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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

CASING DATA

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

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

MUD TYPES

HOLE SIZE

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

9.875" TO 8,648"
6.125" TO 12,457'
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	KAOLINIC	RECRYSTALLIZED CALCITE	VOLCANICS
CHALK	DIATOMITE	LIMESTONE	RHYOLITE	
CRYSTALLINE TUFF	DIORITE	LITHIC TUFF	SALT	
CHERT - ARGILL	DOLOSTONE	MARL - DOLO	SAND	

<300	ROP	0>
ft/hr		
<50	Avg WOB	0>
klbs		

Depth

3600

Lithology

MGS	<0	Ttl Gas units	1.5K>	<10	Meth C-1 ppm	100K>
	<0	CO2 ppm	50K>	<10	Ethn C-2	100K>
	<0	Flare Ht. ft	100>	<10	Prop C-3	100K>
	<0			<10	Butn C-4	100K>
				<10	Pent C-5	100K>

Interp. Lith

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. ALL SAMPLE DEPTHS ARE REFERENCED TO RKB.

CONNECTION GASES AS WELL AS TRIP AND DOWNTIME GASES ARE NOTED ON THE LOG.

LARGE CONNECTION GASES WHICH APPEAR ON THE MUD LOG USUALLY REFLECT UPHOLE GAS INTERVALS BLEEDING GAS INTO THE BOREHOLE DURING CONNECTIONS.

GAS CHROMATOGRAPHY EQUIPMENT IS CALIBRATED TO A TEST GAS COMPOSED OF

METHANE = 10000 PPM

ETHANE = 1000 PPM

PROPANE = 1000 PPM

3700

3800

3900

I-BUTANE = 1000 PPM

N-BUTANE = 1000 PPM

I-PENTANE = 1000 PPM

N-PENTANE = 1000 PPM

WHEN THE MUD IS RUN THROUGH THE GAS

BUSTER THE INTERVAL IS MARKED ON THE MGS

COLUMN AND SIZE OF FLARES NOTED.

EVIDENCE OF FRACTURE FILL IS NOTED ON

THE MUD LOG AS METAMORPHICS. KAOLIN

PERCENTAGE IN SS INTERVALS IS ALSO NOTED

1 UNIT OF GAS = 200 PPM METHANE

SHALE = BLUISH GRAY TO GRAY MOTTLED

WITH ORANGE-BROWN HUES; BRITTLE TO

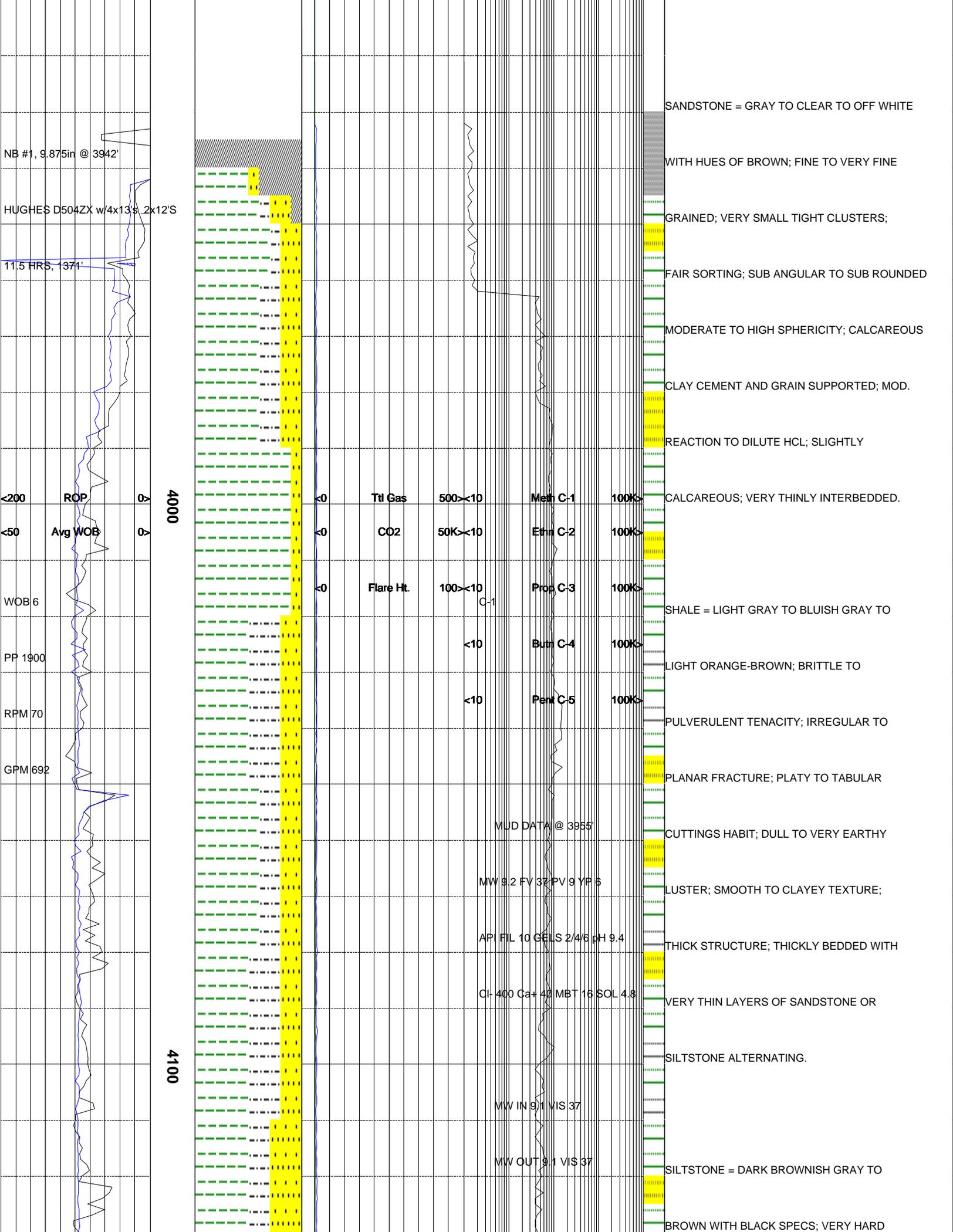
PULVERULENT; IRREGULAR TO PLANAR

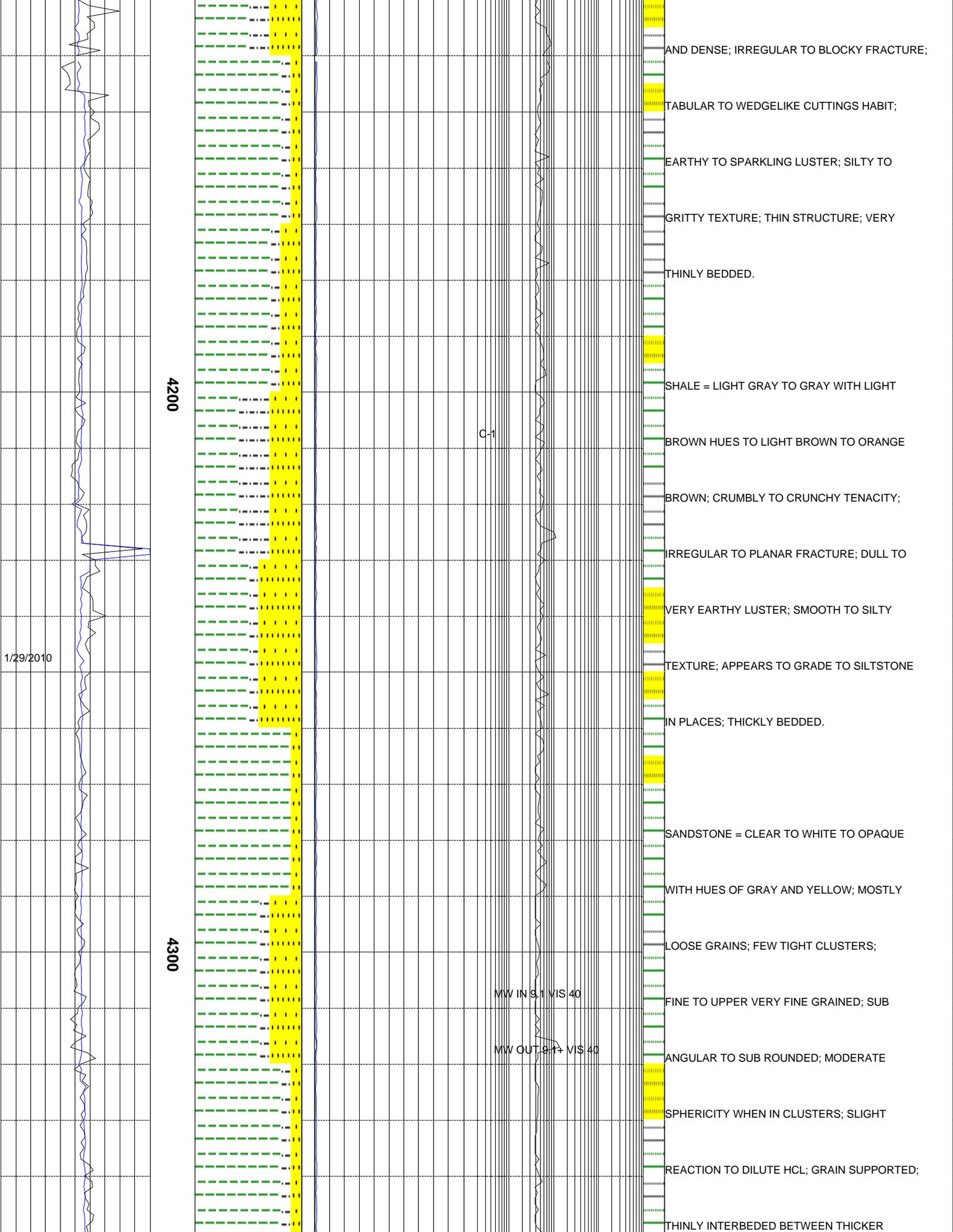
FRACTURE; MASSIVE TO PLATY TO TABULAR

CUTTINGS HABIT; DULL TO VERY EARTHY

LUSTER; SMOOTH TO CLAYEY TEXTURE;

THICK STRUCTURE; THICKLY BEDDED.





4200

4300

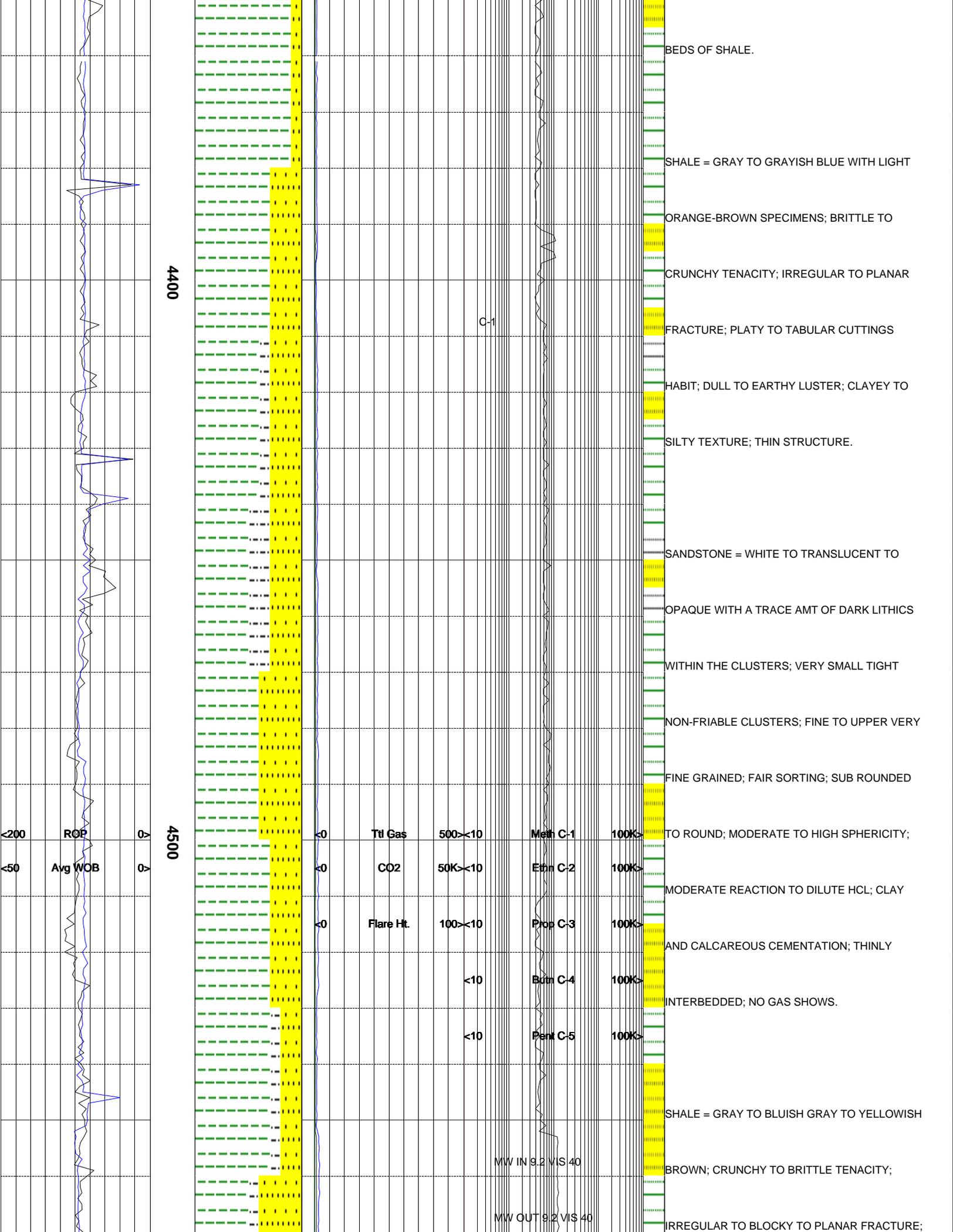
AND DENSE; IRREGULAR TO BLOCKY FRACTURE;
 TABULAR TO WEDGELIKE CUTTINGS HABIT;
 EARTHY TO SPARKLING LUSTER; SILTY TO
 GRITTY TEXTURE; THIN STRUCTURE; VERY
 THINLY BEDDED.
 SHALE = LIGHT GRAY TO GRAY WITH LIGHT
 BROWN HUES TO LIGHT BROWN TO ORANGE
 BROWN; CRUMBLY TO CRUNCHY TENACITY;
 IRREGULAR TO PLANAR FRACTURE; DULL TO
 VERY EARTHY LUSTER; SMOOTH TO SILTY
 TEXTURE; APPEARS TO GRADE TO SILTSTONE
 IN PLACES; THICKLY BEDDED.
 SANDSTONE = CLEAR TO WHITE TO OPAQUE
 WITH HUES OF GRAY AND YELLOW; MOSTLY
 LOOSE GRAINS; FEW TIGHT CLUSTERS;
 FINE TO UPPER VERY FINE GRAINED; SUB
 ANGULAR TO SUB ROUNDED; MODERATE
 SPHERICITY WHEN IN CLUSTERS; SLIGHT
 REACTION TO DILUTE HCL; GRAIN SUPPORTED;
 THINLY INTERBEDDED BETWEEN THICKER

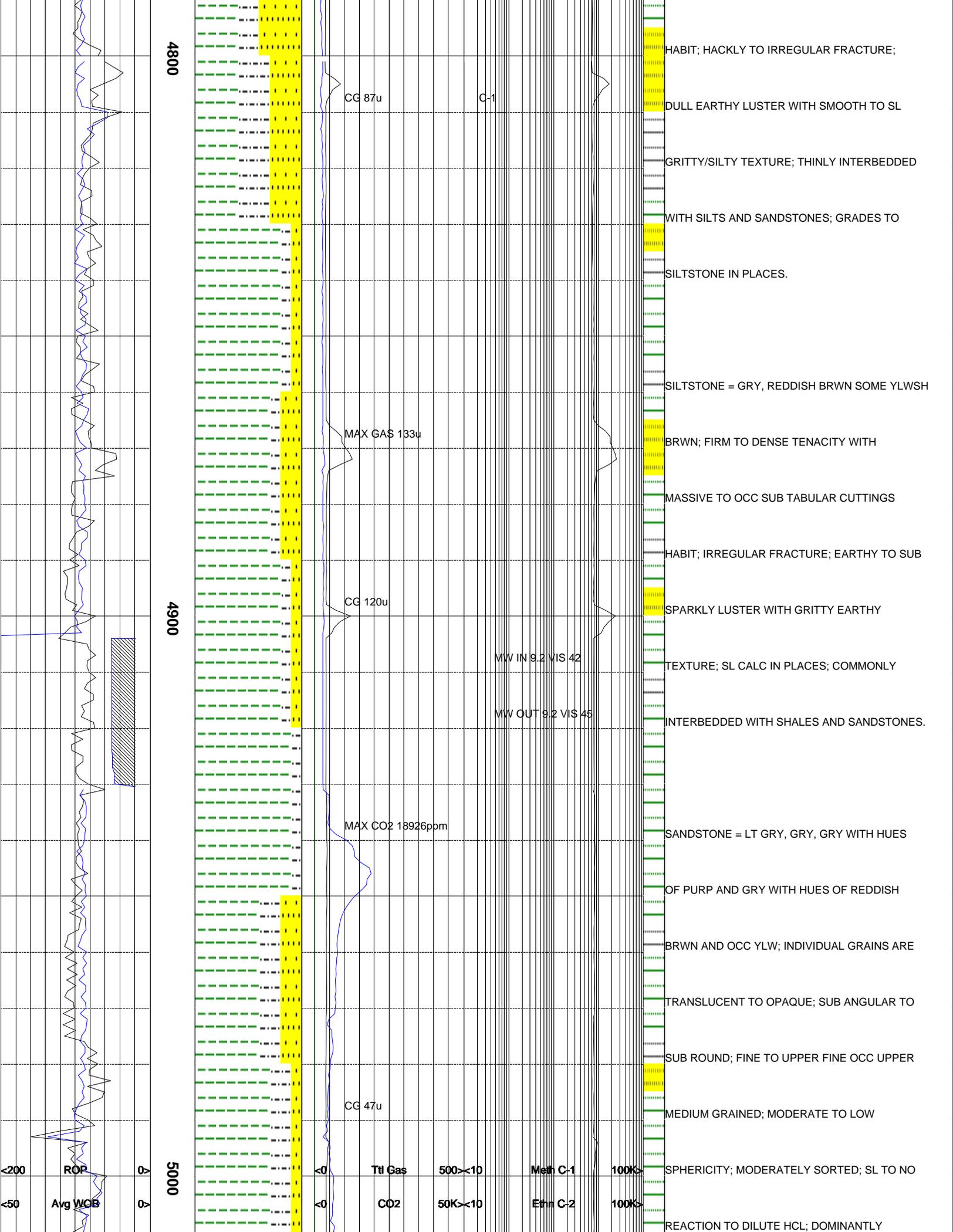
C-1

MW IN 3.1 VIS 40

MW OUT 2.1 VIS 40

1/29/2010





4800

4900

5000

CG 87u

C-1

MAX GAS 133u

CG 120u

MW IN 9.2 VIS 42

MW OUT 9.2 VIS 45

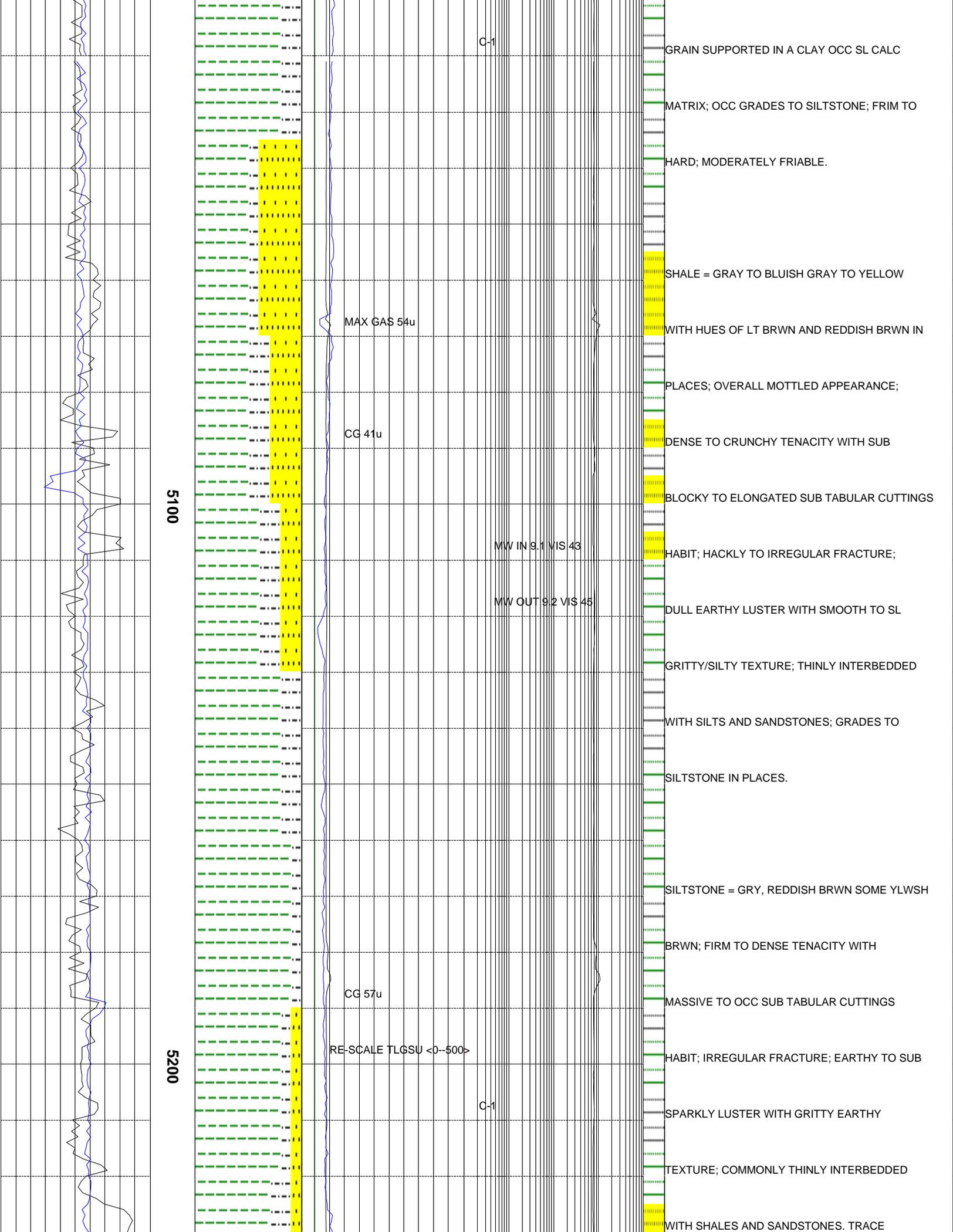
MAX CO2 18926ppm

CG 47u

HABIT; HACKLY TO IRREGULAR FRACTURE;
 DULL EARTHY LUSTER WITH SMOOTH TO SL
 GRITTY/SILTY TEXTURE; THINLY INTERBEDDED
 WITH SILTS AND SANDSTONES; GRADES TO
 SILTSTONE IN PLACES.
 SILTSTONE = GRY, REDDISH BRWN SOME YLWSH
 BRWN; FIRM TO DENSE TENACITY WITH
 MASSIVE TO OCC SUB TABULAR CUTTINGS
 HABIT; IRREGULAR FRACTURE; EARTHY TO SUB
 SPARKLY LUSTER WITH GRITTY EARTHY
 TEXTURE; SL CALC IN PLACES; COMMONLY
 INTERBEDDED WITH SHALES AND SANDSTONES.
 SANDSTONE = LT GRY, GRY, GRY WITH HUES
 OF PURP AND GRY WITH HUES OF REDDISH
 BRWN AND OCC YLW; INDIVIDUAL GRAINS ARE
 TRANSLUCENT TO OPAQUE; SUB ANGULAR TO
 SUB ROUND; FINE TO UPPER FINE OCC UPPER
 MEDIUM GRAINED; MODERATE TO LOW
 SPHERICITY; MODERATELY SORTED; SL TO NO
 REACTION TO DILUTE HCL; DOMINANTLY

200 ROP
 50 Avg WCB

Ttl Gas 500 < 10
 CO2 50K < 10
 Meth C-1 100K >
 Ethn C-2 100K >



5100

5200

C-1

MW IN 9.1 VIS 43

MW OUT 9.2 VIS 45

C-1

MAX GAS 54u

CG 41u

CG 57u

RE-SCALE TLGSU <0--500>

GRAIN SUPPORTED IN A CLAY OCC SL CALC

MATRIX; OCC GRADES TO SILTSTONE; FRIM TO

HARD; MODERATELY FRIABLE.

SHALE = GRAY TO BLUISH GRAY TO YELLOW

WITH HUES OF LT BRWN AND REDDISH BRWN IN

PLACES; OVERALL MOTTLED APPEARANCE;

DENSE TO CRUNCHY TENACITY WITH SUB

BLOCKY TO ELONGATED SUB TABULAR CUTTINGS

HABIT; HACKLY TO IRREGULAR FRACTURE;

DULL EARTHY LUSTER WITH SMOOTH TO SL

GRITTY/SILTY TEXTURE; THINLY INTERBEDDED

WITH SILTS AND SANDSTONES; GRADES TO

SILTSTONE IN PLACES.

SILTSTONE = GRY, REDDISH BRWN SOME YLWSH

BRWN; FIRM TO DENSE TENACITY WITH

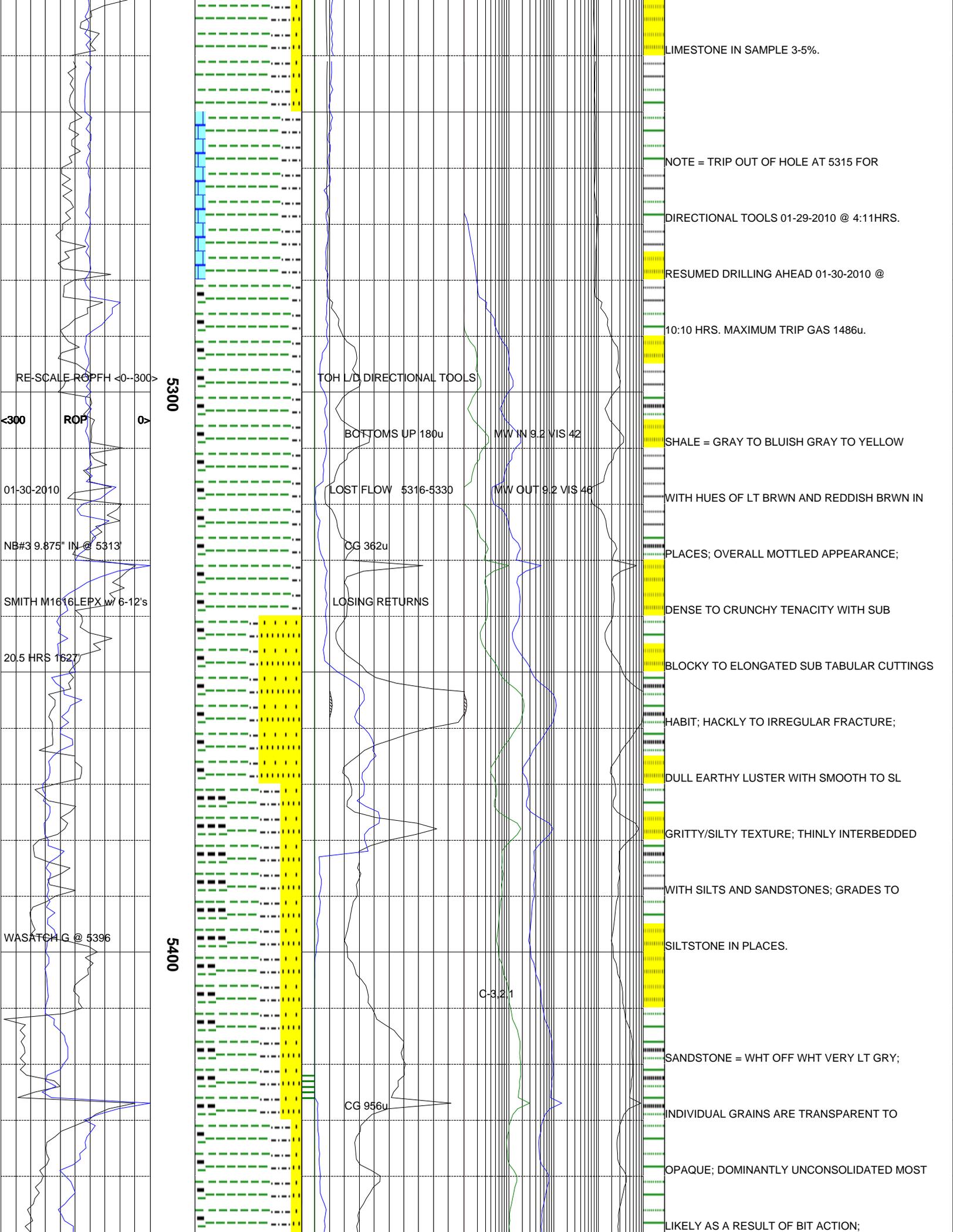
MASSIVE TO OCC SUB TABULAR CUTTINGS

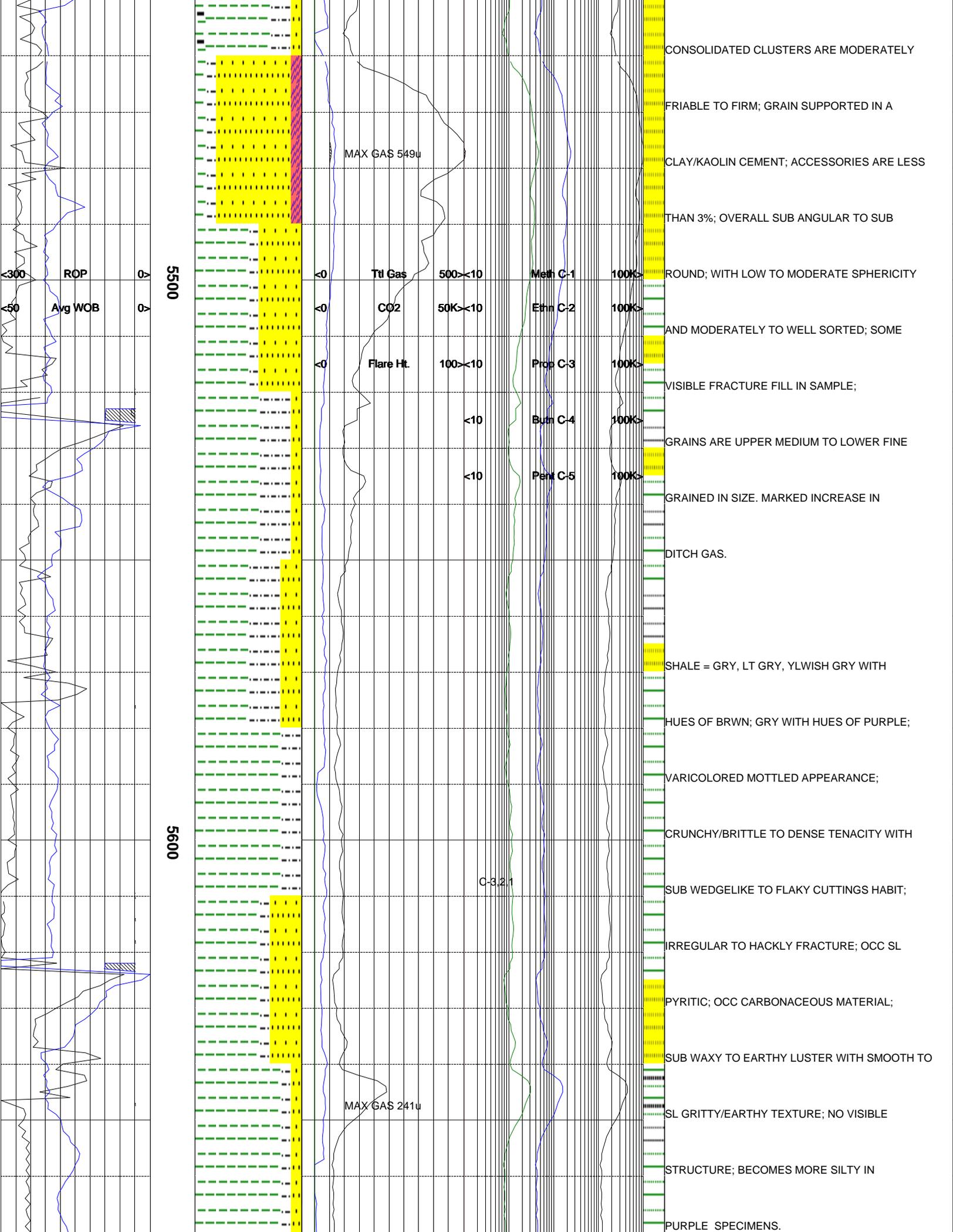
HABIT; IRREGULAR FRACTURE; EARTHY TO SUB

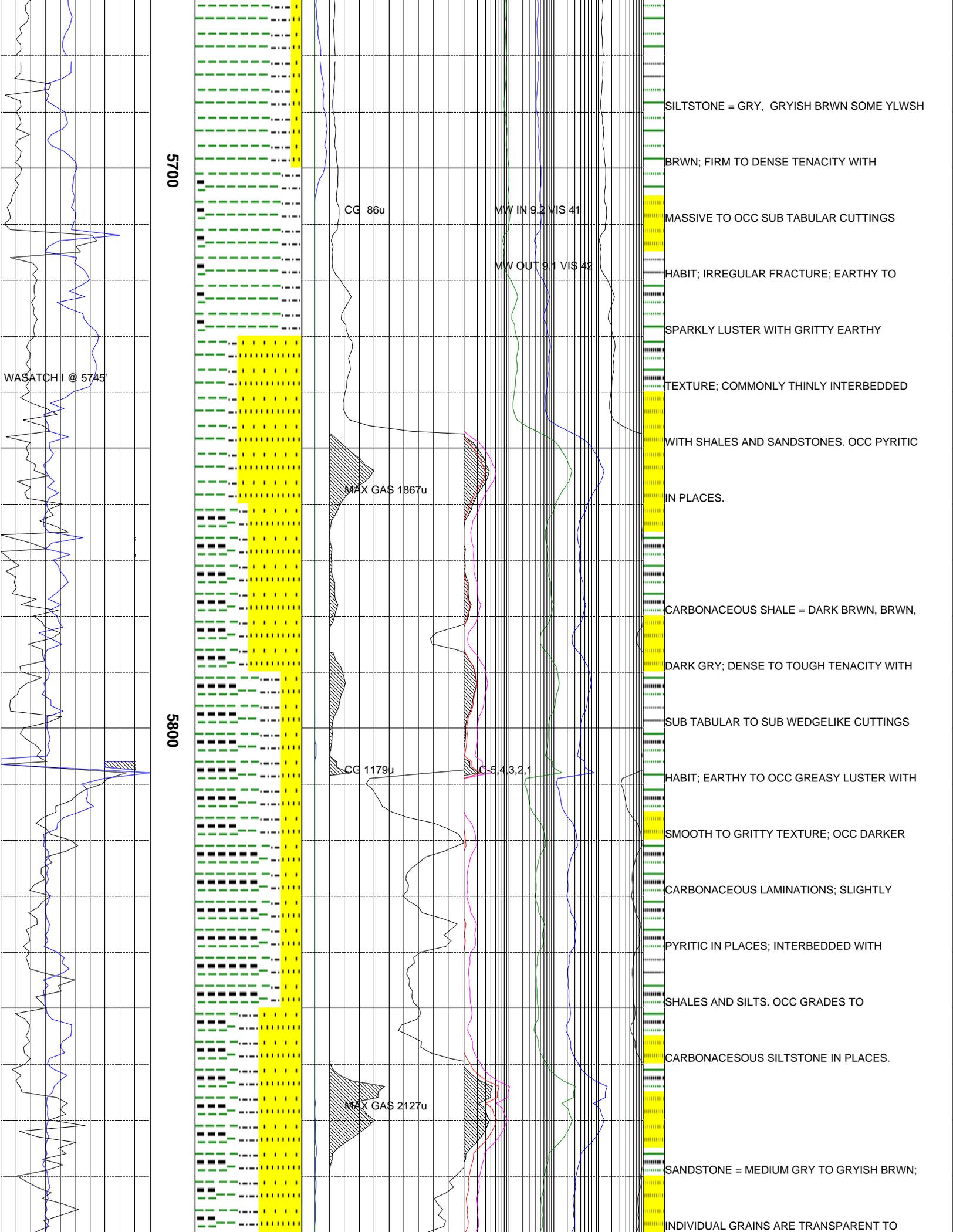
SPARKLY LUSTER WITH GRITTY EARTHY

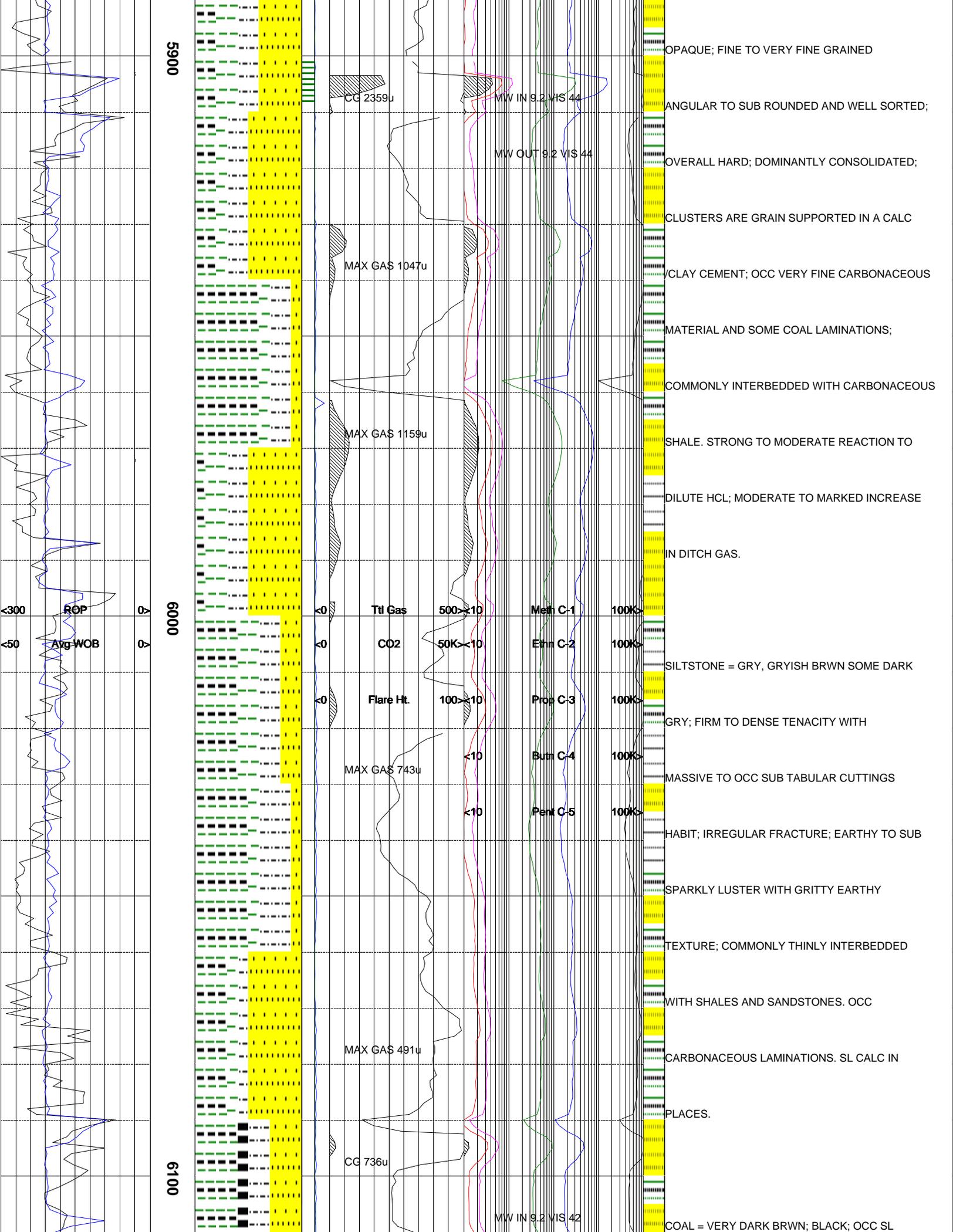
TEXTURE; COMMONLY THINLY INTERBEDDED

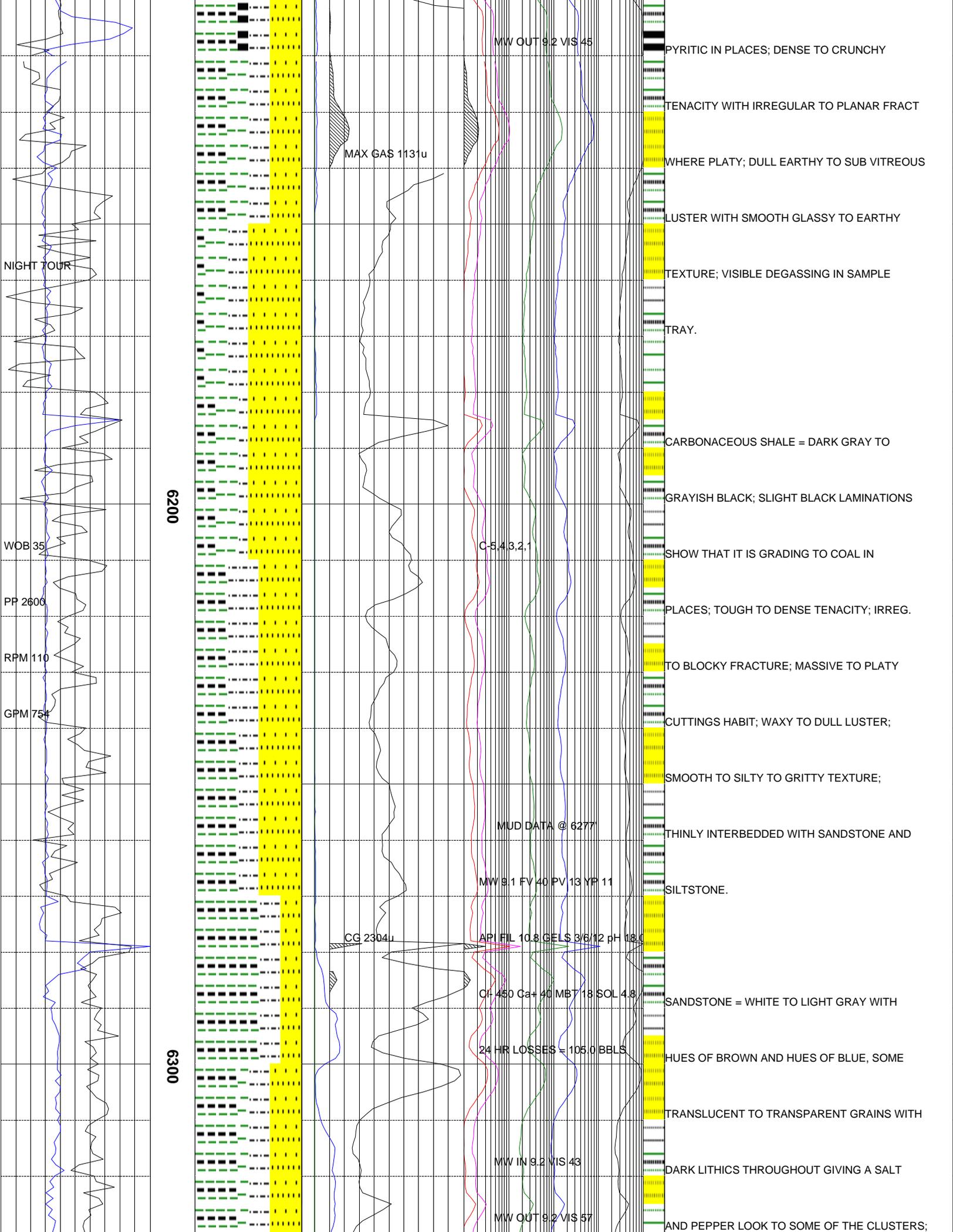
WITH SHALES AND SANDSTONES. TRACE

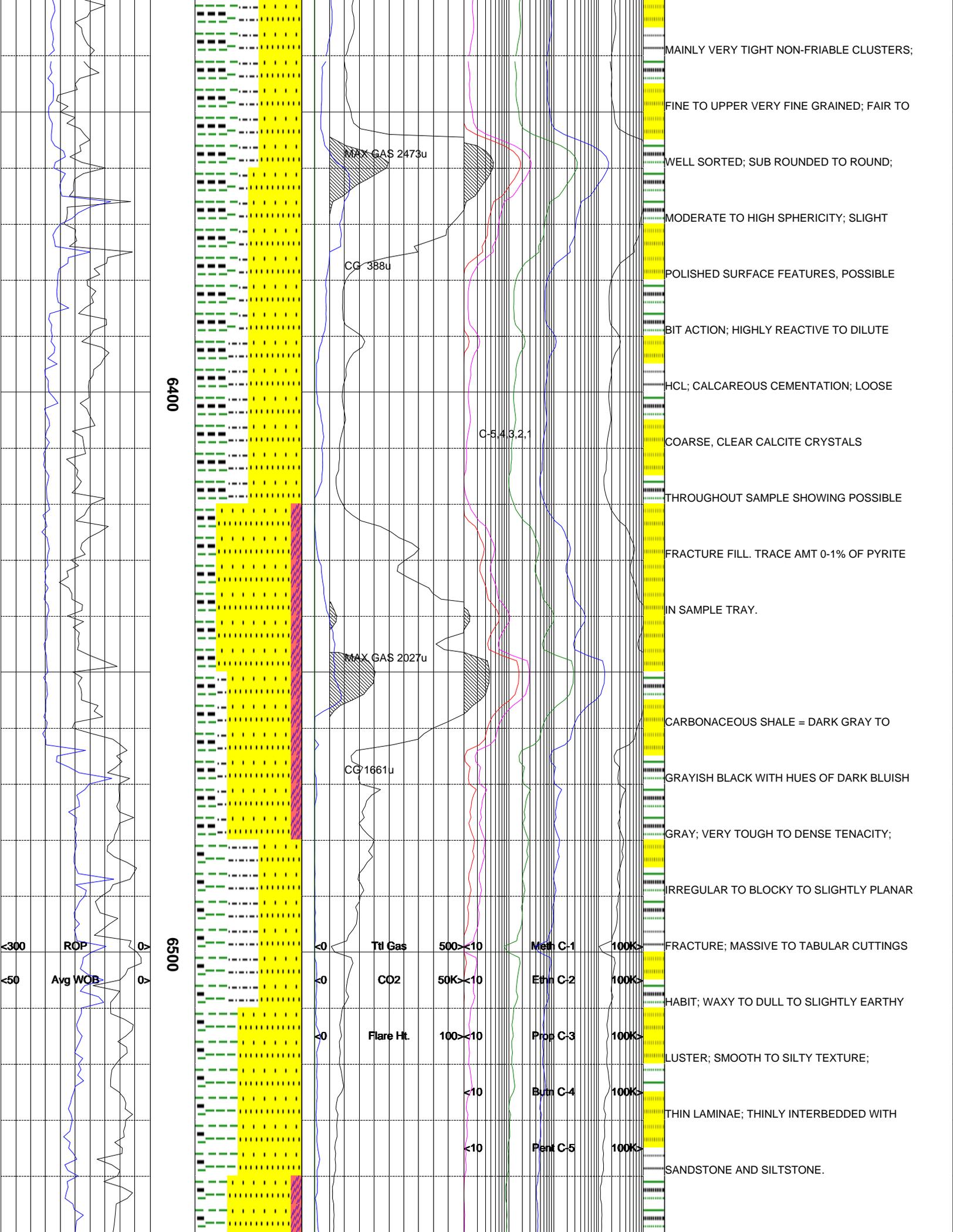












MAINLY VERY TIGHT NON-FRIABLE CLUSTERS;
 FINE TO UPPER VERY FINE GRAINED; FAIR TO
 WELL SORTED; SUB ROUNDED TO ROUND;
 MODERATE TO HIGH SPHERICITY; SLIGHT
 POLISHED SURFACE FEATURES, POSSIBLE
 BIT ACTION; HIGHLY REACTIVE TO DILUTE
 HCL; CALCAREOUS CEMENTATION; LOOSE
 COARSE, CLEAR CALCITE CRYSTALS
 THROUGHOUT SAMPLE SHOWING POSSIBLE
 FRACTURE FILL. TRACE AMT 0-1% OF PYRITE
 IN SAMPLE TRAY.
 CARBONACEOUS SHALE = DARK GRAY TO
 GRAYISH BLACK WITH HUES OF DARK BLUISH
 GRAY; VERY TOUGH TO DENSE TENACITY;
 IRREGULAR TO BLOCKY TO SLIGHTLY PLANAR
 FRACTURE; MASSIVE TO TABULAR CUTTINGS
 HABIT; WAXY TO DULL TO SLIGHTLY EARTHY
 CLUSTER; SMOOTH TO SILTY TEXTURE;
 THIN LAMINAE; THINLY INTERBEDDED WITH
 SANDSTONE AND SILTSTONE.

MAX GAS 2473u
 CG 388u

CG 1661u
 MAX GAS 2027u

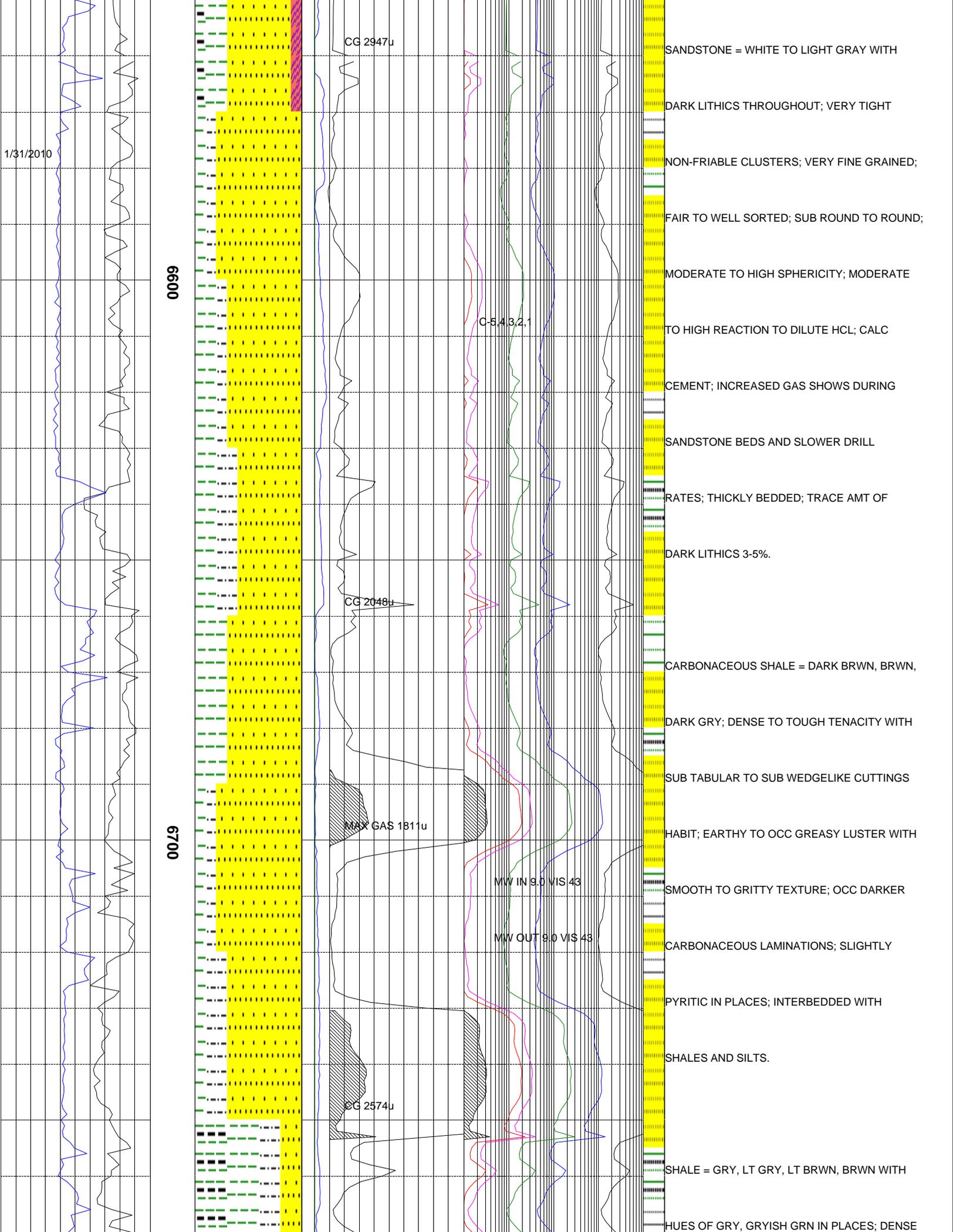
C-5.43.2.1

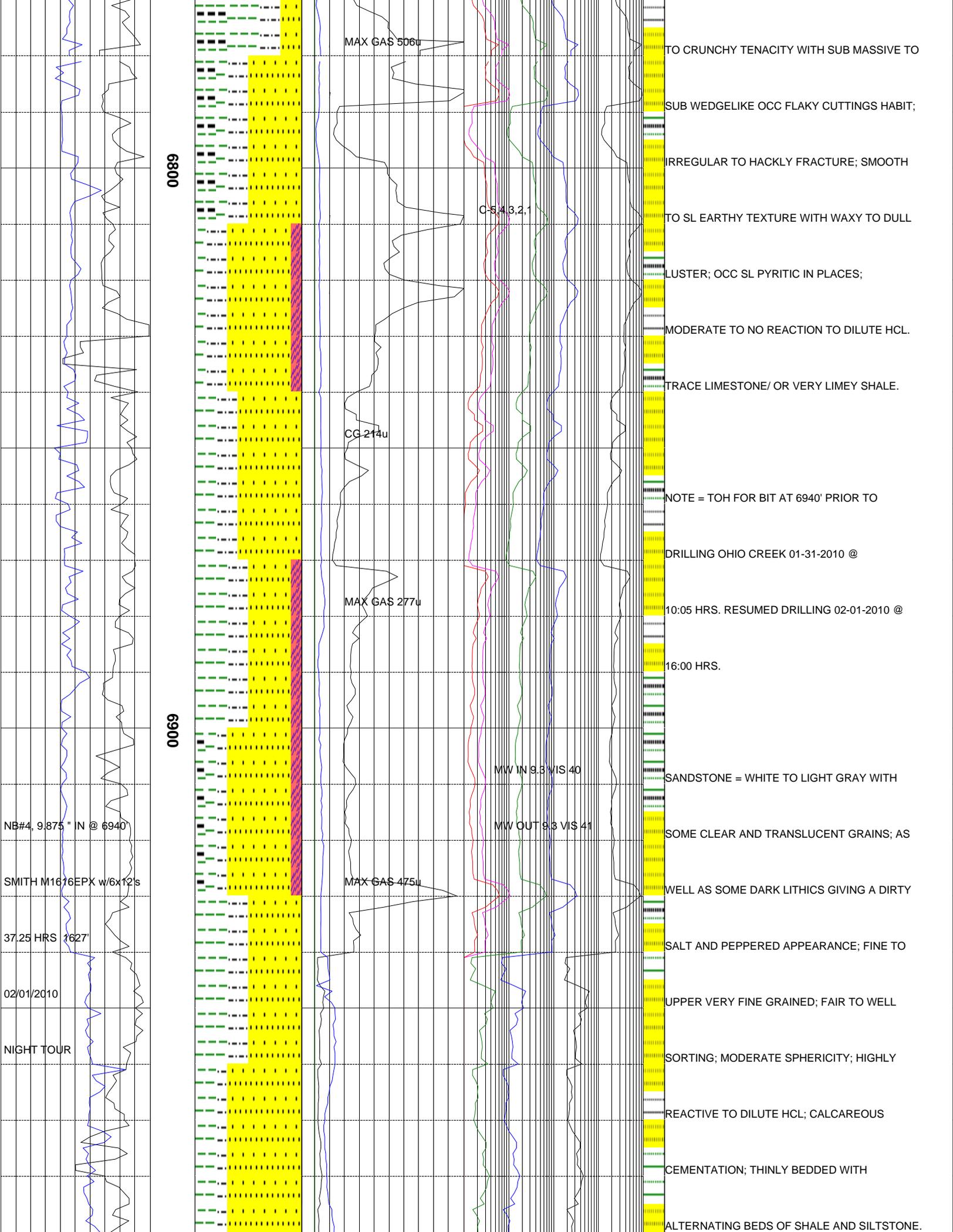
6400

6500

300 ROP
 50 Avg WOB

<math><0</math>	Ttl Gas	500	<math><10</math>	Meth C-1	100K
<math><0</math>	CO2	50K	<math><10</math>	Ethn C-2	100K
<math><0</math>	Flare Ht.	100	<math><10</math>	Prop C-3	100K
			<math><10</math>	Butn C-4	100K
			<math><10</math>	Pent C-5	100K





0089

0069

MAX GAS 506u

C-5.43.2.1

CG-214u

MAX GAS 277u

MW IN 9.3 VIS 40

MW OUT 9.3 VIS 41

MAX GAS 475u

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
 LUSTER; 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.

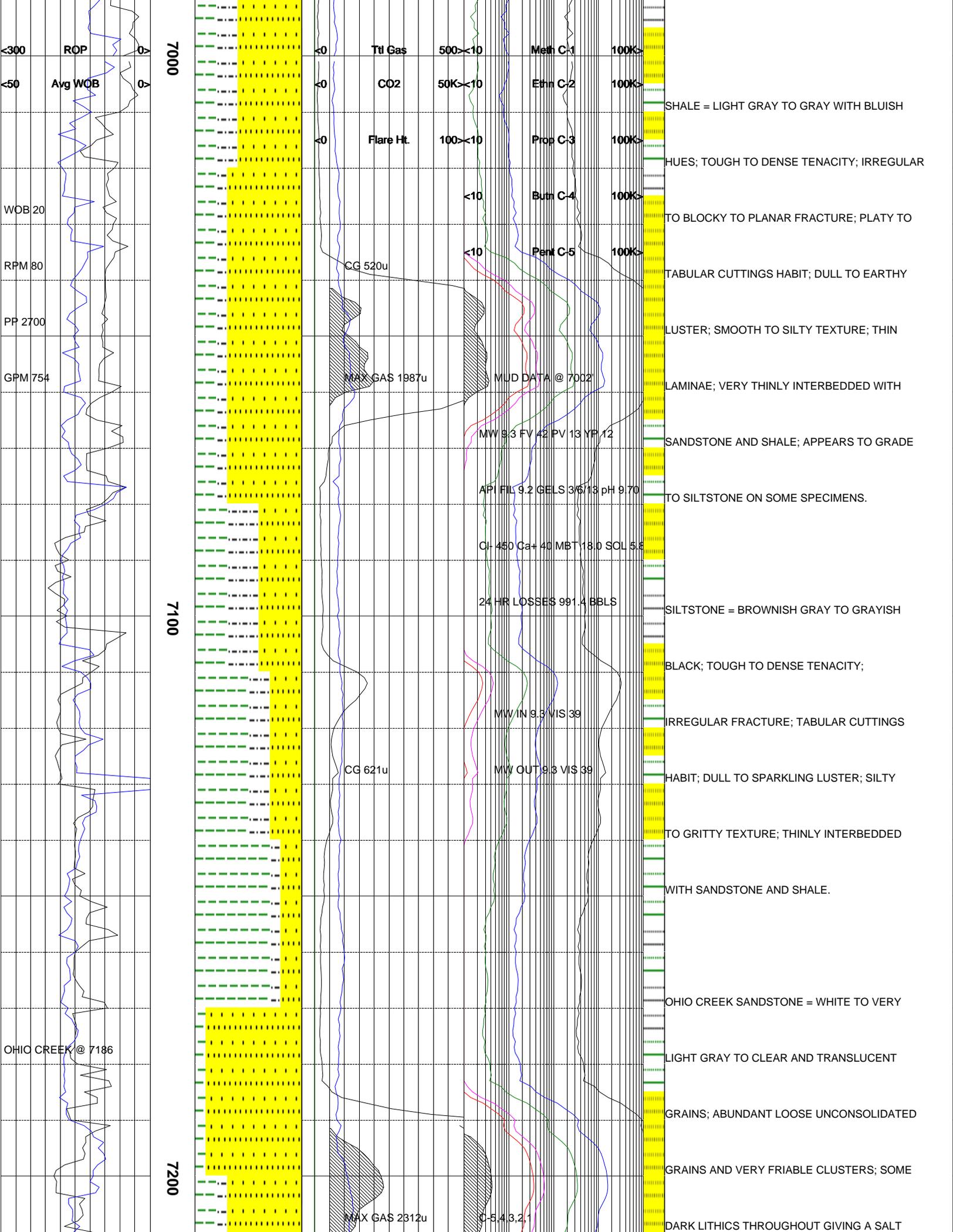
NB#4, 9.875" IN @ 6940'

SMITH M1616EPX w/6x12's

37.25 HRS 1627'

02/01/2010

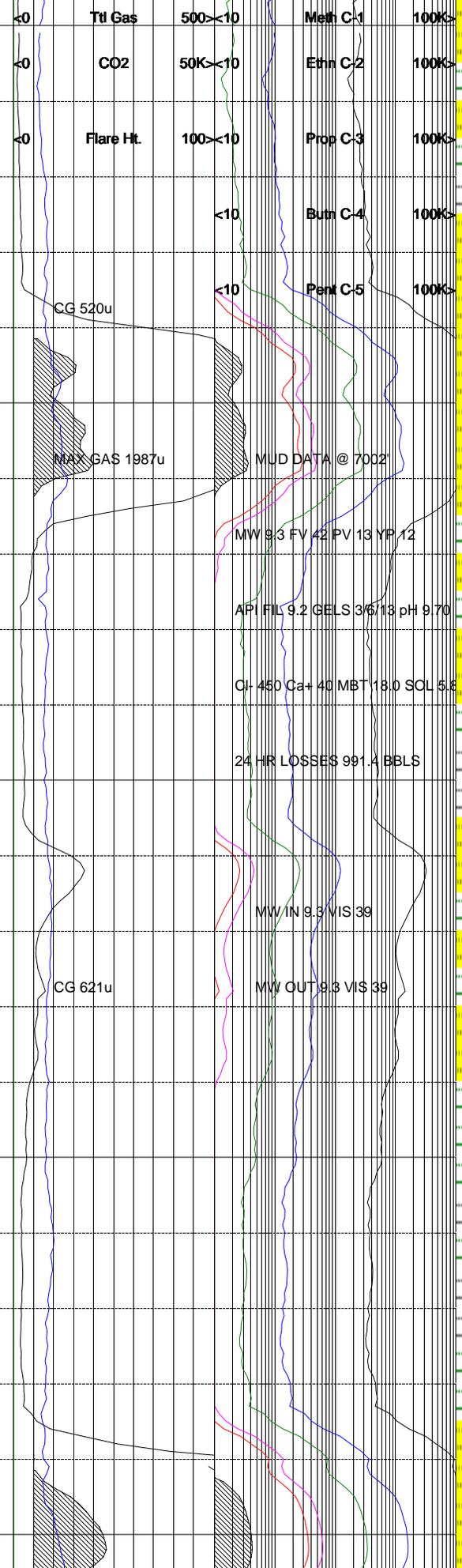
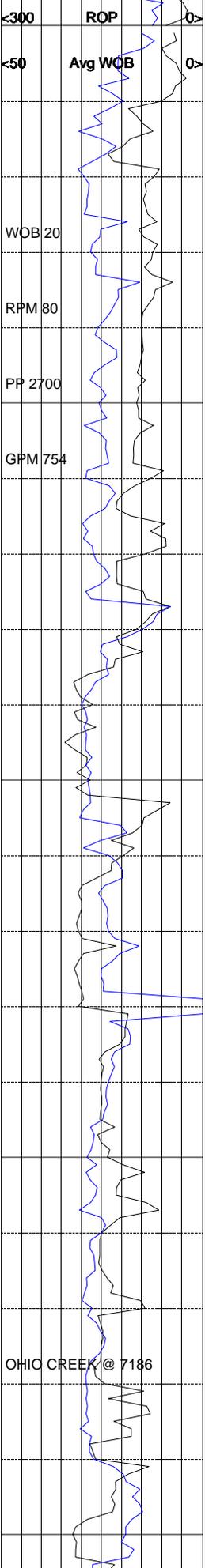
NIGHT TOUR



7000

7100

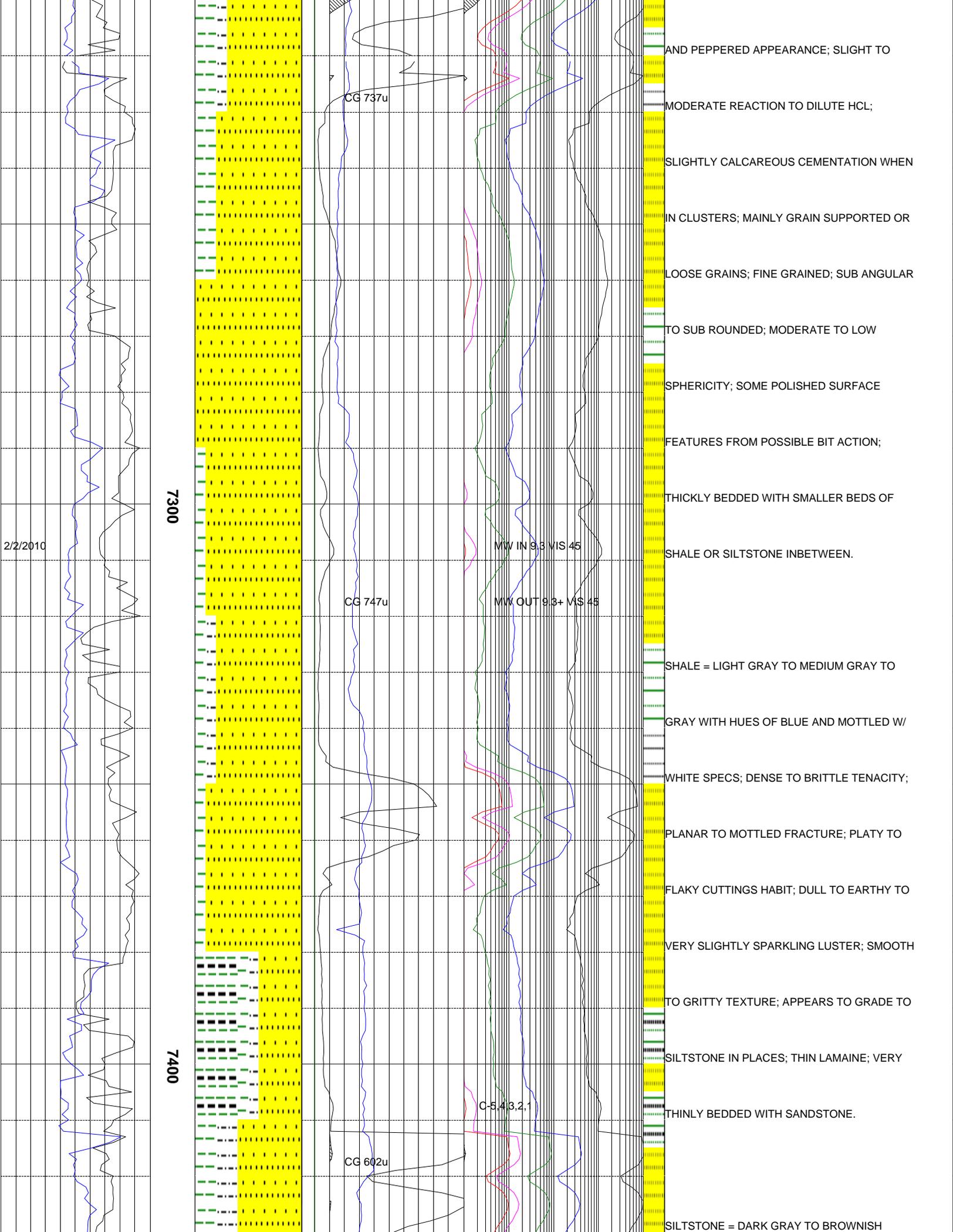
7200



SHALE = LIGHT GRAY TO GRAY WITH BLUISH HUES; TOUGH TO DENSE TENACITY; IRREGULAR TO BLOCKY TO PLANAR FRACTURE; PLATY TO TABULAR CUTTINGS HABIT; DULL TO EARTHY LUSTER; SMOOTH TO SILTY TEXTURE; THIN LAMINAE; VERY THINLY INTERBEDDED WITH SANDSTONE AND SHALE; APPEARS TO GRADE TO SILTSTONE ON SOME SPECIMENS.

SILTSTONE = BROWNISH GRAY TO GRAYISH BLACK; TOUGH TO DENSE TENACITY; IRREGULAR FRACTURE; TABULAR CUTTINGS HABIT; DULL TO SPARKLING LUSTER; SILTY TO GRITTY TEXTURE; THINLY INTERBEDDED WITH SANDSTONE AND SHALE.

OHIO CREEK SANDSTONE = WHITE TO VERY LIGHT GRAY TO CLEAR AND TRANSLUCENT GRAINS; ABUNDANT LOOSE UNCONSOLIDATED GRAINS AND VERY FRIABLE CLUSTERS; SOME DARK LITHICS THROUGHOUT GIVING A SALT



2/2/2010

7300

7400

CG 737u

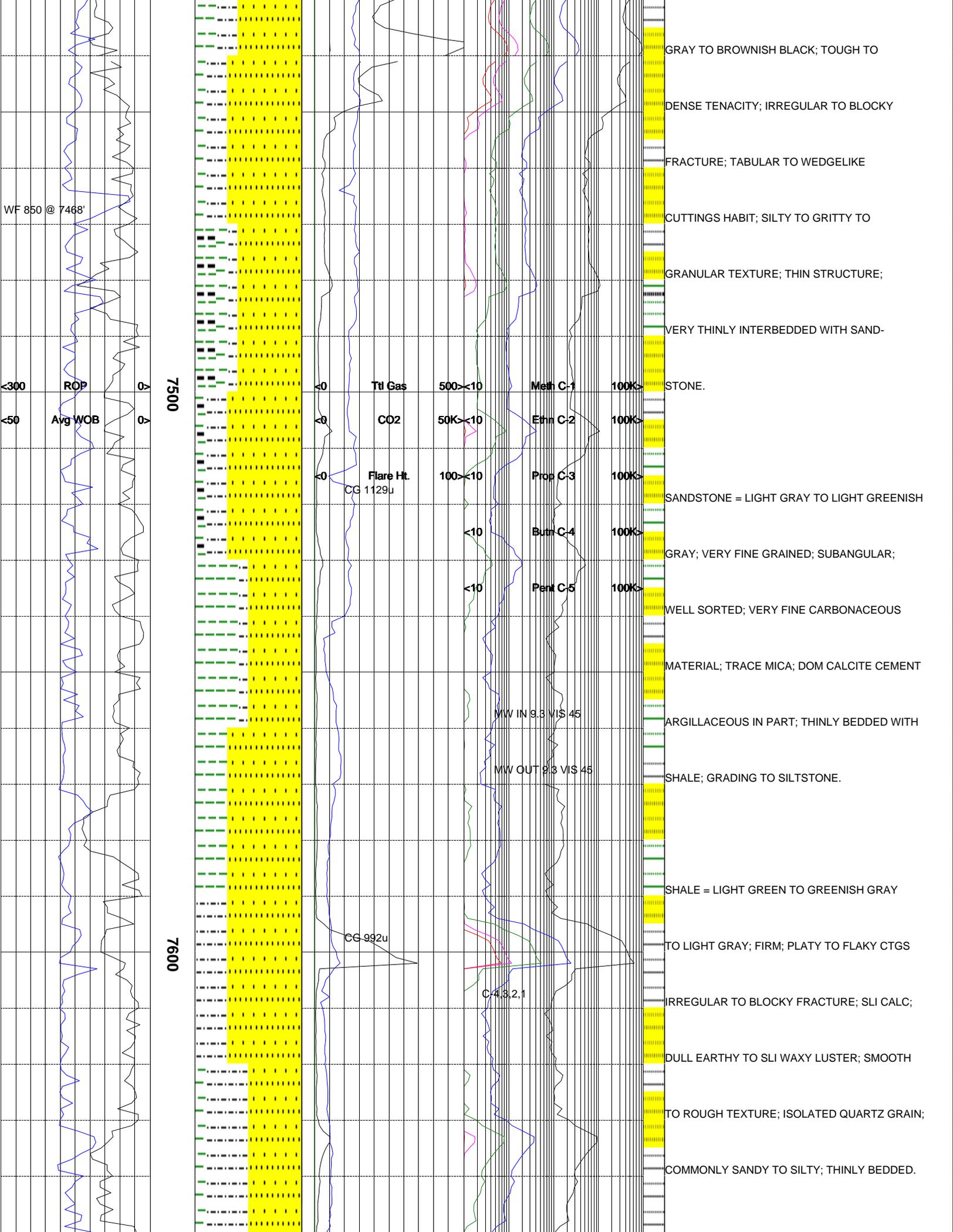
CG 747u

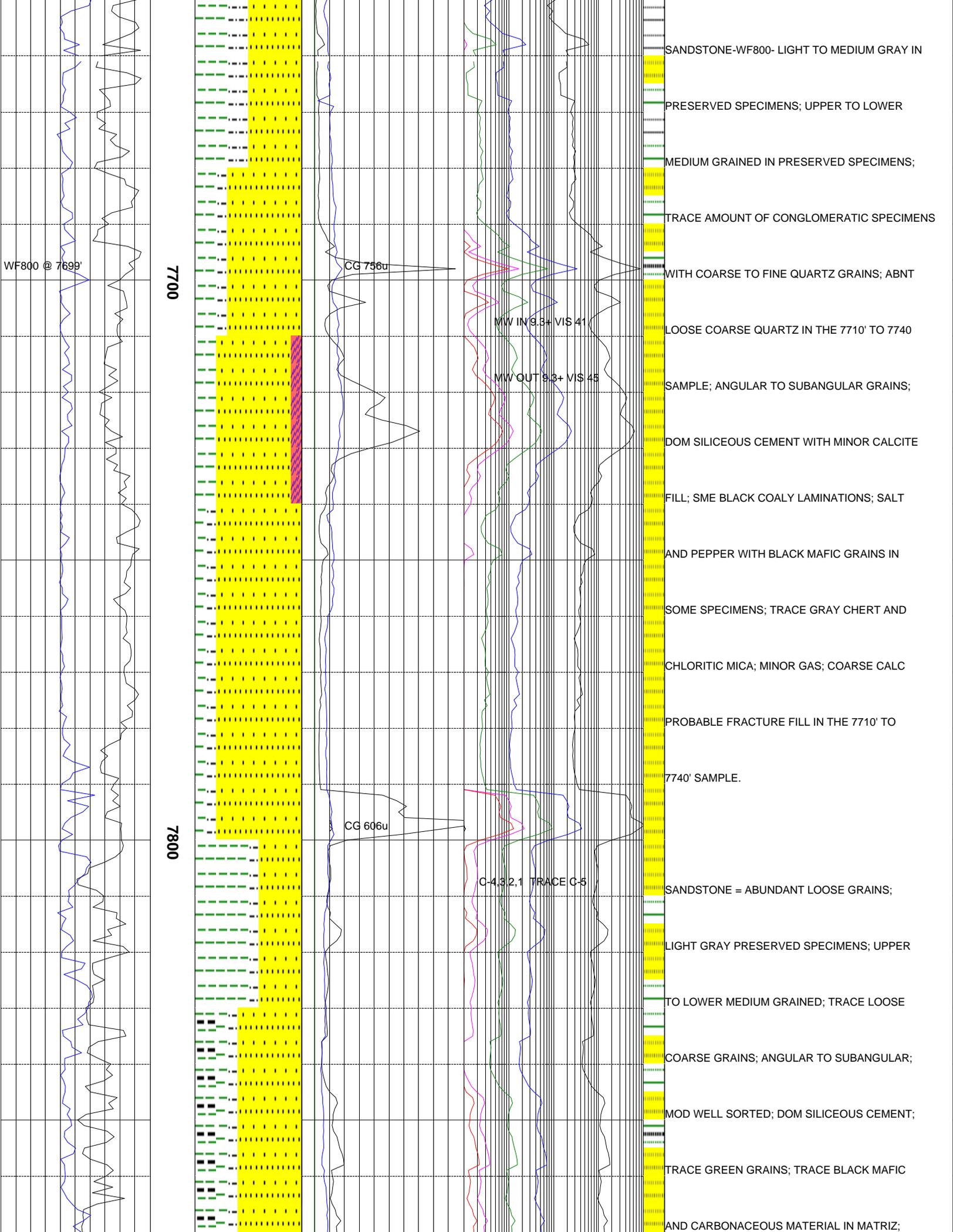
CG 602u

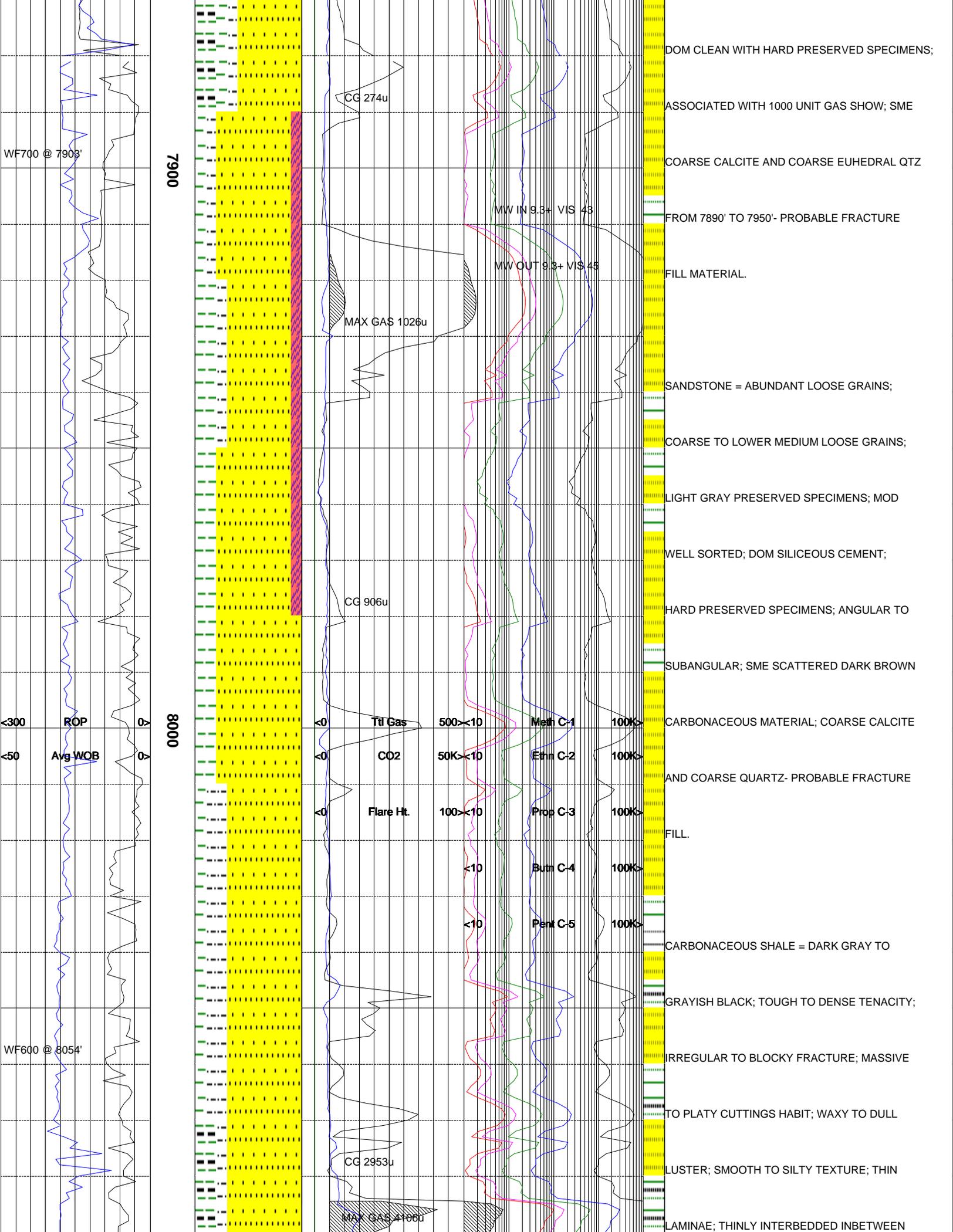
MW IN 9.3 VIS 45

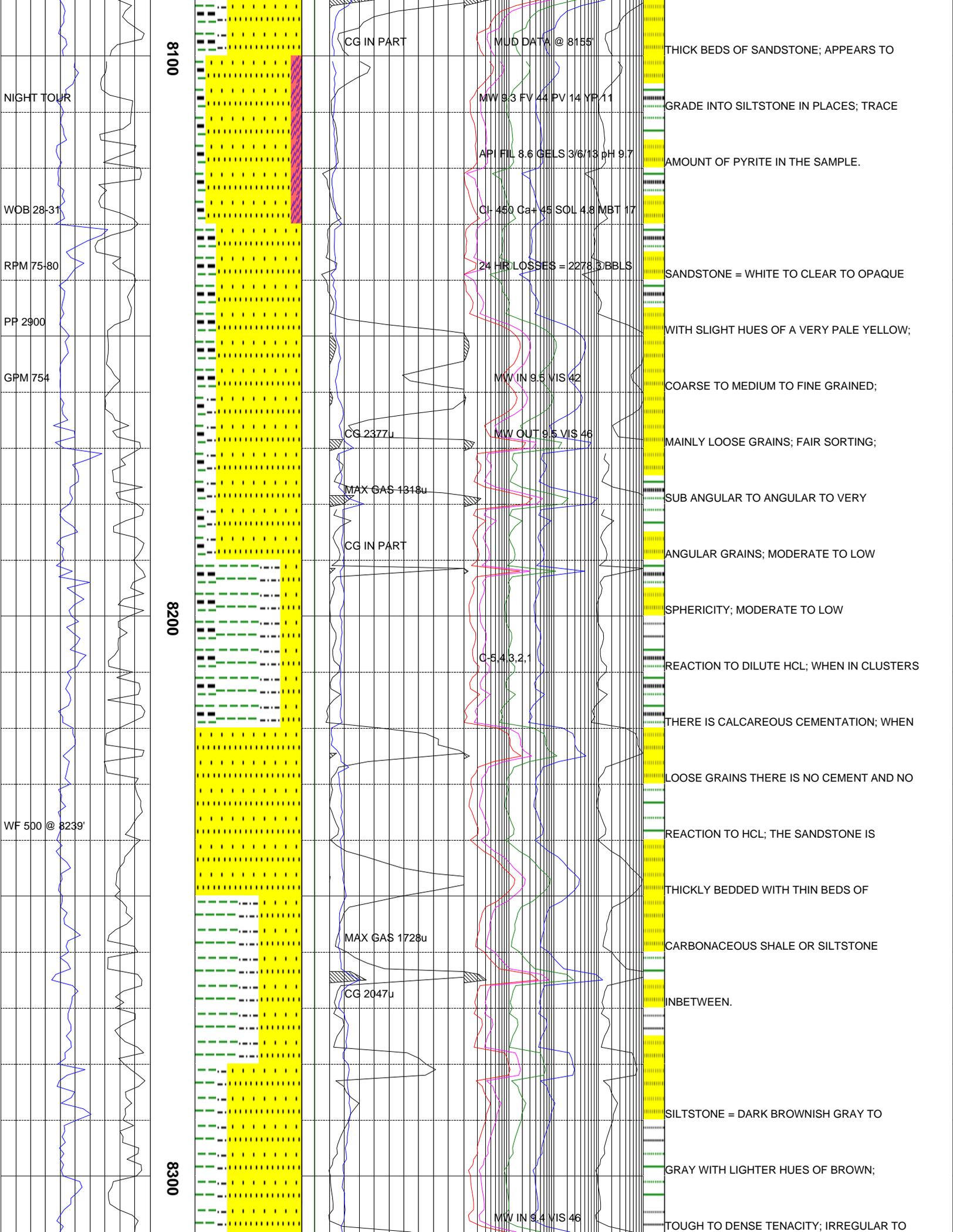
MW OUT 9.3+ VIS 45

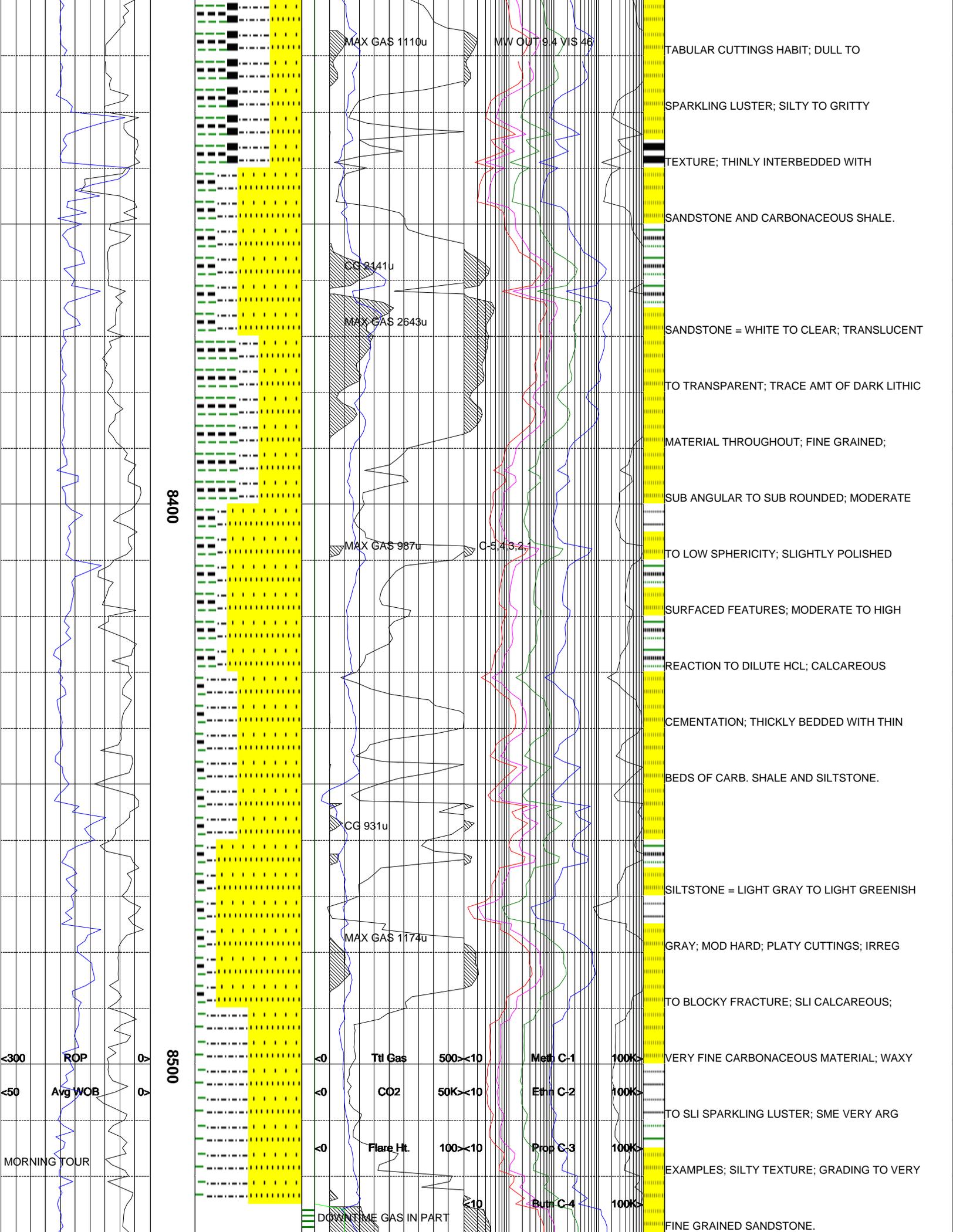
C-5.43.2.1

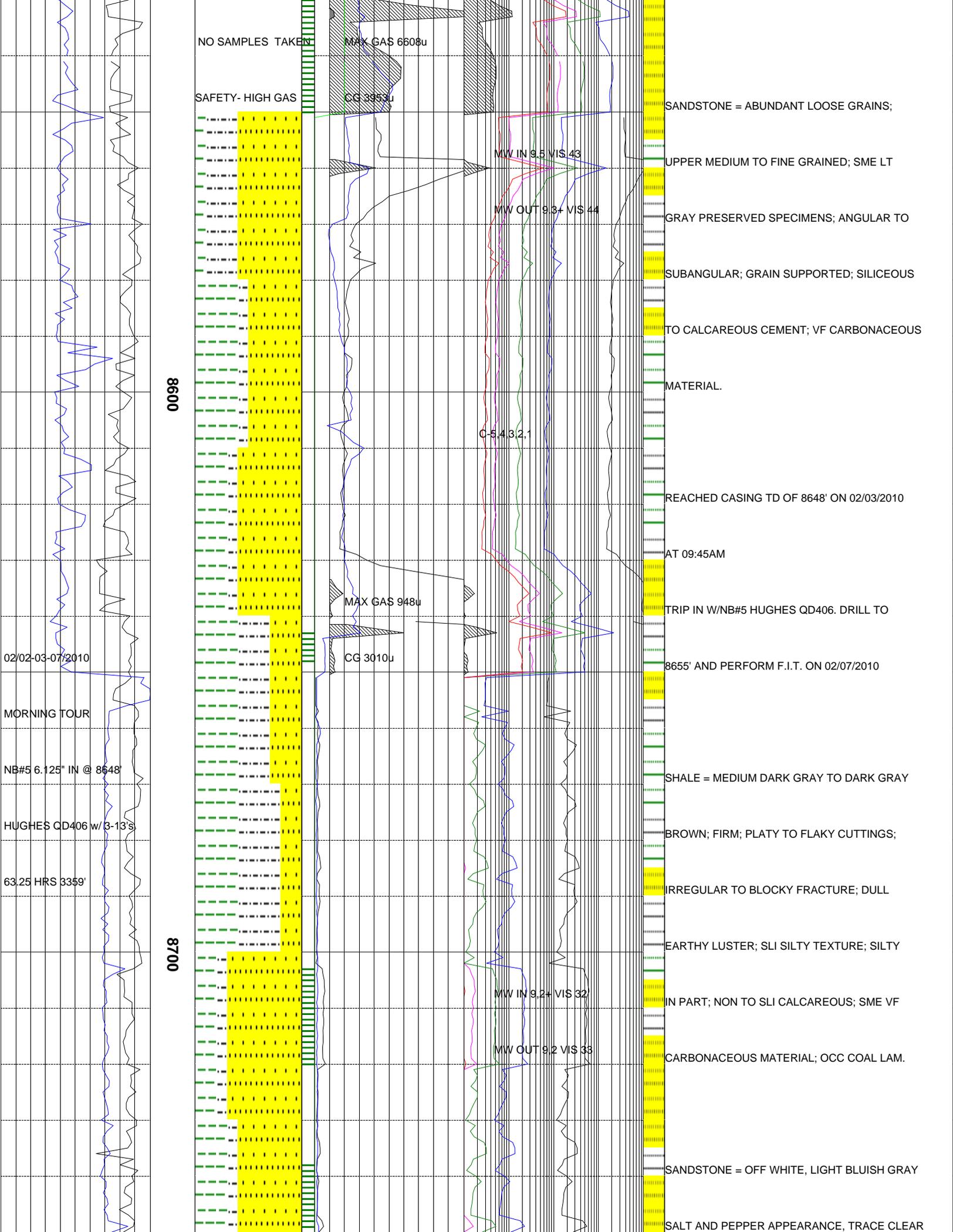


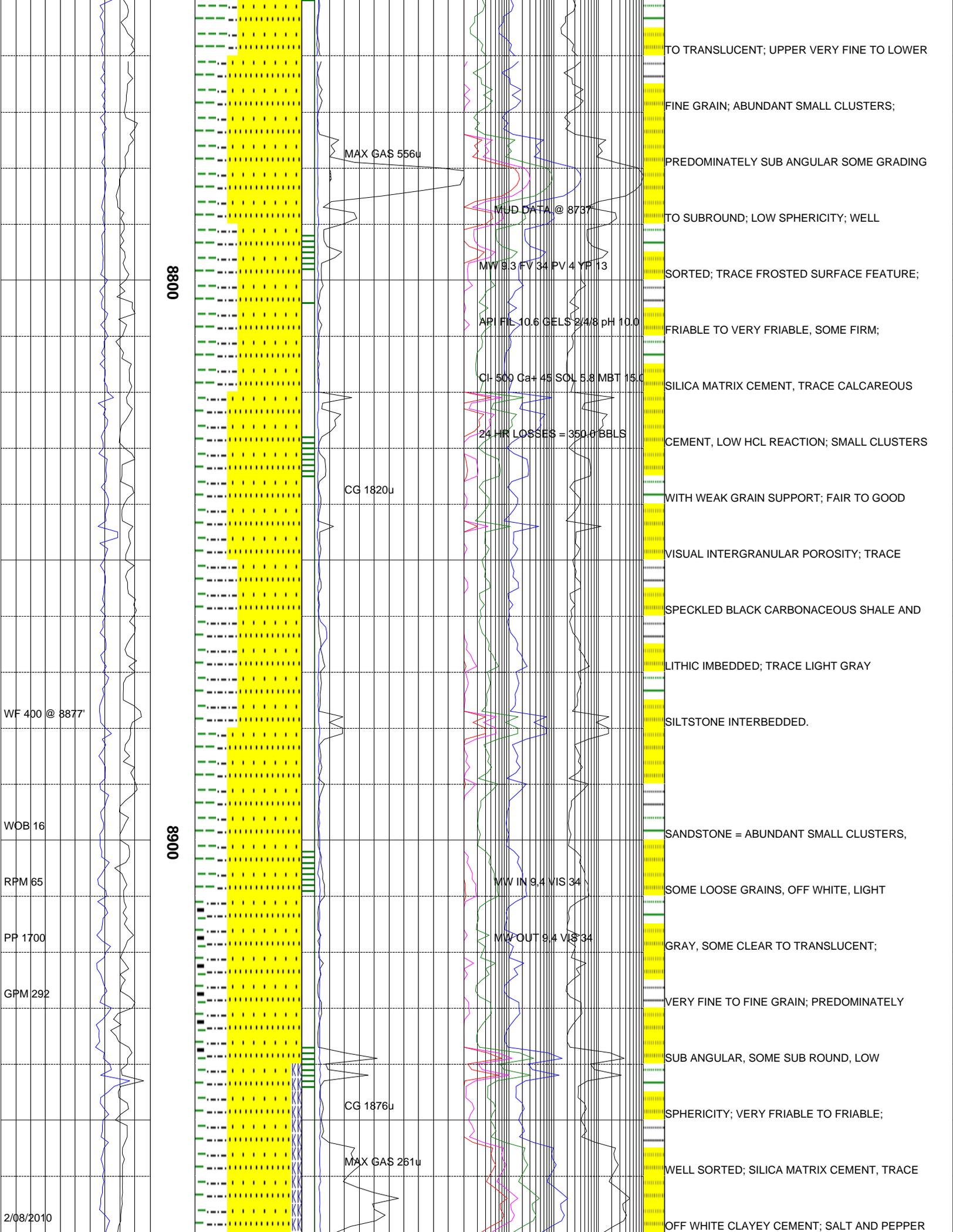












0088

0068

MAX GAS 556u

MUD DATA @ 8737

MW 9.3 FV 34 PV 4 YP 13

API FIL 10.6 GELS 2.4/8 pH 10.0

CI 500 Ca+ 45 SOL 5.8 MBT 15.0

24 HR LOSSES = 350.0 BELS

CG 1820u

WF 400 @ 8877

WOB 16

RPM 65

PP 1700

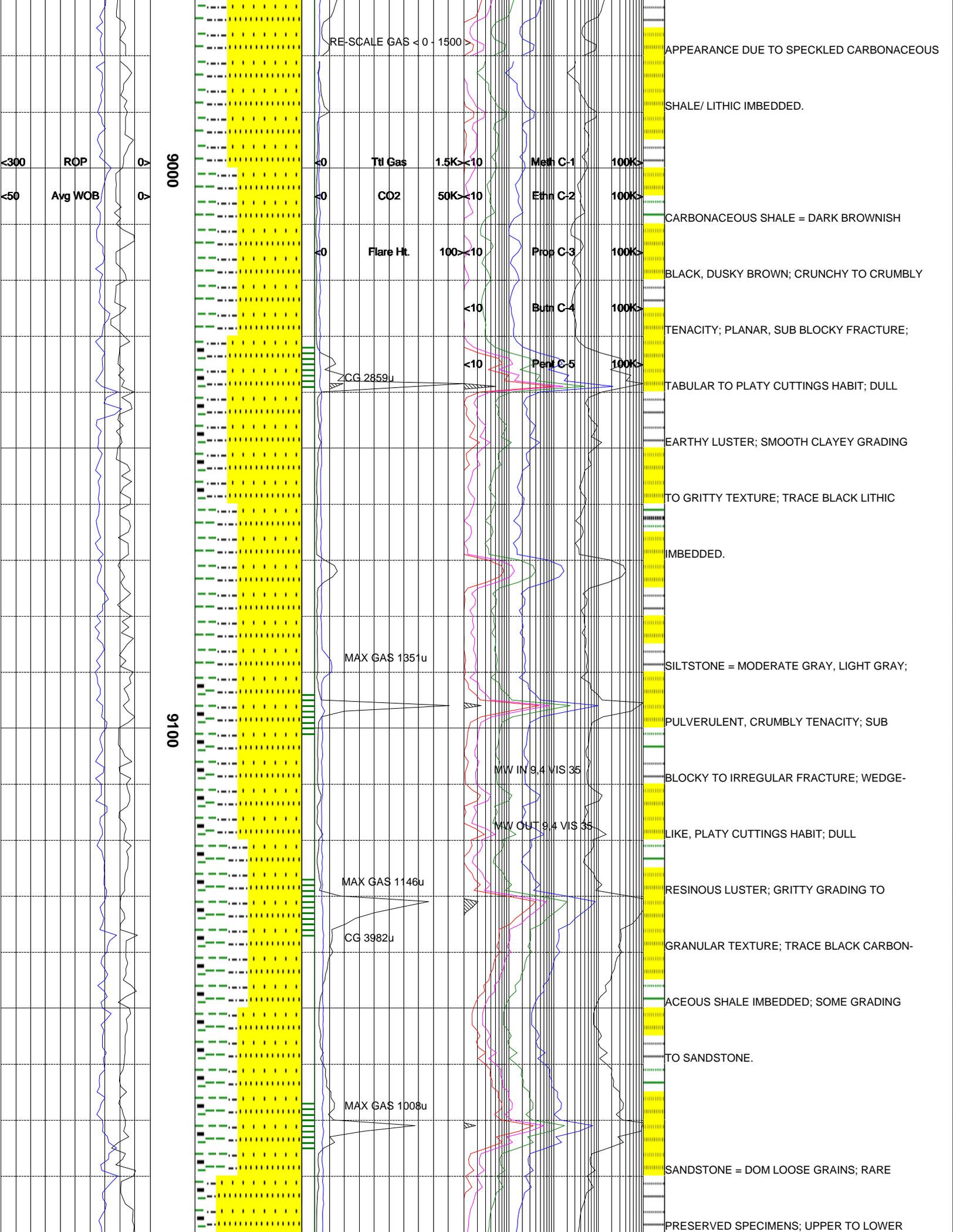
GPM 292

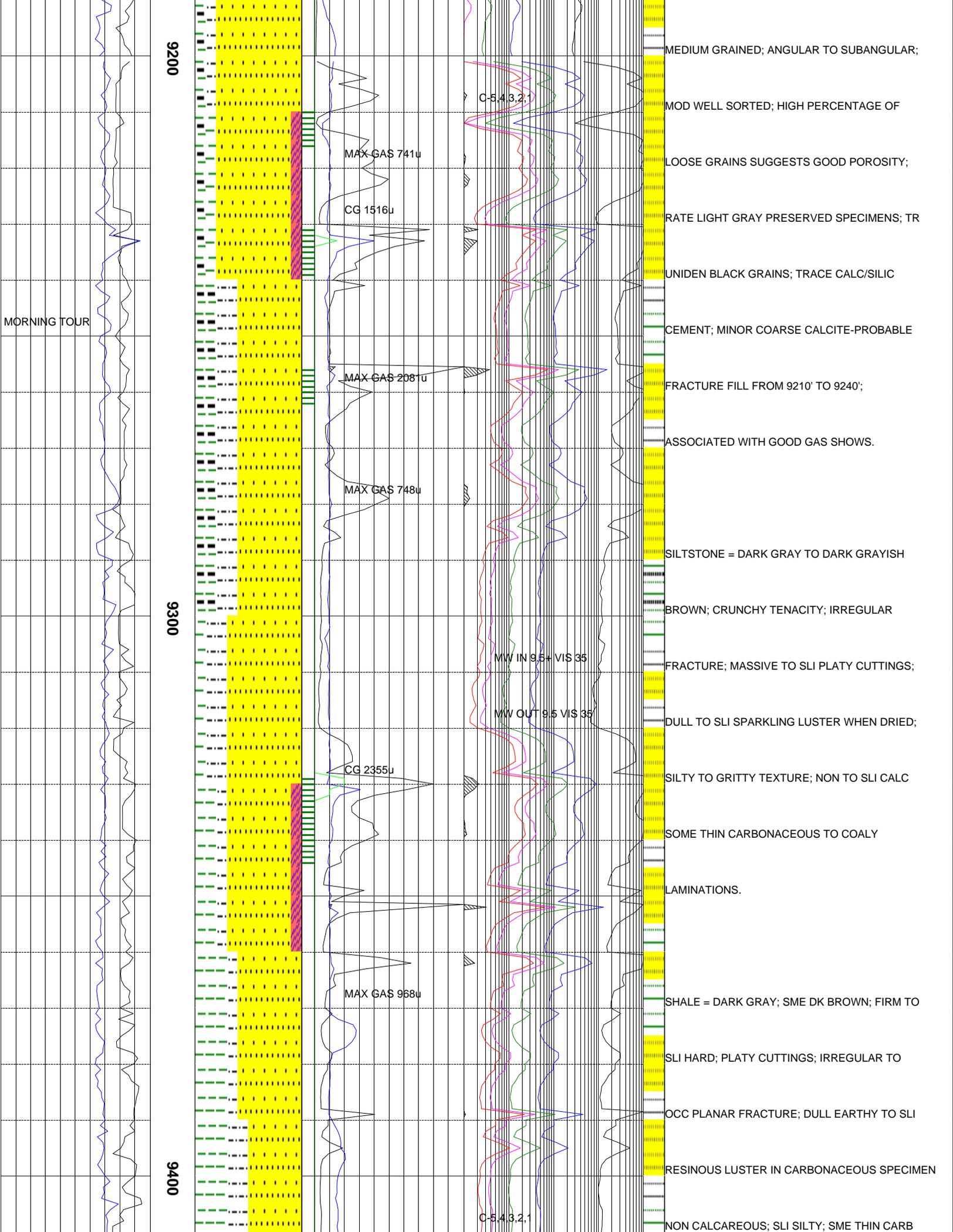
MW IN 9.4 VIS 34

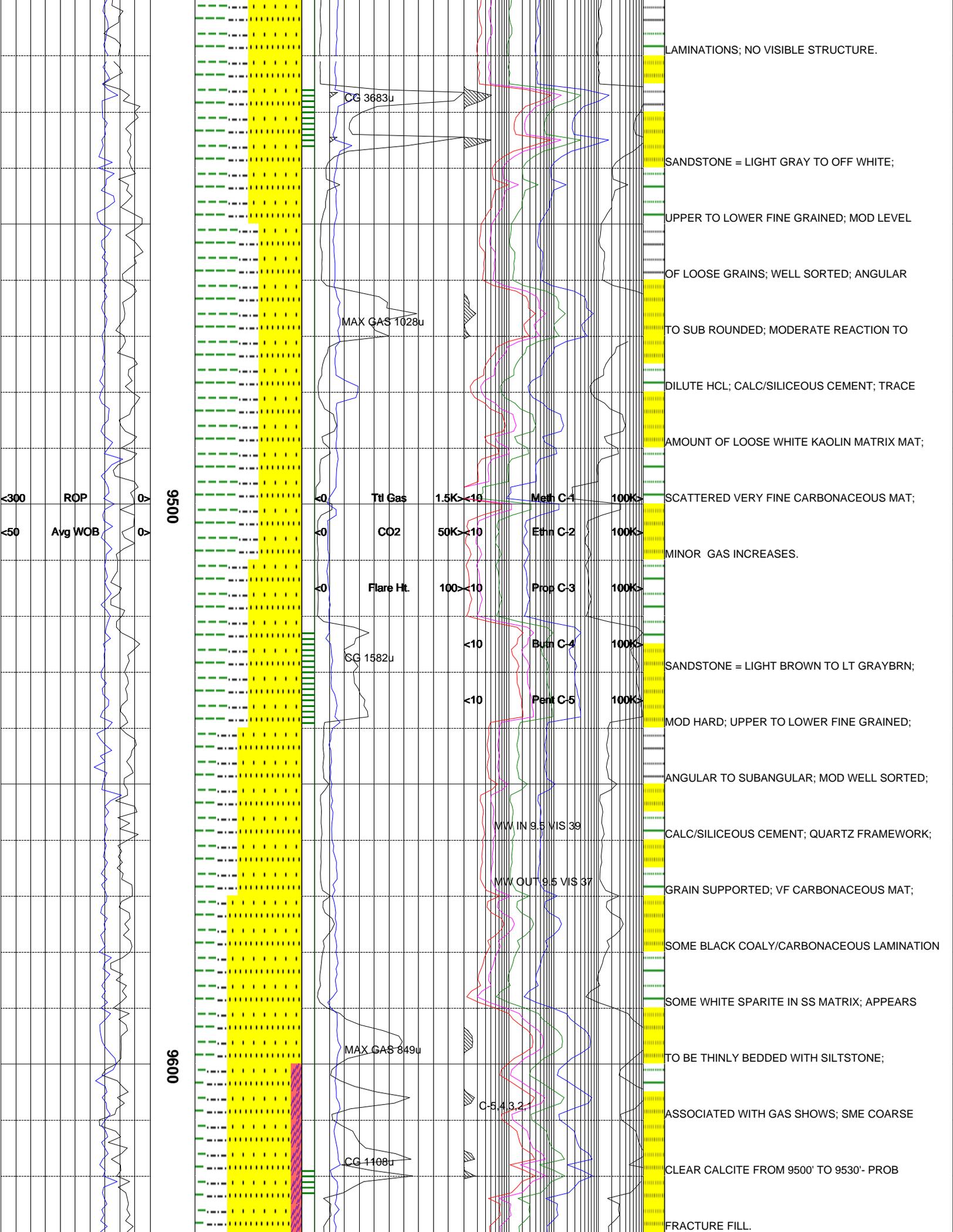
MW OUT 9.4 VIS 34

CG 1876u

MAX GAS 261u







LAMINATIONS; NO VISIBLE STRUCTURE.

CG 3683u

SANDSTONE = LIGHT GRAY TO OFF WHITE;

UPPER TO LOWER FINE GRAINED; MOD LEVEL

OF LOOSE GRAINS; WELL SORTED; ANGULAR

MAX GAS 1028u

TO SUB ROUNDED; MODERATE REACTION TO

DILUTE HCL; CALC/SILICEOUS CEMENT; TRACE

AMOUNT OF LOOSE WHITE KAOLIN MATRIX MAT;

<300 ROP

9500

Ttl Gas

1.5K <10

Meth C-1

100K >

SCATTERED VERY FINE CARBONACEOUS MAT;

<50 Avg WOB

CO2

50K <10

Ethn C-2

100K >

MINOR GAS INCREASES.

Flare Ht.

100 <10

Prop C-3

100K >

CG 1582u

<10

Butn C-4

100K >

SANDSTONE = LIGHT BROWN TO LT GRAYBRN;

<10

Pent C-5

100K >

MOD HARD; UPPER TO LOWER FINE GRAINED;

ANGULAR TO SUBANGULAR; MOD WELL SORTED;

MW IN 9.5 VIS 39

CALC/SILICEOUS CEMENT; QUARTZ FRAMEWORK;

MW OUT 9.5 VIS 37

GRAIN SUPPORTED; VF CARBONACEOUS MAT;

SOME BLACK COALY/CARBONACEOUS LAMINATION

SOME WHITE SPARITE IN SS MATRIX; APPEARS

9600

MAX GAS 849u

TO BE THINLY BEDDED WITH SILTSTONE;

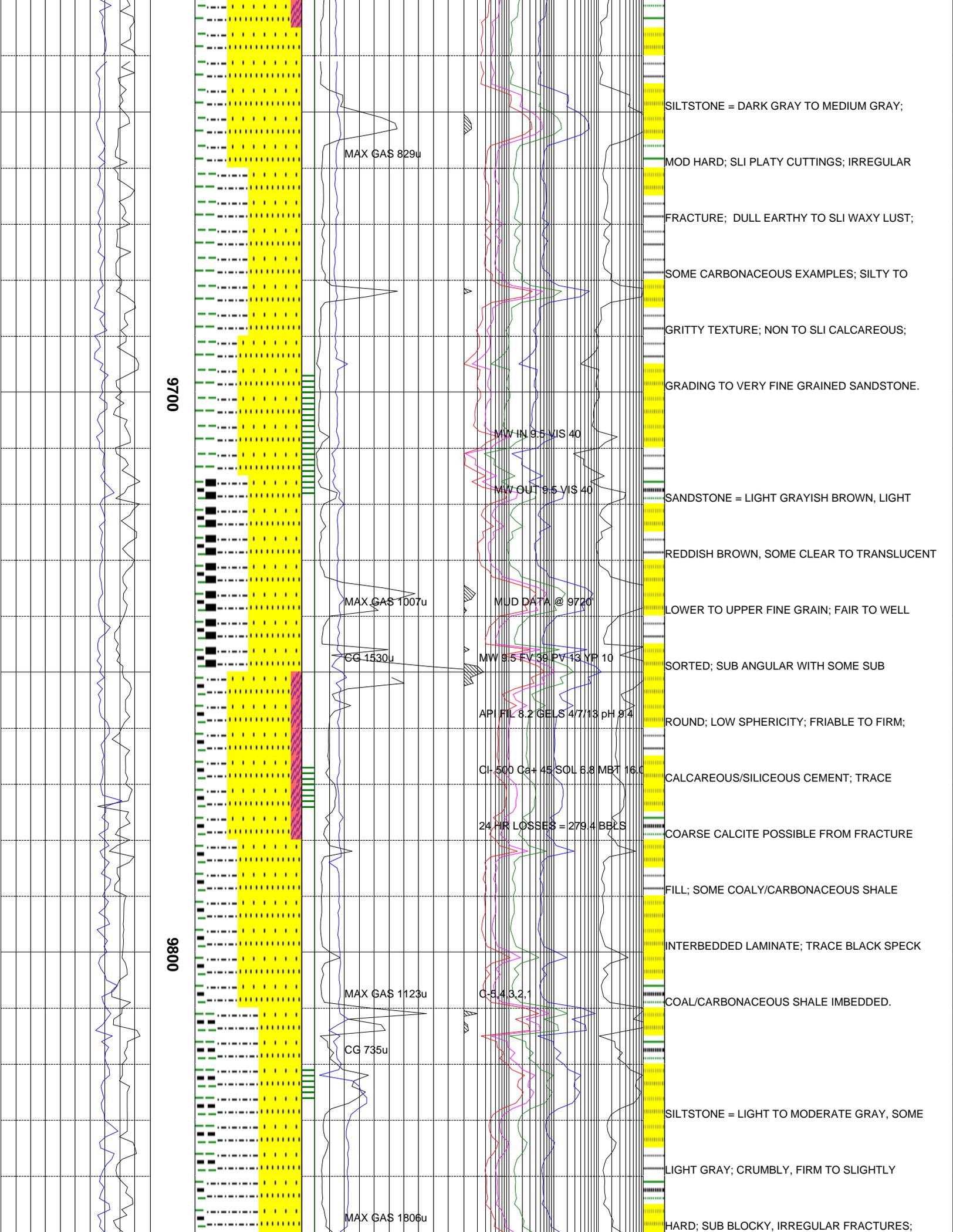
C-5.43.2

ASSOCIATED WITH GAS SHOWS; SMC COARSE

CG 1108u

CLEAR CALCITE FROM 9500' TO 9530' - PROB

FRACTURE FILL.



9700

0086

MAX GAS 829u

MAX GAS 1007u

CG 1530u

MAX GAS 1123u

CG 735u

MAX GAS 1806u

MW IN 9.5 VIS 40

MW OUT 9.5 VIS 40

MUD DATA @ 9720

MW 9.5 FV 39 PV 13 YF 10

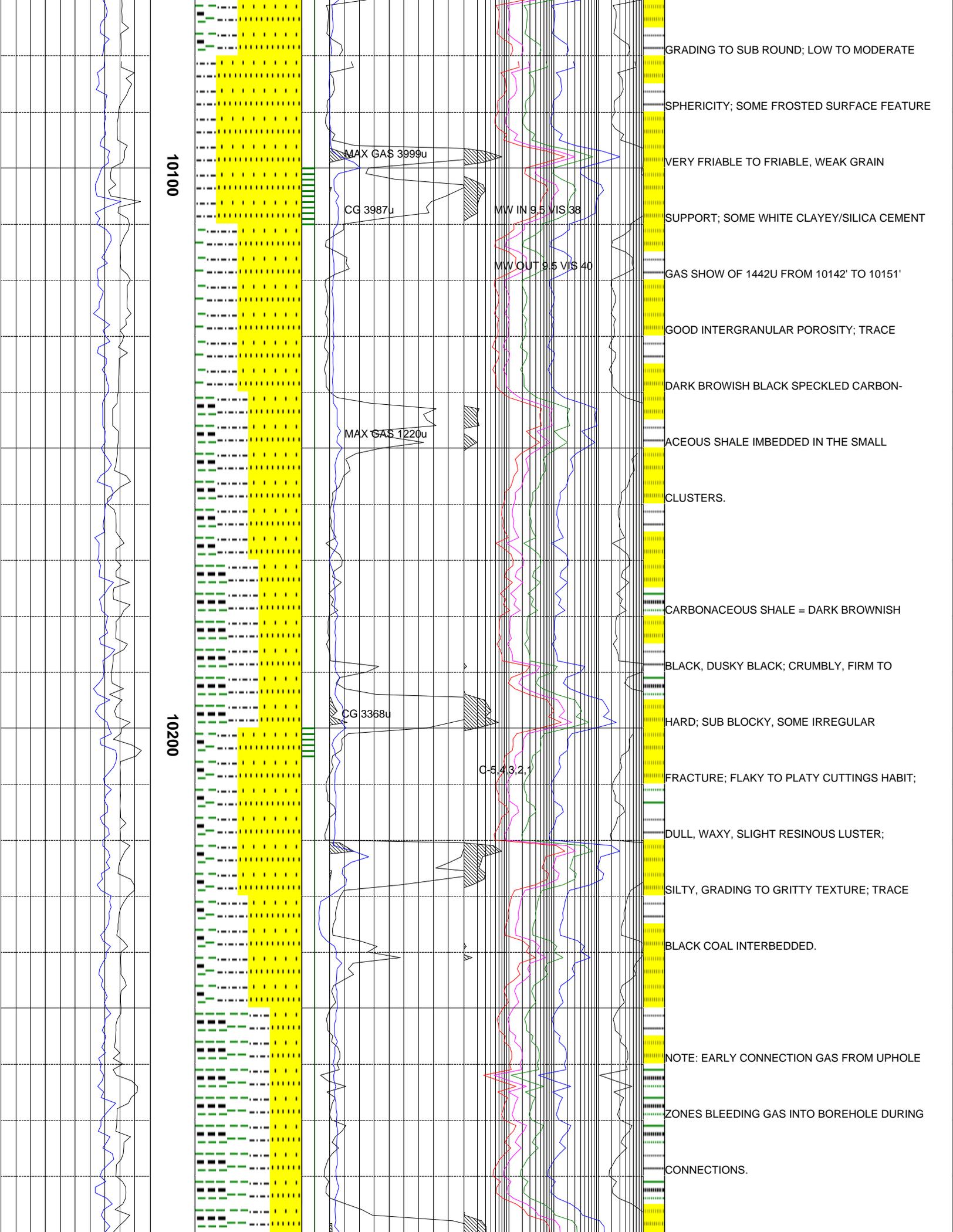
API FIL 8.2 GELS 4/7/13 pH 9.4

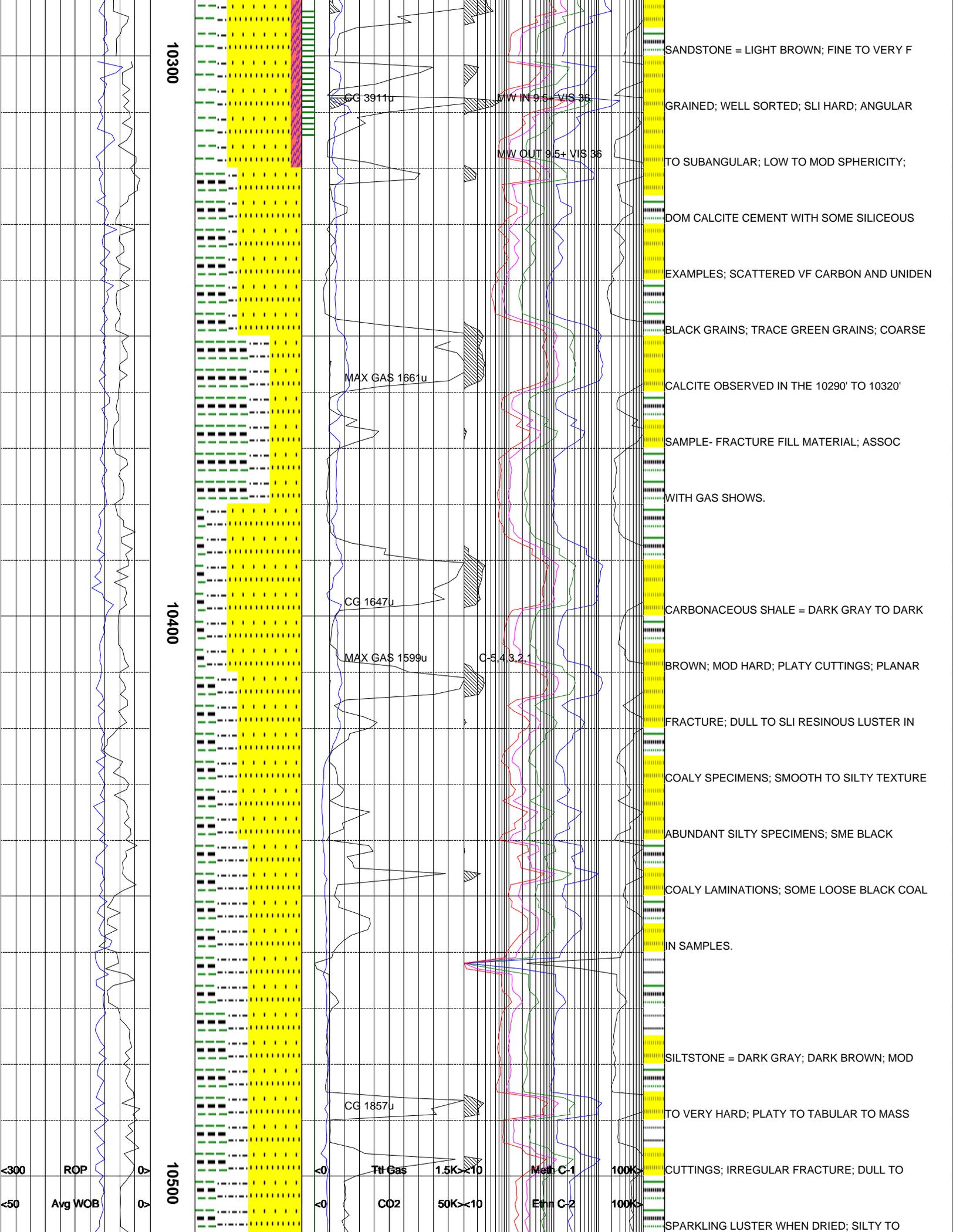
Cl- 500 Ca+ 45 SOL 6.8 MBT 16.0

24 HR LOSSES = 279.4 BBLS

C-5.4 3.2.1

SILTSTONE = DARK GRAY TO MEDIUM GRAY;
 MOD HARD; SLI PLATY CUTTINGS; IRREGULAR
 FRACTURE; DULL EARTHY TO SLI WAXY LUST;
 SOME CARBONACEOUS EXAMPLES; SILTY TO
 GRITTY TEXTURE; NON TO SLI CALCAREOUS;
 GRADING TO VERY FINE GRAINED SANDSTONE.
 SANDSTONE = LIGHT GRAYISH BROWN, LIGHT
 REDDISH BROWN, SOME CLEAR TO TRANSLUCENT
 LOWER TO UPPER FINE GRAIN; FAIR TO WELL
 SORTED; SUB ANGULAR WITH SOME SUB
 ROUND; LOW SPHERICITY; FRIABLE TO FIRM;
 CALCAREOUS/SILICEOUS CEMENT; TRACE
 COARSE CALCITE POSSIBLE FROM FRACTURE
 FILL; SOME COALY/CARBONACEOUS SHALE
 INTERBEDDED LAMINATE; TRACE BLACK SPECK
 COAL/CARBONACEOUS SHALE IMBEDDED.
 SILTSTONE = LIGHT TO MODERATE GRAY, SOME
 LIGHT GRAY; CRUMBLY, FIRM TO SLIGHTLY
 HARD; SUB BLOCKY, IRREGULAR FRACTURES;





10300

10400

10500

SANDSTONE = LIGHT BROWN; FINE TO VERY F
 GRAINED; WELL SORTED; SLI HARD; ANGULAR
 TO SUBANGULAR; LOW TO MOD SPHERICITY;
 DOM CALCITE CEMENT WITH SOME SILICEOUS
 EXAMPLES; SCATTERED VF CARBON AND UNIDEN
 BLACK GRAINS; TRACE GREEN GRAINS; COARSE
 CALCITE OBSERVED IN THE 10290' TO 10320'
 SAMPLE- FRACTURE FILL MATERIAL; ASSOC
 WITH GAS SHOWS.
 CARBONACEOUS SHALE = DARK GRAY TO DARK
 BROWN; MOD HARD; PLATY CUTTINGS; PLANAR
 FRACTURE; DULL TO SLI RESINOUS LUSTER IN
 COALY SPECIMENS; SMOOTH TO SILTY TEXTURE
 ABUNDANT SILTY SPECIMENS; SME BLACK
 COALY LAMINATIONS; SOME LOOSE BLACK COAL
 IN SAMPLES.
 SILTSTONE = DARK GRAY; DARK BROWN; MOD
 TO VERY HARD; PLATY TO TABULAR TO MASS
 CUTTINGS; IRREGULAR FRACTURE; DULL TO
 SPARKLING LUSTER WHEN DRIED; SILTY TO

CG 3911u MW IN 9.5+ VIS 36

MW OUT 9.5+ VIS 36

MAX GAS 1661u

CG 1647u

MAX GAS 1599u

C-5.43.2.1

CG 1857u

Tft Gas 1.5K < 10

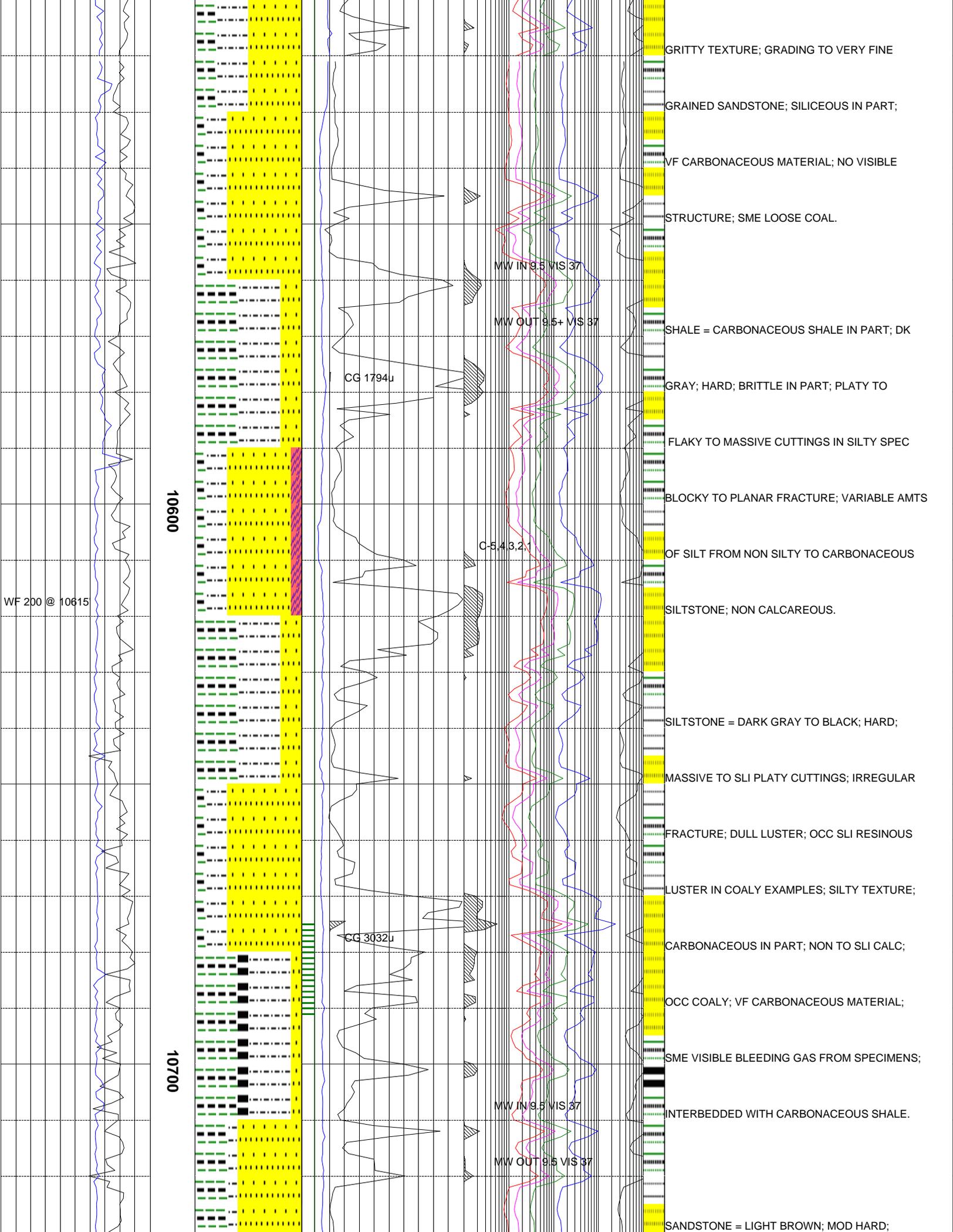
Meth C-1 100K >

CO2 50K < 10

Ethin C-2 100K >

<300 ROP

<50 Avg WOB



10600

10700

WF 200 @ 10615

CG 1794u

CG 3032u

MW IN 9.5 VIS 37

MW OUT 9.5+ VIS 37

C-543.2

MW IN 9.5 VIS 37

MW OUT 9.5 VIS 37

GRITTY TEXTURE; GRADING TO VERY FINE

GRAINED SANDSTONE; SILICEOUS IN PART;

VF CARBONACEOUS MATERIAL; NO VISIBLE

STRUCTURE; SME LOOSE COAL.

SHALE = CARBONACEOUS SHALE IN PART; DK

GRAY; HARD; BRITTLE IN PART; PLATY TO

FLAKY TO MASSIVE CUTTINGS IN SILTY SPEC

BLOCKY TO PLANAR FRACTURE; VARIABLE AMTS

OF SILT FROM NON SILTY TO CARBONACEOUS

SILTSTONE; NON CALCAREOUS.

SILTSTONE = DARK GRAY TO BLACK; HARD;

MASSIVE TO SLI PLATY CUTTINGS; IRREGULAR

FRACTURE; DULL LUSTER; OCC SLI RESINOUS

LUSTER IN COALY EXAMPLES; SILTY TEXTURE;

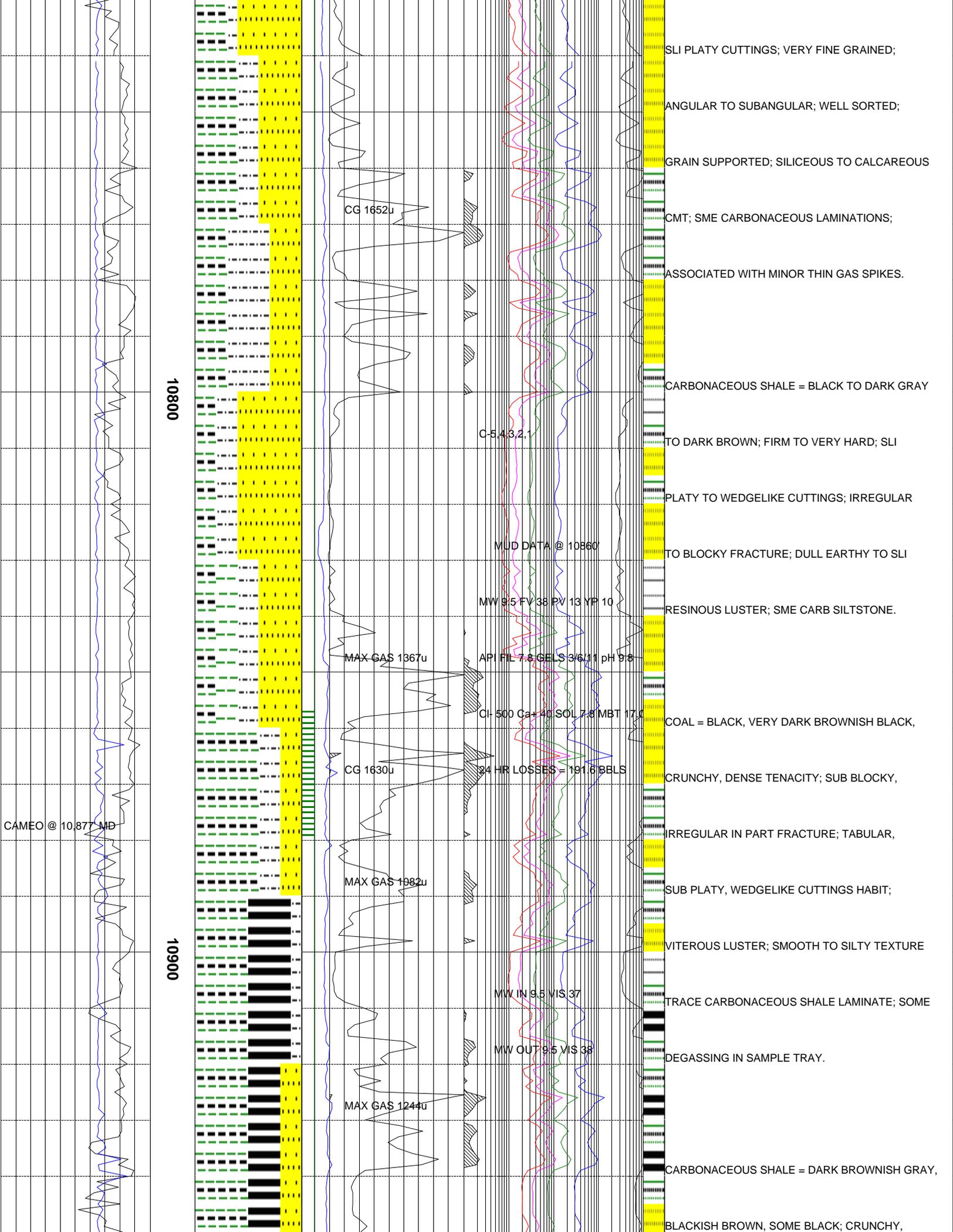
CARBONACEOUS IN PART; NON TO SLI CALC;

OCC COALY; VF CARBONACEOUS MATERIAL;

SME VISIBLE BLEEDING GAS FROM SPECIMENS;

INTERBEDDED WITH CARBONACEOUS SHALE.

SANDSTONE = LIGHT BROWN; MOD HARD;



10800

10900

SLI PLATY CUTTINGS; VERY FINE GRAINED;
 ANGULAR TO SUBANGULAR; WELL SORTED;
 GRAIN SUPPORTED; SILICEOUS TO CALCAREOUS
 CMT; SME CARBONACEOUS LAMINATIONS;
 ASSOCIATED WITH MINOR THIN GAS SPIKES.
 CARBONACEOUS SHALE = BLACK TO DARK GRAY
 TO DARK BROWN; FIRM TO VERY HARD; SLI
 PLATY TO WEDGELIKE CUTTINGS; IRREGULAR
 TO BLOCKY FRACTURE; DULL EARTHY TO SLI
 RESINOUS LUSTER; SME CARB SILTSTONE.
 COAL = BLACK, VERY DARK BROWNISH BLACK,
 CRUNCHY, DENSE TENACITY; SUB BLOCKY,
 IRREGULAR IN PART FRACTURE; TABULAR,
 SUB PLATY, WEDGELIKE CUTTINGS HABIT;
 VITEROUS LUSTER; SMOOTH TO SILTY TEXTURE
 TRACE CARBONACEOUS SHALE LAMINATE; SOME
 DEGASSING IN SAMPLE TRAY.
 CARBONACEOUS SHALE = DARK BROWNISH GRAY,
 BLACKISH BROWN, SOME BLACK; CRUNCHY,

CG 1652u

MAX GAS 1367u

MAX GAS 1982u

MAX GAS 1244u

C-5.43.2.1

MUD DATA @ 10860

MW 9.5 FV 38 PV 13 YF 10

API FIL 7.8 GELS 3/6/11 pH 9.8

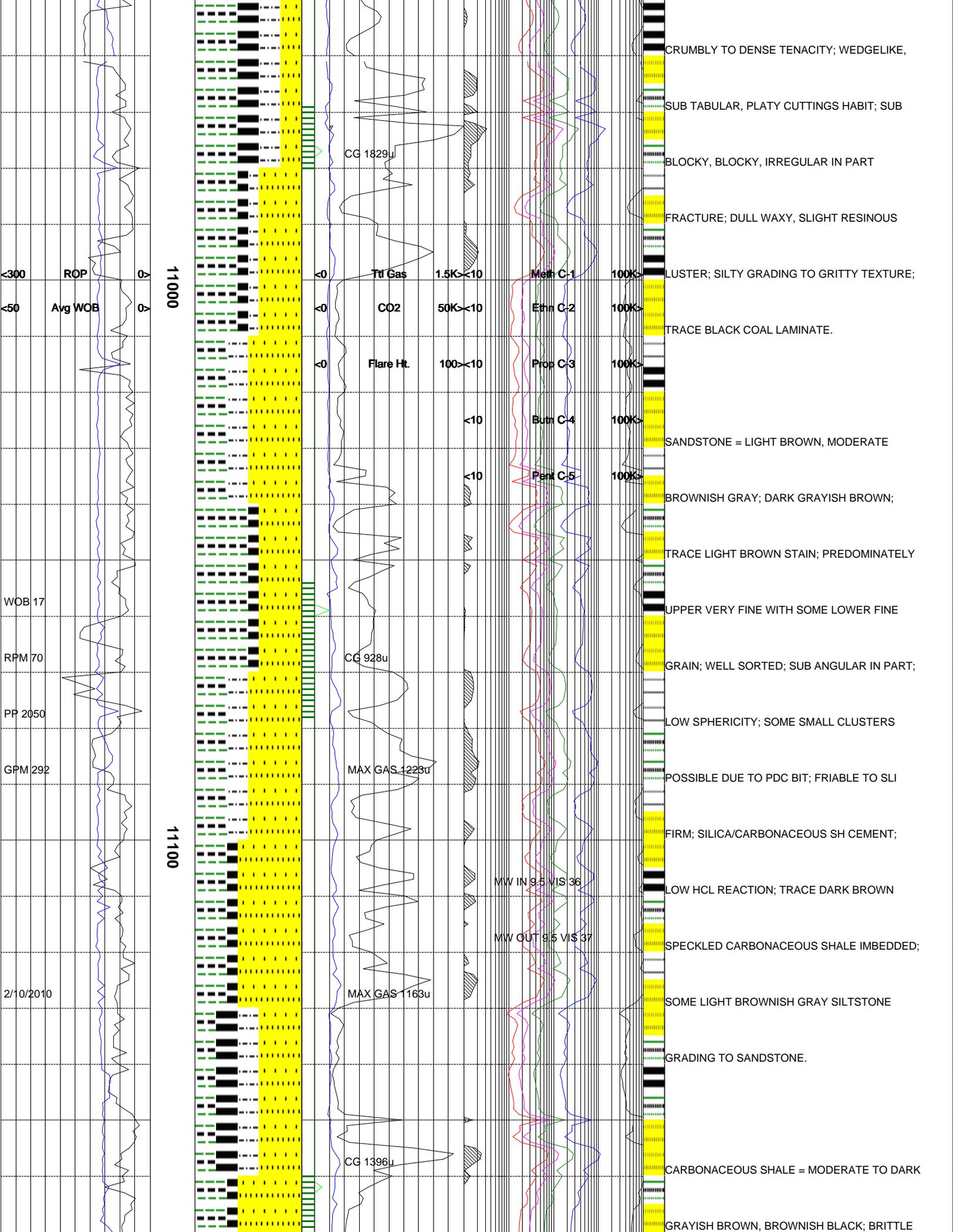
Cl- 500 Ca+ 40 SOL 7.8 MBT 17.0

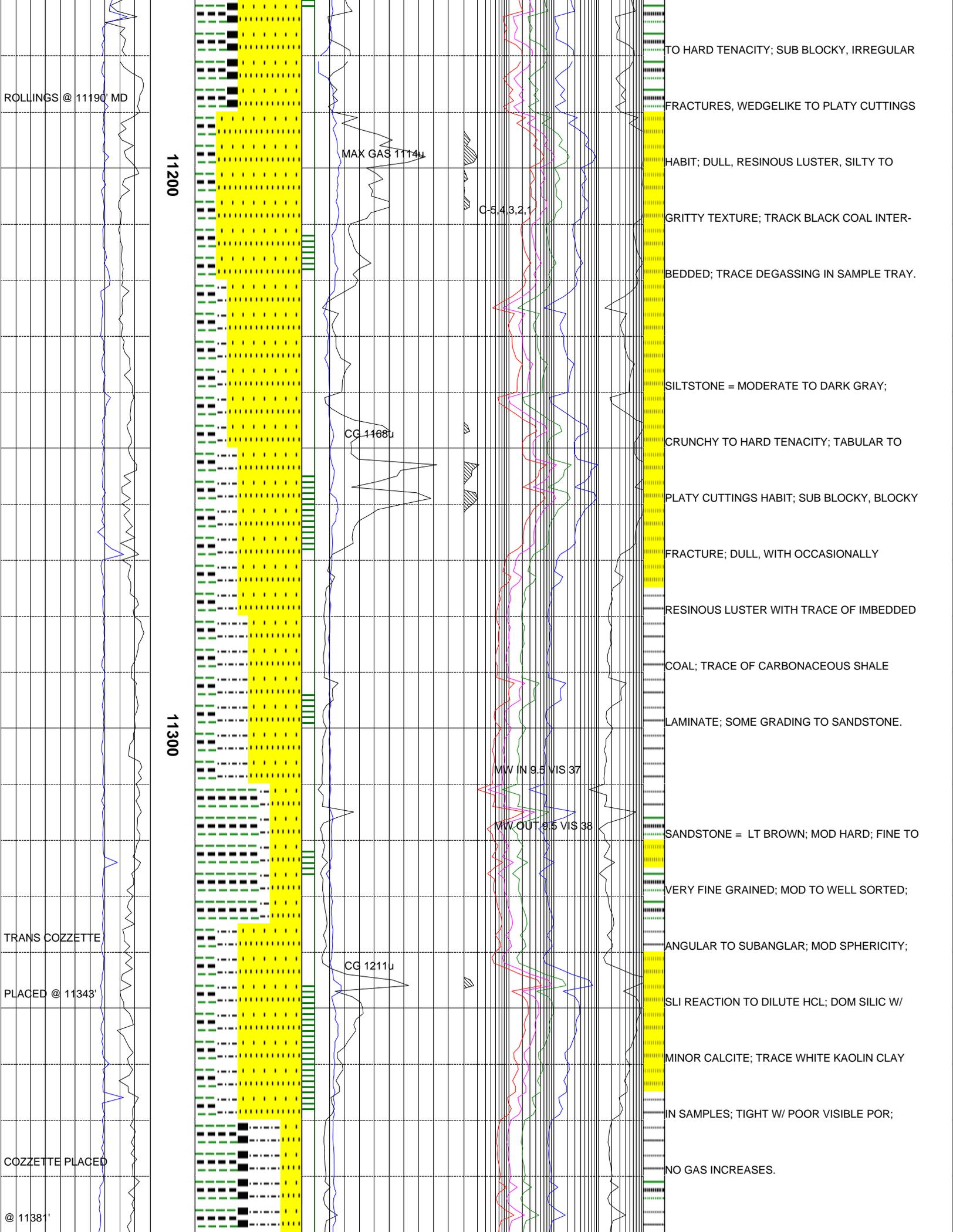
24 HR LOSSES = 191.6 BBLS

MW IN 9.5 VIS 37

MW OUT 9.5 VIS 38

CAMEO @ 10,877 MD





ROLLINGS @ 11190' MD

11200

MAX GAS 11174u

C-543.2.1

TO HARD TENACITY; SUB BLOCKY, IRREGULAR

FRACTURES, WEDGELIKE TO PLATY CUTTINGS

HABIT; DULL, RESINOUS LUSTER, SILTY TO

GRITTY TEXTURE; TRACK BLACK COAL INTER-

BEDDED; TRACE DEGASSING IN SAMPLE TRAY.

SILTSTONE = MODERATE TO DARK GRAY;

CRUNCHY TO HARD TENACITY; TABULAR TO

PLATY CUTTINGS HABIT; SUB BLOCKY, BLOCKY

FRACTURE; DULL, WITH OCCASIONALLY

RESINOUS LUSTER WITH TRACE OF IMBEDDED

COAL; TRACE OF CARBONACEOUS SHALE

LAMINATE; SOME GRADING TO SANDSTONE.

11300

MW IN 9.5 VIS 37

MW OUT 9.5 VIS 38

SANDSTONE = LT BROWN; MOD HARD; FINE TO

VERY FINE GRAINED; MOD TO WELL SORTED;

ANGULAR TO SUBANGULAR; MOD SPHERICITY;

TRANS COZZETTE

CG 1211u

SLI REACTION TO DILUTE HCL; DOM SILIC W/

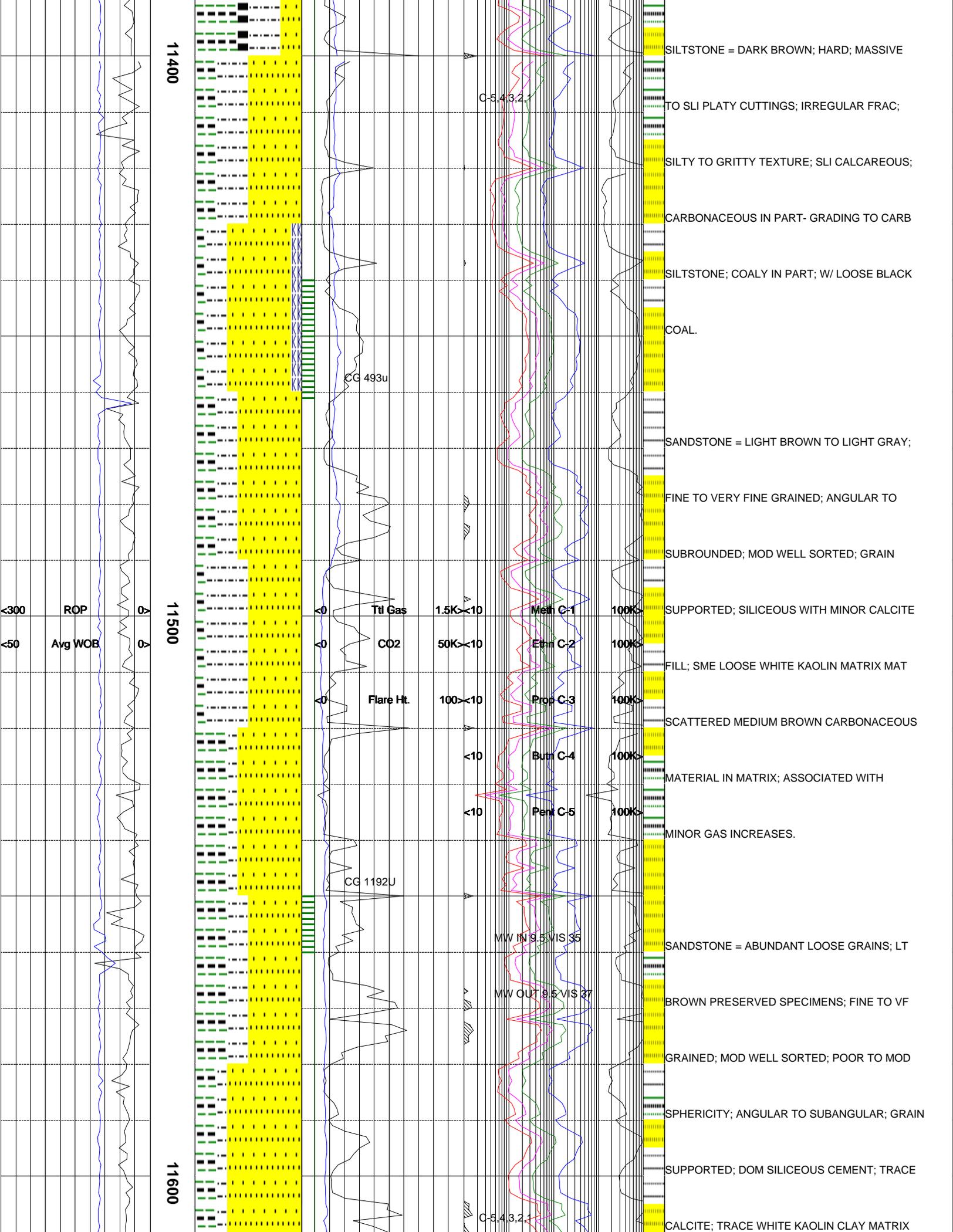
PLACED @ 11343'

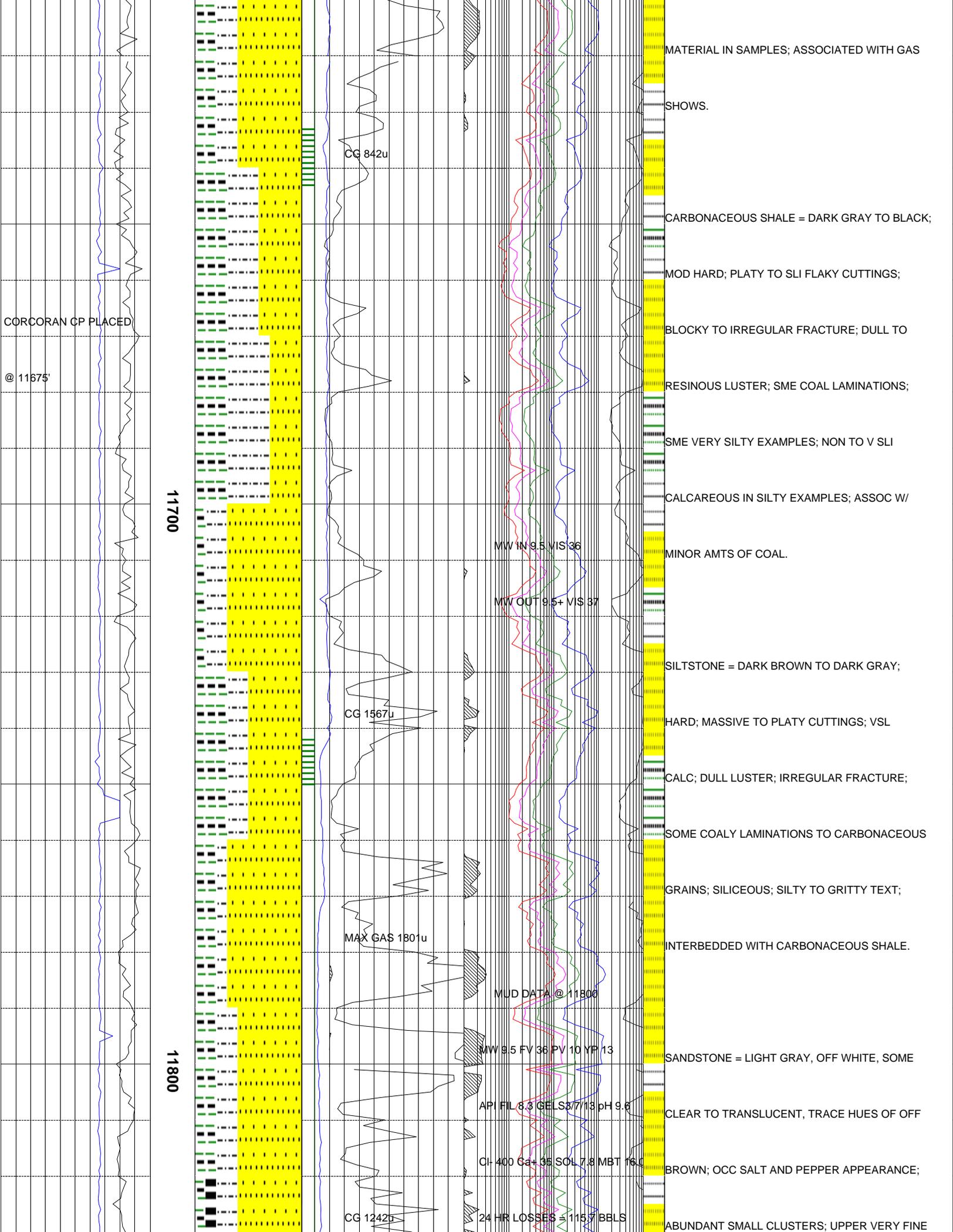
MINOR CALCITE; TRACE WHITE KAOLIN CLAY

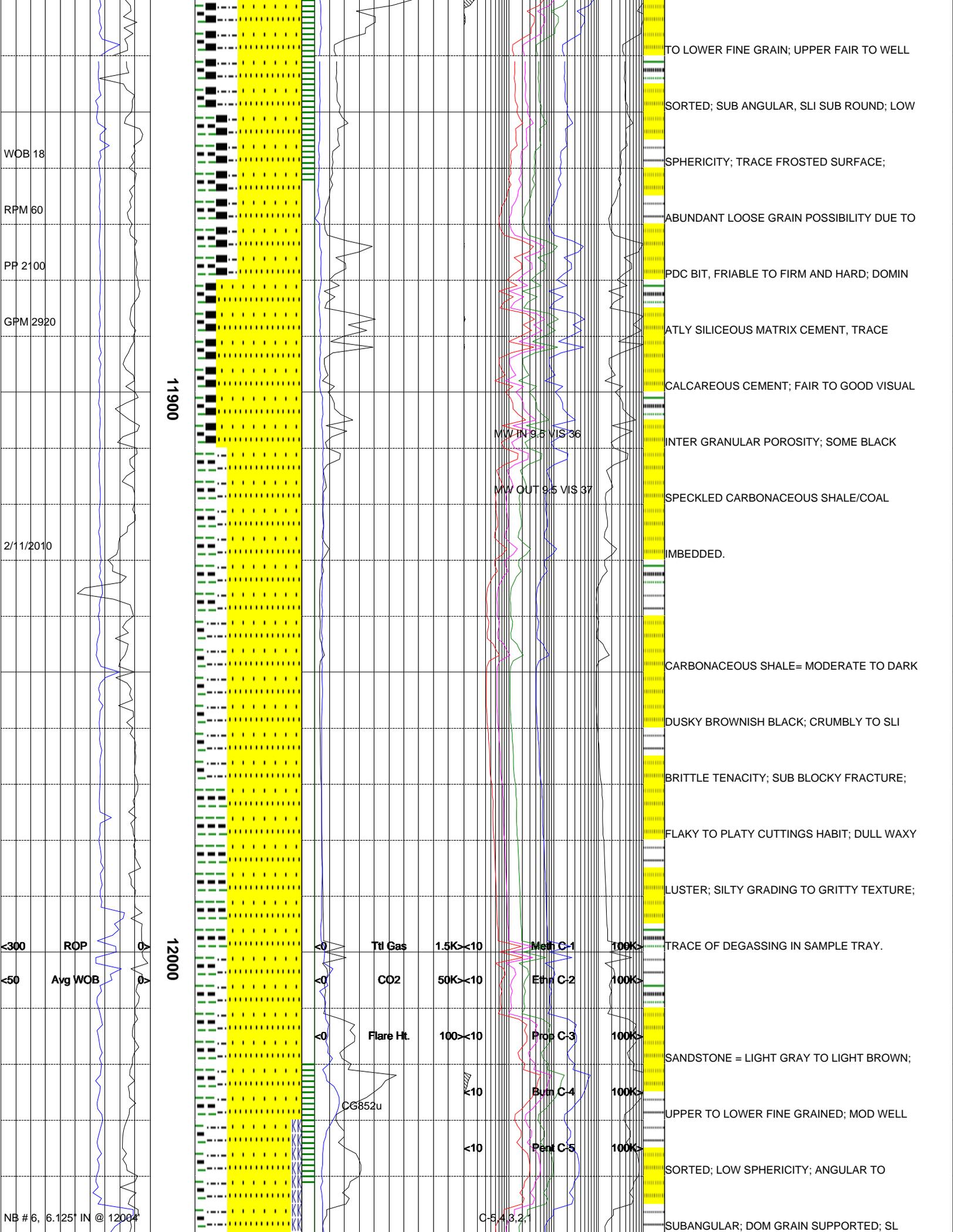
IN SAMPLES; TIGHT W/ POOR VISIBLE POR;

COZZETTE PLACED

NO GAS INCREASES.







BAKER QD406 w/ 3-13R

13.5 HRS 453'

EMPLOYING DIFFERENT

DRILL RATE PARAMETERS

CORCORAN MARINE

@ 12236'

12100

12200

CG 772u

MW IN 9.5+ VIS 35

MW OUT 9.5+ VIS 35

CG 628u

C-543.2.1

DOWNTIME GAS

REACTION WITH DILUTE HCL; DOM SILICEOUS

CEMENT WITH MINOR CALCITE FILL; TR BRN

LITHIC FRAGMENTS; LOOSE WHITE KAOLIN

CLAY MATRIX MATERIAL IN SAMPLES; INTBD

WITH SILTSTONE; ASSOCIATED WITH GAS

SHOWS.

CARBONACEOUS SILTSTONE = BLACK TO

DARK GRAY; CRUMBLY TO FIRM; PLATY TO

MASSIVE; IRREGULAR FRACTURE; RESINOUS

TO SLI VITREOUS LUSTER; SILTY TO GRITTY

TEXTURE; NON CALCAREOUS; INTERBEDDED

WITH THIN COAL AND CARBONACEOUS SHALE;

TRACE LOOSE PYRITE.

SANDSTONE = LT BROWN TO LIGHT GRAY; HARD

FINE GRAINED; ANGULAR TO SUBANGULAR; MOD

WELL SORTED; GRAIN SUPPORTED; SILICEOUS

CEMENT; LOW SPHERICITY; ASSOC W/MINOR

GAS.

SILTSTONE = DARK BROWN; BROWNISH BLK;

12300

12400

HARD; MASSIVE TO PLATY CUTTINGS; IRREG

FRACTURE; DULL TO SLI SPARKLING LUSTER;

SILTY TEXTURE; NON CALCAREOUS; VF BRN

CARBONACEOUS MATERIAL; MINOR CARB

SHALE

SANDSTONE = WHITE TO DARK BROWN; HARD;

VERY FINE GRAINED; ANGULAR TO SUBANGULAR

WELL SORTED; SLI CALCAREOUS; DOM SILIC

GRADING TO SILTSTONE; THINLY BEDDED W/

SILTSTONE.

MW IN 9.5 VIS 35

MW OUT 9.5 VIS 35

CG 361u

MUD DATA @ 12420

CG 2284u

MW 9.5 FV 35 PV 9 YP 15

API FIL 8.2 GELS 37/11 pH 9.6

Cl- 400 Ca+ 40 SOL 7.8 MBT 16.0

24 HR LOSSES = 66.5 BBLS

TOTAL DEPTH OF 12,457' MD, 12,039' TVD

REACHED 02-12-2010 AT 19:45 HOURS

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