEDGELIKE CUTTINGS HABIT;
VITREOUS, METALLIC, TO GREASY LUSTER;
THIN TO MASSIVE STRUCTURE, WITH PYRITE
AS IRREGULAR TO SUBSPHERICAL NODULAR
GROWTHS; VISIBLE DEGASSING.
SANDSTONE = WHITE, WHITEISH GRAY, LIGHT
TO MEDIUM GRAY, LIGHT MODERATE BROWN
DUSKY YELLOWISH BROWN, RARE BLACKISH
BROWN; FRAMEWORK PREDOMINANTLY QUARTZ;
UPPER FINE TO UPPER VERY FINE; MODERATE
SORTING; SUB ANGUKLAR TO SUB ROUNDED;
MODERATELY HIGH SPHERICITY; HARDNESS

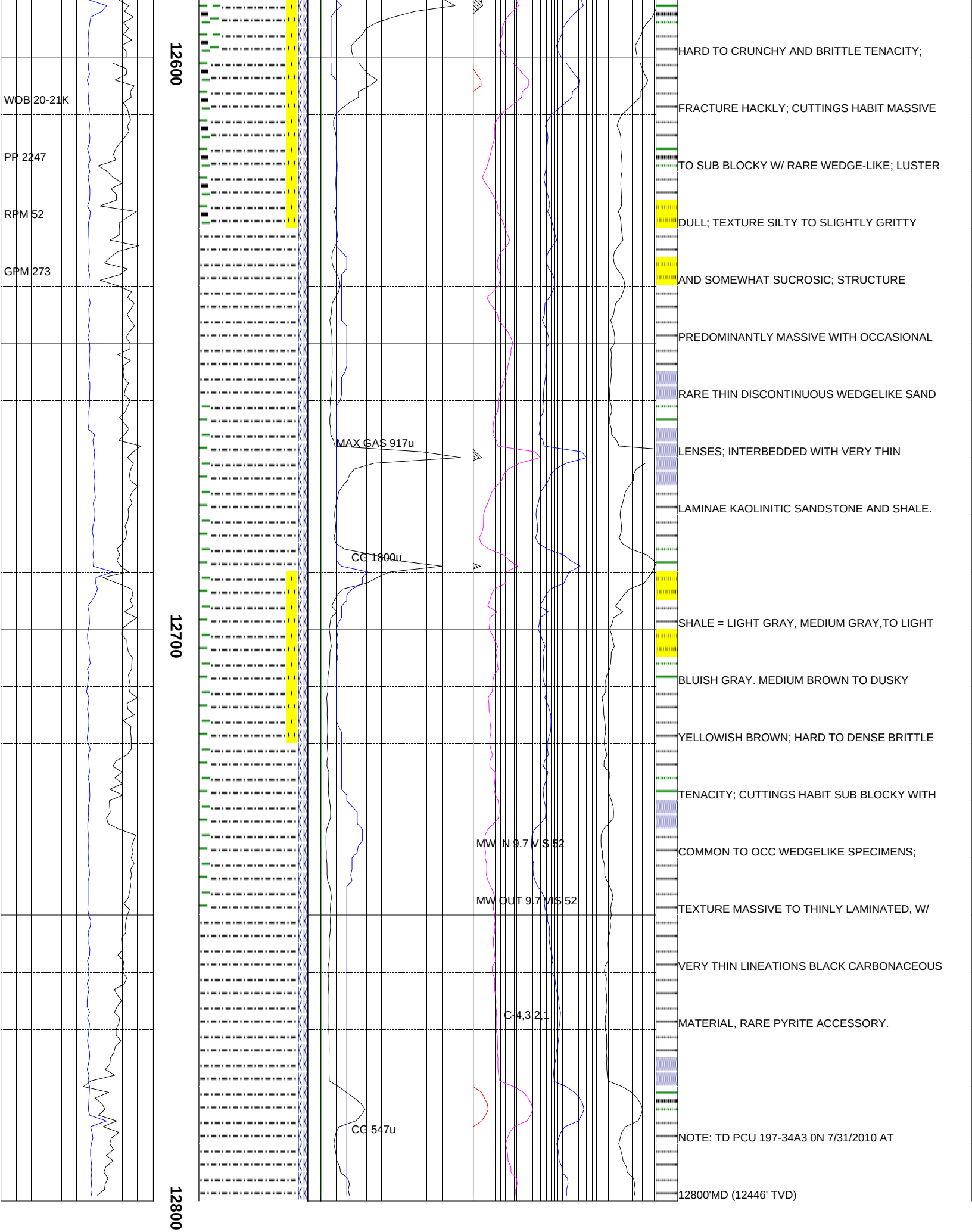

<150 ROP 0>
<50 Avg WOB 0>
11500
11600
11700
<0 Ttl Gas 1K>
<0 CO2 10K>
<0 Flare Ht. 100>
CG 1878u
CG 1617u
MAX GAS 1741u
<0 Meth C-1 100K>
<0 Ethn C-2 100K>
<10 Prop C-3 100K>
<0 Butn C-4 100K>
<0 Pent C-5 100K>
MW IN 9.6 VIS 51
MW OUT 9.5+ VIS 49
C-5,4,3,2,1
MUD DATA @ 11589'
MW 9.65 FV 50 PV 20 YP 28
API FL 6.6 GELS 8/12/19 pH 9.7
CL- 800 Ca+ 40 SOL 6.5
24 HR LOSSES: 562 BBLS
NIGHT TOUR
TRANS COZZETTE @ 11664'
VERY EASILY FRIABLE TO SOFT SHOWS ABUND
LOOSE GRAINS; CEMENT CALCAREOUS W/ MINOR
KAOLIN W/ STRONG REACTION TO HCL; GRAIN
SUPPORTED; NO FLUORESCENCE; NO CUT.
CARBONACEOUS SHALE = BROWNISH GRAY TO
OLIVE GRAY TO BROWNISH BLACK; PLATY TO
TABULAR TO ELONGATED CUTTINGS HABIT;
SPLINTERY TO PLANAR TO BLOCKY FRACTURE;
EARTHY TO SEMI VITREOUS LUSTER; THINLY
INTERBEDDED WITH COAL LAMINAE; VISIBLE
DEGASSING ON SOME SAMPLE SPECIMENS; TR
PYRITIC VEINING ON SOME SAMPLE FRAGS.
SILTSTONE = OLIVE GRAY TO MEDIUM GRAY;
IRREGULAR TO PLANAR TO BLOCKY FRACTURE;
TABULAR TO WEDGELIKE TO ELONGATED
CUTTINGS HABIT; SILTY TO GRITTY TEXTURE;
SPARKLING TO SLIGHTLY EARTHY LUSTER; TR
LOOSE VERY FINE GRAIN SAND IN SAMPLE
FRAGMENTS; HARD TO DENSE TENACITY; TRACE
CARBONACEOUS SHALE/COAL FLECKS IN


COZETTE COASTAL @ 11722'
CG 1734u
MW IN 9.6 VIS 50
MW OUT 9.6 VIS 49
MAX GAS 1639u
C-5,4,3,2,1
11800
CG 1448u
11900
CG 1438u
SAMPLE SPECIMENS.
CARBONACEOUS SHALE = BROWNISH GRAY TO
OLIVE GRAY TO BROWNISH BLACK; BLOCKY
TO PLANAR TO SPLINTERY FRACTURE; PLATY
TO TABULAR TO WEDGELIKE CUTTINGS HABIT;
MATTE TO SEMI SILTY TEXTURE; THINLY
INTERBEDDED WITH COAL LAMINAE; SOME
VISIBLE DEGASSING IN SAMPLE FRAGMENTS.
SANDSTONE = OLIVE GRAY TO MEDIUM GRAY
TO LIGHT OLIVE GRAY; PREDOMINANTLY GRAIN
SUPPORTED WITH SILICA AND MINOR CALCITE
CEMENT; TRACE AMOUNT OF KAOLIN; VERY
FINE TO UPPER FINE GRAIN; SUBANGULAR TO
SUBROUND; MODERATE TO HIGH SPHERICITY;
FAIR TO WELL SORTED; THINLY INTERBEDDED
WITH COAL LAMINAE; TRACE AMOUNTS OF
MICRO PYRITE ON SANDSTONE FRAGMENTS;
NO VISIBLE HYDROCARBON INDICATORS.
SILTSTONE = MEDIUM TO DARK GRAY, GRAYISH


DAY TOUR
CORCORAN CP @ 11955'
<150 ROP 0>
<50 Avg WOB 0>
12000
CORCORAN 6 @ 12043'
WOB 20 - 21
PP 2253
12100
RPM 44
GPM 273
CORCORAN 5 @ 12132'
MW IN 9.6+ VIS 50
MW OUT 9.6+ VIS 50
C-5,4,3,2,1
<0 Ttl Gas 1K><0 Meth C-1 100K>
<0 CO2 10K><0 Etnn C-2 100K>
CG 1713u
<0 Flare Ht. 100><10 Prop C-3 100K>
<0 Buth C-4 100K>
<0 Pent C-5 100K>
CG 1361u
MW IN 9.6 VIS 47
MW OUT 9.5+ VIS 49
BROWN TO DUSKY YELLOWISH BROWN; HARD
TO VERY BRITTLE WITH SOME VERY CRUNCHY;
FRACTURE HACKLY TO SUB PLANAR; CUTTINGS
HABIT MASSIVE WITH COMMON WEDGE LIKE
AND RARE SEMI BLOCKY; LUSTER DULL TO
SLIGHTLY EARTHY; TEXTURE VERY SILTY TO
SOME SLIGHT GRITTINESS DUE TO SOME THIN
DISCONTINUOUS SAND LENSES; STRUCTURE
MASSIVE; INTERBEDDED WITH SANDSTONES.
SANDSTONE = WHITE, VERY PALE ORANGE,
VERY LIGHT GRAY, LIGHT BROWNISH GRAY, TO
GRAYISH RED;MEDIUM TO VERY FINE GRAINED;
PREDOMINANTLY VERY FINE GRAINED; POORLY
TO FAIRLY WELL SORTED; SUBANGULAR TO SUB
ROUNDED; EASILY TO FIRMLY FRIABLE;
MODERATE CALCITE CEMENT; MOSTLY GRAIN
SUPPORTED WITH LESSER ARGILLACEOUS
MATRIX; CUTTINGS WITH VERY FINE GRAIN
SIZE CONTAIN LENSES AND THIN IRREGULAR
INTERBEDDED COAL OR CARBONACEOUS
MATERIAL; NO FLUORESCENCE.


12200
12300
CORCORAN 4 @ 12212'
CORCORAN 3 @ 12284'
NIGHT TOUR
C-5,4,3,2,1
CG 1688u
DTG 1511u
CG 1715u
MUD DATA @ 12335'
MW 9.60 FV 50 PV 19 YP 26
API FIL 6.6 GELS 8/11/17 pH 9.7
CL- 800 Ca+ 40 SOL 6.1
CARBONACEOUS SHALE = DARK GRAY, LIGHT
GRAY, GRAYISH RED PURPLE,TO GRAYISH RED
TOUGH, DENSE TO CRUMBLY TENACITY;
IRREGULAR, BLOCKY TO HACKLY FRACTURE;
MASSIVE, FLAKY TO WEDGELIKE CUTTINGS;
DULL TO EARTHY LUSTER; SILTY, GRITTY TO
CLAYEY TEXTURE; CONTAINS THIN BEDS TO
IRREGULAR LENSES OF COAL, PYRITE,SAND
OR SILT; NO VISIBLE DEGASSING.
SANDSTONE = LIGHT TO MEDIUM GRAY; FRAME
WORK PREDOMINANTLY QUARTZ; UPPER VERY
FINE TO UPPER FINE W/ RARE LOWER MEDIUM;
MODERATELY WELL SORTED; SUB ROUNDED TO
SUB ANGULAR; HIGH TO MODERATELY HIGH
SPHERICITY; PRESENTS PREDOMINANTLY AS
LOOSE GRAINS; CEMENTATION CALCAREOUS/
ARGILLACEOUS WITH MODERATELY STRONG
REACTION TO HCl; GRAIN SUPPORTED IN
PRESERVED SPECIMENS; NO FLUORESCENCE;
NO CUT.


MAX GAS 1306u
HR LOSSES: 510 BBLS
C-5,4,3,2,1
CG 1732u
12400
COAL = BLACK TO BROWNISH BLACK; BLOCKY
TO SUB CONCHOIDAL TO SPLINTERY FRACTURE;
TABULAR TO ELONGATED TO PLATY CUTTINGS
CORCORAN 2 @ 12417'
HABIT; SMOOTH TO MATTE TEXTURE; THINLY
INTERBEDDED WITH CARBONACEOUS SHALE;
VITREOUS TO DULL EARTHY LUSTER; TRACE
DISSEMINATED MICRO PYRITE IN SAMPLE.
MAX GAS 1712u
CARBONACEOUS SHALE = BROWNISH BLACK TO
MAX GAS 1733u
OLIVE GRAY TO DARK GRAY; BLOCKY TO
07/31/2010
CG 1098u
PLANAR TO SPLINTERY FRACTURE; WEDGELIKE
<150 ROP 0>
<0 Ttl Gas 1K><0 Meth C-1 100K>
TO TABULAR TO PLATY CUTTINGS HABIT;
12500
<50 Avg WOB 0>
<0 CO2 10K><0 Ethn C-2 100K>
MATTE TO SEMI SILTY TEXTURE; GRADES TO
<0 Flare Ht. 100><10 Prop C-3 100K>
CORCORAN 1 @ 12519'
OLIVE GRAY SILTSTONE; THINLY INTERBEDDED
<0 Butn C-4 100K>
WITH COAL LAMINAE; VISIBLE DEGASSING IN
<0 Pent C-5 100K>
SOME SAMPLE FRAGMENTS; HIGH GAS AND ROP
MAX GAS 1611u
MW IN 9.7 VIS 50
ASSOCIATED WITH COAL/CARBONACEOUS SHALE
CORCORAN MARINE @ 12562'
MW OUT 9.7 VIS 49
INTERBEDDED WITH SANDSTONE INTERVALS.
C-5,4,3,2,1
SILTSTONE = DUSKY BROWN TO DUSKY
DAY TOUR
CG 1803u
YELLOWISH BROWN, GRAYISH BROWN;


12600
WOB 20-21K
PP 2247
RPM 52
GPM 273
MAX GAS 917u
CG 1800u
12700
MW IN 9.7 VIS 52
MW OUT 9.7 VIS 52
C-4,3,2,1
CG 547u
12800
HARD TO CRUNCHY AND BRITTLE TENACITY;
FRACTURE HACKLY; CUTTINGS HABIT MASSIVE
TO SUB BLOCKY W/ RARE WEDGE-LIKE; LUSTER
DULL; TEXTURE SILTY TO SLIGHTLY GRITTY
AND SOMEWHAT SUCROSIC; STRUCTURE
PREDOMINANTLY MASSIVE WITH OCCASIONAL
RARE THIN DISCONTINUOUS WEDGELIKE SAND
LENSES; INTERBEDDED WITH VERY THIN
LAMINAE KAOLINITIC SANDSTONE AND SHALE.
SHALE = LIGHT GRAY, MEDIUM GRAY,TO LIGHT
BLUISH GRAY. MEDIUM BROWN TO DUSKY
YELLOWISH BROWN; HARD TO DENSE BRITTLE
TENACITY; CUTTINGS HABIT SUB BLOCKY WITH
COMMON TO OCC WEDGELIKE SPECIMENS;
TEXTURE MASSIVE TO THINLY LAMINATED, W/
VERY THIN LINEATIONS BLACK CARBONACEOUS
MATERIAL, RARE PYRITE ACCESSORY.
NOTE: TD PCU 197-34A3 0N 7/31/2010 AT
12800'MD (12446' TVD)