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

## COMBO MD

**COMPANY** ExxonMobil Production

**WELL** PCU 296-5A01

**FIELD** Piceance Creek Unit

**REGION** Rocky Mountain

**COORDINATES** 39.912053000  
108.198567000

**ELEVATION** 7295.5'

**COUNTY, STATE** Rio Blanco, CO

**API INDEX** 051031124800

**SPUD DATE** 10/21/2009

**CONTRACTOR** Helmerich and Payne

**CO. REP.** C.Curtis/ M. Hudon

**RIG/TYPE** 321 / Flex 4

**LOGGING UNIT** 031

**GEOLOGISTS** M. Franco  
C. Record/ B.Smelsor

**ADD. PERSONS** M.Piper  
R.McCane

**CO. GEOLOGIST** Nova Roosmawati

### LOG INTERVAL

### CASING DATA

**DEPTHS:** 4665' TO 14288'

**DATES:** 09/06/2010 TO 10/05/2010

**SCALE:** 1" = 100'

16.0" AT 150'

10.75" AT 4633'

7.0" AT 10105'

4.5" AT 14265'

### MUD TYPES

### HOLE SIZE

WATERBASED TO 14288'

TO

TO

TO

TO

14.75" TO 126'

9.875" TO 10119'

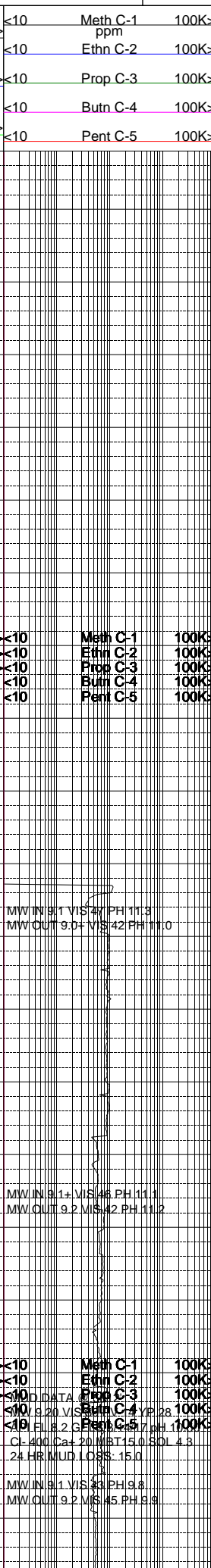
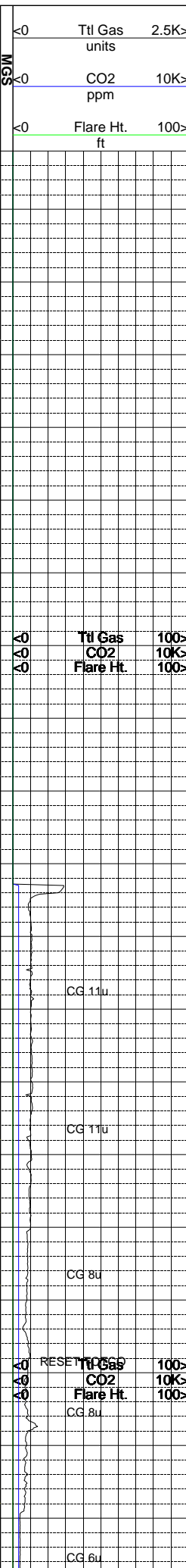
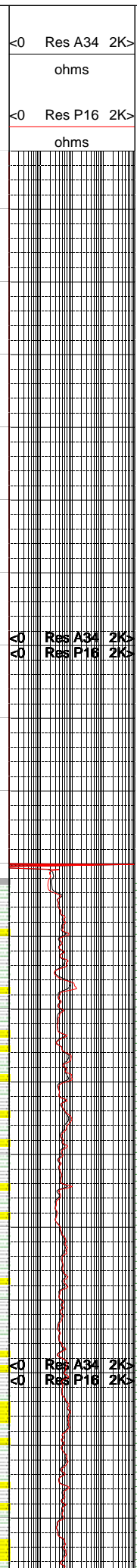
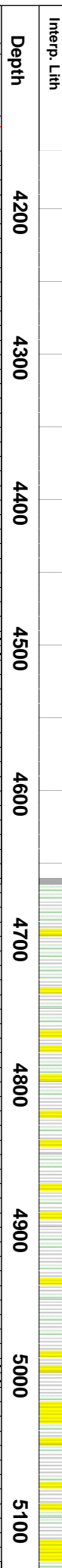
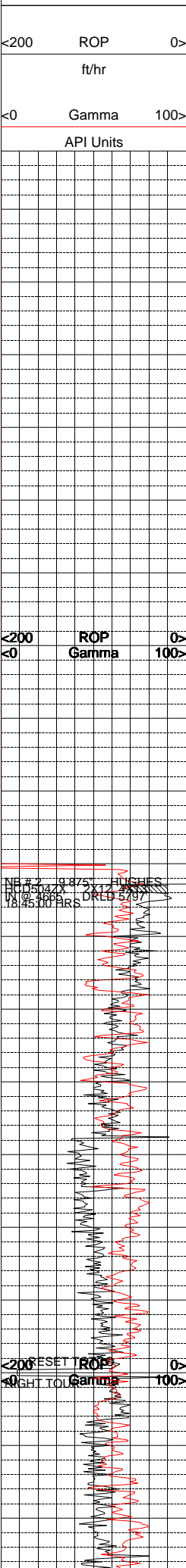
6.125" TO 14288'

TO

### ABBREVIATIONS

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

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



**Remarks**  
**Survey Data, Mud Reports, Other Info.**

ALL SAMPLE COLOR DESCRIPTIONS REFERENCE TO THE G.S.A. ROCK COLOR CHART.

ALL SAMPLE COLOR DESCRIPTIONS REFERENCE TO THE G.S.A. ROCK COLOR CHART.

ROCK CHARACTERISTICS AND CONSTITUENTS ARE LISTED FROM MOST ABUNDANT TO LEAST ABUNDANT PERCENTAGE OF SAMPLE.

GAS CALIBRATED TO S.P.L.W.A. STANDARDS (2% ME = 100 UNITS). GAS CHROMATOGRAPHY EQUIPMENT CALIBRATED TO A TEST GAS COMPOSED OF THE FOLLOWING:

METHANE = 9,990 PPM  
 ETHANE = 1,010 PPM  
 PROPANE = 980 PPM  
 I-BUTANE = 1,000 PPM  
 N-BUTANE = 1,000 PPM  
 I-PENTANE = 1,000 PPM  
 N-PENTANE = 1,000 PPM

EPOCH WELL SERVICES COMMENCED LOGGING THE FRU 296-5A01 WELL ON 9/7/2010 @ 4665' MD.

SHALE = VERY LIGHT GRAY TO LIGHT GRAY TO OCCASIONAL PALE RED PURPLE AND LIGHT YELLOWISH TAN GRAY; SLIGHTLY DENSE TO SLIGHTLY CRUMBLY TO SLIGHTLY BRITTLE TENACITY; IRREGULAR TO SUB-BLOCKY TO SUB-PLANAR TO EARTHY FRACTURE; OCCASIONAL MASSIVE TO WEDGE LIKE CUTTINGS HABIT; DULL TO EARTHY DULL TO SEMI-FROSTED LUSTER; MODERATELY SMOOTH TO MODERATELY CLAYEY TO SLIGHTLY SILTY TEXTURE; VERY SMALL AMOUNT OF CARBONACEOUS SHALE VISIBLY EFFERVESCING IN SAMPLE, NO OTHER DISTINGUISHABLE STRUCTURAL FEATURES PRESENT; TRACE AMOUNT OF ACCESSORY MINERAL PYRITE PRESENT IN SAMPLE.

SANDSTONE = VERY LIGHT GRAY TO VERY LIGHT TANISH BROWN GRAY WITH FEW BLACK AND MODERATE BROWN HUES; QUARTZ DOMINANT; MODERATELY GRAIN SUPPORTED WITH VERY FEW LOOSE GRAINS; CONSISTS OF CALCITIC CEMENTATION WITH MODERATELY HIGH REACTIVITY ON TO DILUTE HCL; MATRIX CONTAINS 3 TO 5% DARK LITHIC FRAGMENTS; MEDIUM-FINE TO MEDIUM-COARSE GRAINED; FAIR TO POOR SORTING; SUB-ANGULAR TO ANGULAR TO SUB-ROUNDED ANGULARITY; LOW TO MODERATE SPHERICITY; VERY POOR GRADE SANDSTONE VISIBLE GRADING WITH POOR GRADE SILTSTONE, NO LAMINAE OR OTHER DISTINGUISHABLE STRUCTURAL FEATURES PRESENT; NO ACCESSORY MINERALS PRESENT IN SAMPLE.

SILTSTONE = LIGHT BROWN TO TAN TO VERY LIGHT GRAY IN COLOR; GRAIN SIZE IS VERY FINE; VERY WELL SORTED; ANGULARITY IS WELL ROUNDED TO ROUNDED; SURFACE FEATURES NOT VISIBLE; SOFT TO EASILY FRIABLE HARDNESS; GRAIN SUPPORTED WITH FEW LITHIC CLASTS; KAOLINITE CLAY PRESENT IN SAMPLE; SILTSTONE INTERBEDDED WITH VERY SOFT SHALES.

SHALE = VERY LIGHT GRAY TO MEDIUM GRAY WITH SOME SAMPLES BEING A TAN TO BROWN AND SOME HAVING A BLUEISH GREEN HUE; BRITTLE TO CRUMBLY TENACITY; IRREGULAR

NE 7 2 9.875  
 DRILLING  
 18.45 NO PERS  
 OKED 8/25/10

MW IN 9.1 VIS 47 PH 11.3  
 MW OUT 9.0 VIS 42 PH 11.0

CG.11u

MW IN 9.1 VIS 48 PH 11.1  
 MW OUT 9.2 VIS 42 PH 11.2

CG.8u

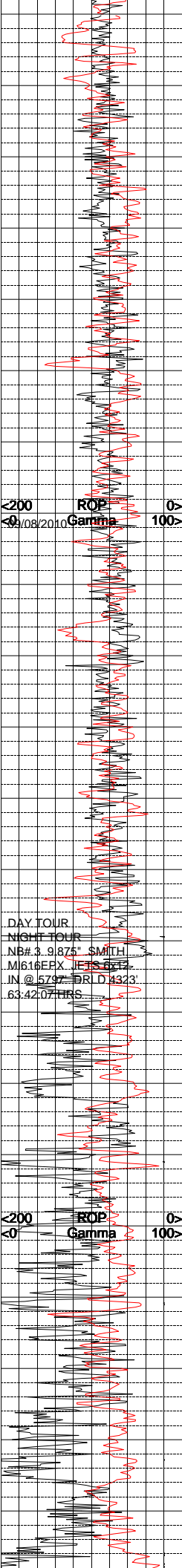
RESET Ttl Gas 100<10 Meth C-1 100K<  
 CO2 10K<10 Ethn C-2 100K<  
 Flare Ht. 100<10 Prop C-3 100K<  
 CG.8u Butn C-4 100K<  
 Pent C-5 100K<

NO DATA YP 28  
 FL 8.2 G 15.7 PH 11.0  
 CL 400 Ca+ 20 MBT 15.0 SOL 4.3  
 24 HR MUD LOSS 15.0

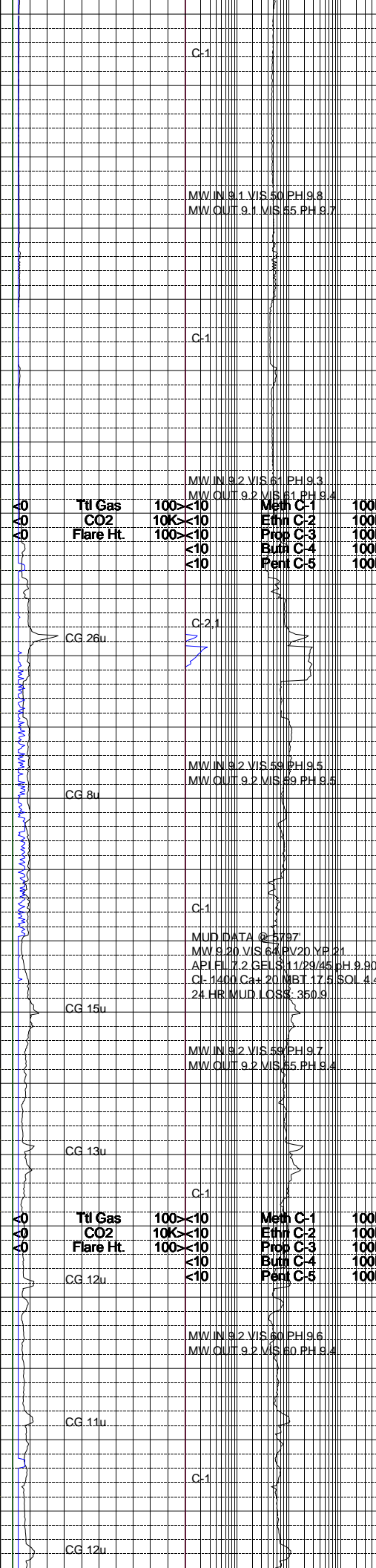
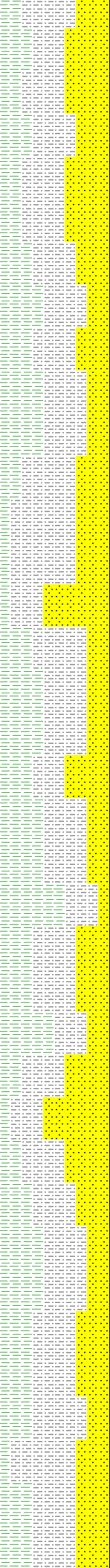
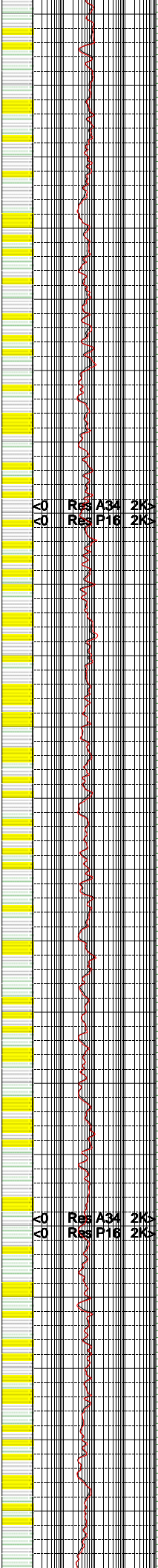
MW IN 9.1 VIS 43 PH 9.8  
 MW OUT 9.2 VIS 45 PH 9.9

CG.6u

RESET ROP 0  
 LIGHT TOUCH Gamma 100<



5200  
5300  
5400  
5500  
5600  
5700  
5800  
5900  
6000  
6100  
6200



C-1

MW.IN 8.1 VIS 50 PH 9.8  
MW.OUT 9.1 VIS 65 PH 9.7

C-1

MW.IN 8.2 VIS 61 PH 9.3  
MW.OUT 9.2 VIS 81 PH 9.4

Meth C-1 100K  
Ethn C-2 100K  
Prop C-3 100K  
Butn C-4 100K  
Pent C-5 100K

CG 26u

C-2.1

MW.IN 8.2 VIS 59 PH 9.5  
MW.OUT 9.2 VIS 89 PH 9.5

CG 8u

C-1

MUD DATA @ 5797  
MW 8.20.VIS 64 RV20.YR 21  
API FLU 7.2 GELS 11.1/29/45 PH 9.90  
CL 1400 Ca+ 21 MBT 17.5 SOL 4.4  
24 HR MUD LOSS 350.9

CG 15u

MW.IN 8.2 VIS 59 PH 9.7  
MW.OUT 9.2 VIS 85 PH 9.4

CG 13u

C-1

Meth C-1 100K  
Ethn C-2 100K  
Prop C-3 100K  
Butn C-4 100K  
Pent C-5 100K

CG 12u

MW.IN 8.2 VIS 60 PH 9.6  
MW.OUT 9.2 VIS 80 PH 9.4

CG 11u

C-1

CG 12u

SANDSTONE = VERY LIGHT GRAY TO GRAY COLOR WITH SOME BROWNISH RED STAINING; LOWER FINE TO UPPER FINE GRAINED; WELL TO FAIR SORTING; SUBROUND TO SUBANGULAR ANGULARITY; MODERATE SPHERICITY; SOME FROSTED/POLISHED GRAINS; MODERATELY HARD TO FRIABLE HARDNESS; HIGHLY REACTIVE WITH A 10% HCL SOLUTION INDICATING CALCITE CEMENTATION; GRAIN SUPPORTED; DARK LITHIC CLASTS PRESENT IN SAMPLE; NO ACCESSORY MINERAL PRESENT IN SAMPLE.

SILTSTONE = LIGHT BROWN TO TAN TO VERY LIGHT GRAY IN COLOR; GRAIN SIZE IS VERY FINE; VERY WELL SORTED; ANGULARITY IS WELL ROUNDED TO ROUNDED; SURFACE FEATURES NOT VISIBLE; SOFT TO EASILY FRIABLE HARDNESS; GRAIN SUPPORTED WITH FEW LITHIC CLASTS; KAOLINITE CLAY PRESENT IN SAMPLE; SILTSTONE INTERBEDDED WITH VERY SOFT SHALES.

SHALE = VERY LIGHT GRAY TO MEDIUM GRAY WITH SOME SAMPLES BEING A TAN TO BROWN AND SOME HAVING A BLUEISH GREEN HUE; BRITTLE TO CRUMBLY TENACITY; IRREGULAR TO BLOCKY FRACTURE; MASSIVE CUTTINGS HABIT; DULL TO EARTHY LUSTER; SMOOTH TO CLAYEY TEXTURE; NO VISIBLE STRUCTURES PRESENT; INTERBEDDED WITH SILTSTONE AND SOME SANDSTONE; NO ACCESSORY MINERALS PRESENT IN SAMPLE.

SANDSTONE = VERY LIGHT GRAY TO WHITE TO TRANSLUCENT GRAINS WITH SOME REDISH PINK GRAINS; LOWER FINE TO UPPER FINE GRAINED; WELL TO FAIR SORTING; SUBROUND TO SUBANGULAR ANGULARITY; MODERATE SPHERICITY; SOME FROSTED/POLISHED GRAINS; MODERATELY HARD TO FRIABLE HARDNESS; HIGHLY REACTIVE WITH A 10% HCL SOLUTION INDICATING CALCITE CEMENTATION; GRAIN SUPPORTED; DARK LITHIC CLASTS PRESENT IN SAMPLE; NO ACCESSORY MINERAL PRESENT IN SAMPLE.

SILTSTONE = LIGHT BROWN TO TAN TO VERY LIGHT GRAY IN COLOR WITH SOME SAMPLES BEING REDISH PINK; GRAIN SIZE IS VERY FINE; VERY WELL SORTED; ANGULARITY IS WELL ROUNDED TO ROUNDED; SURFACE FEATURES NOT VISIBLE; SOFT TO EASILY FRIABLE HARDNESS; GRAIN SUPPORTED WITH FEW LITHIC CLASTS; KAOLINITE CLAY PRESENT IN SAMPLE; SILTSTONE INTERBEDDED WITH VERY SOFT SHALES.

SHALE = VERY LIGHT GRAY TO MEDIUM GRAY WITH SOME SAMPLES BEING A TAN TO BROWN AND SOME HAVING A BLUEISH GREEN HUE; BRITTLE TO CRUMBLY TENACITY; IRREGULAR TO BLOCKY FRACTURE; MASSIVE CUTTINGS HABIT; DULL TO EARTHY LUSTER; SMOOTH TO CLAYEY TEXTURE; NO VISIBLE STRUCTURES PRESENT; INTERBEDDED WITH SILTSTONE AND SOME SANDSTONE; NO ACCESSORY MINERALS PRESENT IN SAMPLE.

SANDSTONE = VERY LIGHT GRAY TO WHITE TO TRANSLUCENT TO PINKISH RED TO BROWN GRAINS; LOWER FINE TO UPPER FINE GRAINED; WELL TO FAIR SORTING; SUBROUND TO SUBANGULAR ANGULARITY; MODERATE SPHERICITY; SOME FROSTED/POLISHED GRAINS; MODERATELY HARD TO FRIABLE HARDNESS; HIGHLY REACTIVE WITH A 10% HCL SOLUTION INDICATING CALCITE CEMENTATION; GRAIN SUPPORTED; DARK LITHIC CLASTS PRESENT IN SAMPLE; NO ACCESSORY MINERAL PRESENT IN SAMPLE.

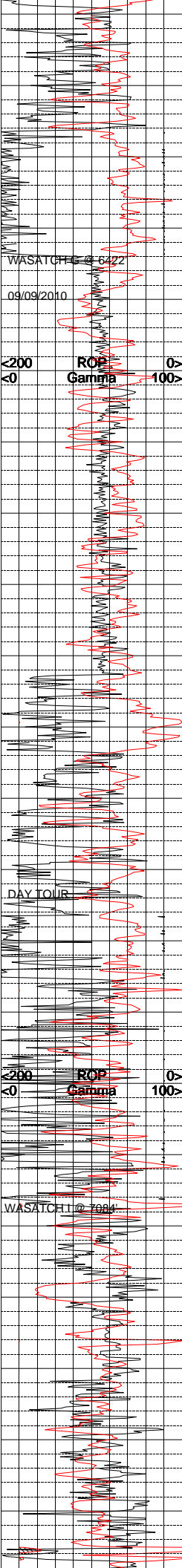
SILTSTONE = LIGHT BROWN TO TAN TO VERY LIGHT GRAY IN COLOR WITH SOME SAMPLES BEING REDISH PINK; GRAIN SIZE IS VERY FINE; VERY WELL SORTED; ANGULARITY IS WELL ROUNDED TO ROUNDED; SURFACE FEATURES NOT VISIBLE; SOFT TO EASILY FRIABLE HARDNESS; GRAIN SUPPORTED WITH FEW LITHIC CLASTS; KAOLINITE CLAY PRESENT IN SAMPLE; SILTSTONE INTERBEDDED WITH VERY SOFT SHALES.

SHALE = VERY LIGHT GRAY TO MEDIUM GRAY WITH SOME SAMPLES BEING A TAN TO BROWN AND SOME HAVING A BLUEISH GREEN HUE; BRITTLE TO CRUMBLY TENACITY; IRREGULAR TO BLOCKY FRACTURE; MASSIVE CUTTINGS HABIT; DULL TO EARTHY LUSTER; SMOOTH TO CLAYEY TEXTURE; NO VISIBLE STRUCTURES PRESENT; INTERBEDDED WITH SILTSTONE AND SOME SANDSTONE; NO ACCESSORY MINERALS PRESENT IN SAMPLE.

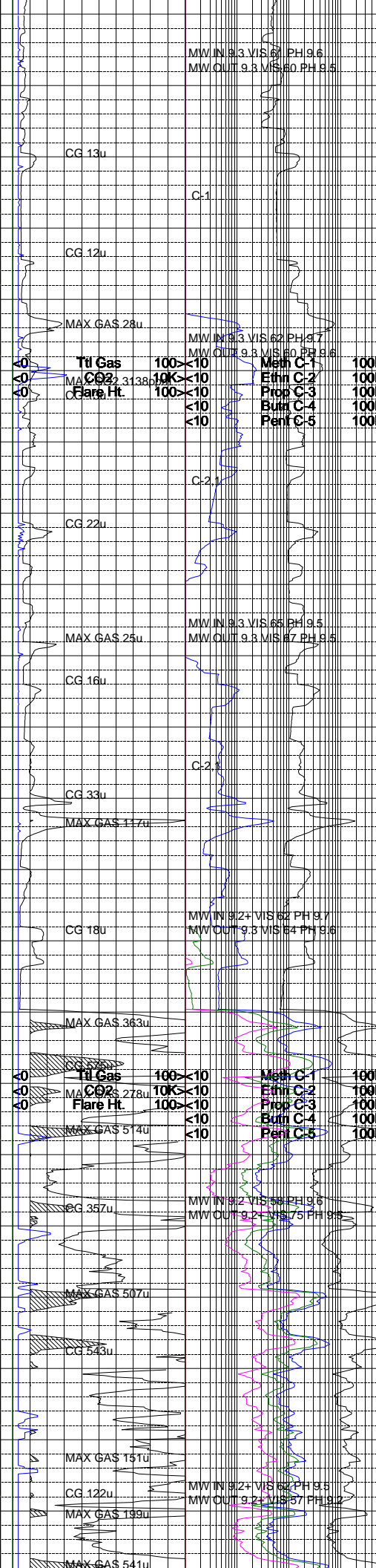
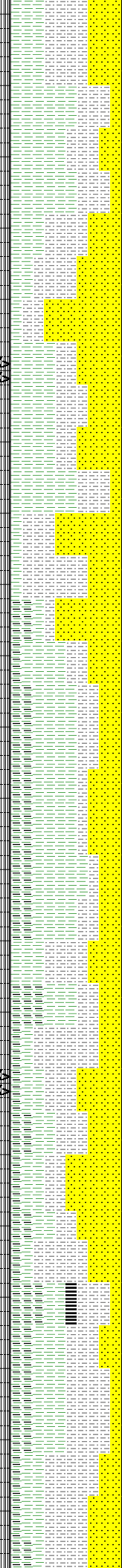
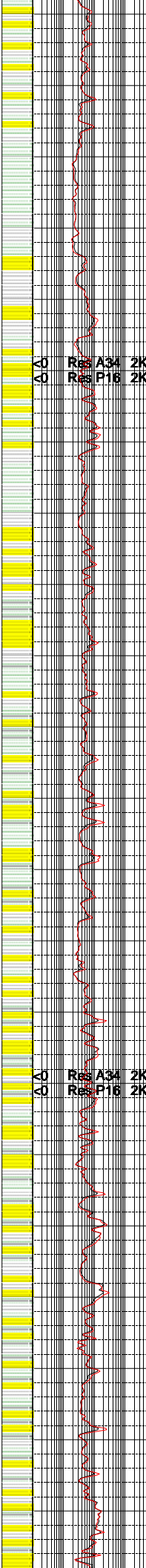
<200 ROP  
Gamma 100

DAY TOUR  
NIGHT TOUR  
NB# 3.9.876 SMITH  
M616EPX JF 3.8.13  
IN @ 5797 DRI D 4323  
63.42.07.HRS

<200 ROP  
Gamma 100



6300  
6400  
6500  
6600  
6700  
6800  
6900  
7000  
7100  
7200  
7300



MW IN 9.3 VIS 67 PH 9.6  
MW OUT 9.3 VIS 80 PH 9.5

MW IN 9.3 VIS 62 PH 9.7  
MW OUT 9.3 VIS 80 PH 9.6

MW IN 9.3 VIS 65 PH 9.5  
MW OUT 9.3 VIS 87 PH 9.5

MW IN 9.2+ VIS 62 PH 9.7  
MW OUT 9.3 VIS 84 PH 9.6

MW IN 9.2 VIS 62 PH 9.6  
MW OUT 9.2 VIS 75 PH 9.5

MW IN 9.2+ VIS 62 PH 9.8  
MW OUT 9.2+ VIS 57 PH 9.2

SANDSTONE = VERY LIGHT GRAY TO WHITE TO TRANSLUCENT TO PINKISH RED TO BROWN GRAINS; LOWER FINE TO UPPER FINE GRAINED; WELL TO FAIR SORTING; SUBROUND TO SUBANGULAR ANGULARITY; MODERATE SPHERICITY; SOME FROSTED/POLISHED GRAINS; MODERATELY HARD TO FRIABLE HARDNESS; HIGHLY REACTIVE WITH A 10% HCL SOLUTION INDICATING CALCITE CEMENTATION; GRAIN SUPPORTED; DARK LITHIC CLASTS PRESENT IN SAMPLE; KAOLINITE CLAY PRESENT IN SAMPLE.

SILTSTONE = LIGHT BROWN TO TAN TO VERY LIGHT GRAY IN COLOR WITH SOME SAMPLES BEING REDISH PINK TO A DARK BROWN COLOR; GRAIN SIZE IS VERY FINE TO FINE TO UPPER FINE; VERY WELL SORTED; ANGULARITY IS WELL ROUNDED TO ROUNDED; SURFACE FEATURES NOT VISIBLE; SOFT TO EASILY FRIABLE HARDNESS; GRAIN SUPPORTED WITH FEW LITHIC CLASTS; KAOLINITE CLAY PRESENT IN SAMPLE; SILTSTONE INTERBEDDED WITH SHALE AND SANDSTONE.

SHALE = VERY LIGHT GRAY TO MEDIUM GRAY WITH SOME SAMPLES HAVING A BLUISH HUE; BRITTLE TO CRUMBLY TENACITY; IRREGULAR TO BLOCKY FRACTURE; MASSIVE CUTTINGS HABIT; DULL TO EARTHY LUSTER; SMOOTH TO CLAYEY TEXTURE; NO VISIBLE STRUCTURES PRESENT; INTERBEDDED WITH SILTSTONE AND SOME SANDSTONE; NO ACCESSORY MINERALS PRESENT IN SAMPLE.

SANDSTONE = VERY LIGHT GRAY TO WHITE TO TRANSLUCENT GRAINS; UPPER FINE TO MEDIUM GRAINED; WELL SORTED; SUBROUNDED TO SUBANGULAR ANGULARITY; MODERATE SPHERICITY; SOME SAMPLES SHOW SURFACE FEATURES OF MECHANICAL ABRASION; MODERATELY HARD TO FRIABLE HARDNESS; HIGHLY REACTIVE WITH A 10% HCL SOLUTION INDICATING CALCITE CEMENTATION; GRAIN SUPPORTED; DARK LITHIC CLASTS PRESENT IN SAMPLE; NO ACCESSORY MINERALS PRESENT IN SAMPLE.

CARBONACEOUS SHALE = VERY DARK GRAY TO ALMOST BLACK IN COLOR; DENSE TO BRITTLE TENACITY; IRREGULAR TO BLOCKY FRACTURE; MASSIVE TO PLATY CUTTINGS HABIT; LUSTER IS DULL TO EARTHY; SMOOTH TO CLAYEY TEXTURE; NO VISIBLE STRUCTURE IN THE SAMPLE.

SILTSTONE = VERY LIGHT GRAY TO LIGHT GRAY TO OCCASIONAL MODERATE REDDISH BROWN IN COLOR; SLIGHTLY DENSE TO SLIGHTLY CRUMBLY TO VERY SLIGHTLY BRITTLE TENACITY; IRREGULAR TO SUB-PLANAR TO EARTHY-HACKLY FRACTURE; SUB-TABULAR TO SUB-NODULAR TO OCCASIONAL SEMI-PLATY CUTTINGS HABIT; DULL TO EARTHY DULL TO OCCASIONAL SEMI-SPARKLING LUSTER; SLIGHTLY CLAYEY TO VERY SLIGHTLY GRITTY TEXTURE; POOR GRADE SILTSTONE VISIBLE BEDDING WITH POOR GRADE SANDSTONE AND POOR GRADE SHALE IN SAMPLE, NO LAMINAE OR OTHER DISTINGUISHABLE STRUCTURAL FEATURES PRESENT; NO ACCESSORY MINERAL PRESENT IN SAMPLE.

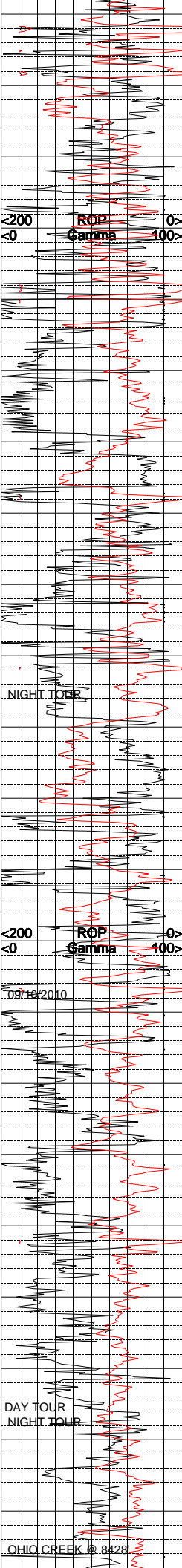
SHALE = LIGHT GRAY TO MEDIUM LIGHT GRAY TO OCCASIONAL LIGHT GRAY AND GRAYISH RED PURPLE MOTTLING IN COLOR; VERY SLIGHTLY TOUGH TO MODERATELY DENSE TO OCCASIONALLY CRUNCHY TENACITY; IRREGULAR TO SUB-BLOCKY TO EARTHY FRACTURE; OCCASIONAL MASSIVE TO WEDGE LIKE TO OCCASIONAL ELONGATED CUTTINGS HABIT; DULL TO EARTHY DULL TO OCCASIONAL SEMI-FROSTED TO SEMI-WAXY LUSTER; MODERATELY SMOOTH TO SLIGHTLY SILTY TEXTURE; NO VISIBLE LAMINAE OR OTHER DISTINGUISHABLE STRUCTURAL FEATURES PRESENT; TRACE AMOUNTS OF ACCESSORY MINERAL PYRITE PRESENT IN SAMPLE.

SANDSTONE = OFF WHITE TO VERY LIGHT GRAY TO VERY LIGHT TANISH BROWN-GRAY TO OCCASIONAL LIGHT BRILLIANT GREEN WITH FEW BLACK AND MODERATE BROWN HUES IN COLOR; QUARTZ DOMINANT; PREDOMINATELY GRAIN SUPPORTED WITH FEW LOOSE GRAINS; CONSISTENT WITH FEW CALCITIC CEMENTATION WITH MODERATE TO HIGH REACTION TO DILUTE HCL; MATRIX CONTAINS 2 TO 4% DARK LITHIC FRAGMENTS; MEDIUM-FINE TO MEDIUM-COARSE GRAINED; FAIR TO POOR SORTING; SUB-ANGULAR TO SUB-ROUNDED TO ROUNDED ANGULARITY; LOW TO MODERATE SPHERICITY; POOR GRADE SILTSTONE VISIBLE GRADING AND BEDDING WITH POOR GRADE SANDSTONE, NO OTHER DISTINGUISHABLE SURFACE FEATURES PRESENT; NO ACCESSORY MINERALS PRESENT IN SAMPLE.

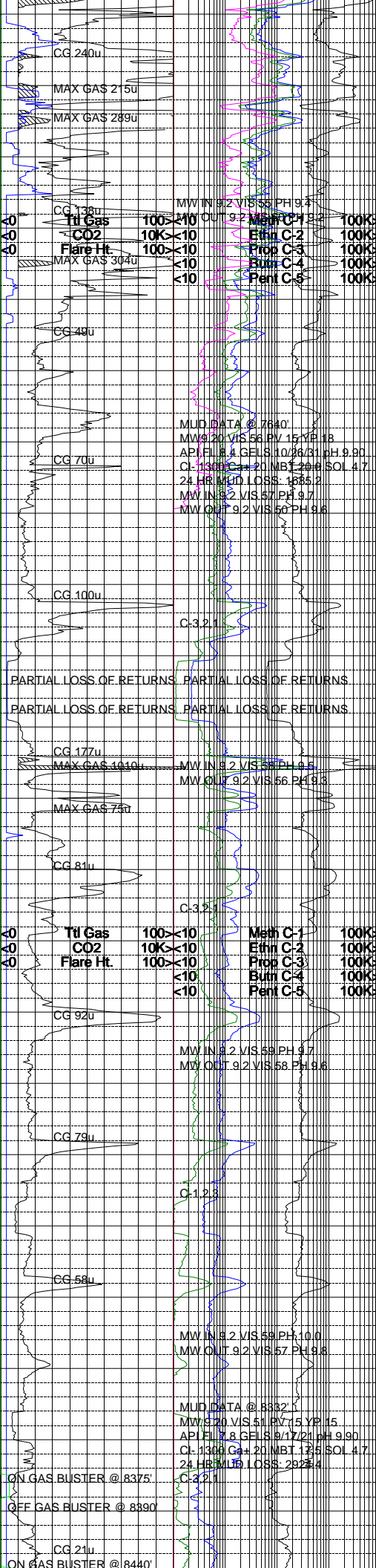
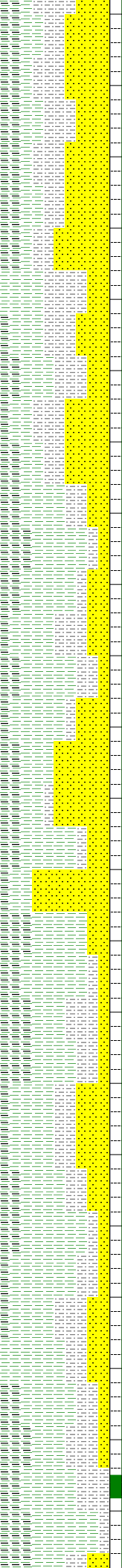
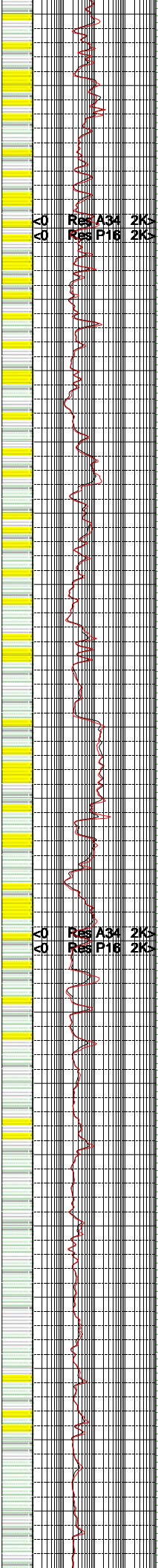
CARBONACEOUS SHALE = BROWNISH GRAY TO DARK BROWNISH GRAY TO OCCASIONAL BROWNISH BLACK IN COLOR; MODERATELY DENSE TO VERY SLIGHTLY TOUGH TO SLIGHTLY CRUNCHY

Ttl Gas 100 <10  
CO2 10K <10  
Flare ht. 100 <10

Met C-1 100K  
Eth C-2 100K  
Frac C-3 100K  
Burn C-4 100K  
Perf C-5 100K



7400  
7500  
7600  
7700  
7800  
7900  
8000  
8100  
8200  
8300  
8400



TENACITY; IRREGULAR TO SUB-BLOCKY TO SUB-PLANAR TO EARTHLY FRACTURE; OCCASIONAL MASSIVE TO WEDGE LIKE TO SUB-TABULAR CUTTINGS HABIT; DULL TO EARTHLY DULL TO SEMI-SPARKLING LUSTER; SLIGHTLY CLAYEY TO VERY SLIGHTLY GRITTY TO OCCASIONAL SEMI-SMOOTH TEXTURE; VERY SMALL AMOUNT OF CARBONACEOUS SHALE LIGHTLY EFFERVESCING IN SAMPLE, SMALL AMOUNT OF KAOLINITIC SANDSTONE IN SAMPLE, NO OTHER DISTINGUISHABLE STRUCTURAL FEATURES PRESENT; TRACE AMOUNTS OF ACCESSORY MINERAL PYRITE VISIBLY PRESENT IN SAMPLE.  
 SHALE = LIGHT GRAY TO MEDIUM LIGHT GRAY TO MEDIUM GRAY TO OCCASIONAL MEDIUM BROWNISH GRAY IN COLOR; MODERATELY TOUGH TO MODERATELY DENSE TENACITY; IRREGULAR TO SUB-BLOCKY TO SUB-PLANAR TO EARTHLY FRACTURE; OCCASIONAL MASSIVE TO WEDGE LIKE TO OCCASIONAL ELONGATED TO SUB-PLATY CUTTINGS HABIT; DULL TO EARTHLY DULL TO OCCASIONAL SEMI-WAXY TO SEMI-FROSTED LUSTER; MODERATELY SMOOTH TO VERY SLIGHTLY SILTY TEXTURE; VERY SMALL AMOUNTS OF CARBONACEOUS SHALE AND COAL VISIBLY EFFERVESCING IN SAMPLE, THIN COAL LAMINAE VISIBLE IN SHALE CUTTING, NO OTHER DISTINGUISHABLE STRUCTURAL FEATURES PRESENT; TRACE AMOUNTS OF ACCESSORY MINERAL PYRITE VISIBLE IN SAMPLE.  
 CARBONACEOUS SHALE = BROWNISH GRAY TO DARK BROWNISH GRAY TO OCCASIONAL BROWNISH COLOR; MODERATELY DENSE TO SLIGHTLY TOUGH TO SLIGHTLY CRUNCHY TENACITY; IRREGULAR TO SUB-BLOCKY TO SUB-PLANAR TO EARTHLY FRACTURE; OCCASIONAL MASSIVE TO WEDGE LIKE TO SUB-TABULAR CUTTINGS HABIT; DULL TO EARTHLY DULL TO SEMI-SPARKLING LUSTER; SLIGHTLY CLAYEY TO SLIGHTLY GRITTY TO OCCASIONALLY SEMI-SMOOTH TEXTURE; VERY SMALL AMOUNTS OF CARBONACEOUS SHALE WHICH SLIGHTLY EFFERVESCED WHEN IN CONTACT WITH A 10% SOLUTION OF HCL; IN SAMPLE, SMALL AMOUNT OF KAOLINITIC SANDSTONE IN SAMPLE; NO OTHER DISTINGUISHABLE STRUCTURAL FEATURES PRESENT.  
 NOTE : CHANGE OF THA ATTENUATION FROM x10 TO x100 AT 7879' MD.  
 SHALE = LIGHT GRAY TO MEDIUM DARK GRAY IN COLOR WITH SOME SAMPLES BEING A VERY LIGHT BROWNISH GRAY OR A BLUEISH GREEN GRAY; TOUGH TO DENSE TO BRITTLE TENACITY; FRACTURE IS PLANAR TO BLOCKY; THE CUTTINGS HABIT IS MASSIVE TO PLATY WITH SOME SAMPLES SHOWING A FLAKY OR SCALY HABIT; DULL TO EARTHLY LUSTER; SMOOTH TO CLAYEY TO SILTY TEXTURE; SOME SAMPLES SHOW LAMINAE TO VERY THIN STRUCTURE WITH THE MAJORITY OF THE SAMPLE HAVING NO STRUCTURE; ACCESSORY MINERALS IN SAMPLE INCLUDE KAOLINITE AND A TRACE AMOUNT OF PYRITE.  
 SILTSTONE = GRAY TO VERY LIGHT GRAY IN COLOR WITH SOME SAMPLES BEING VERY LIGHT BROWN TO A REDDISH BROWN COLOR; TENACITY IS DENSE TO BRITTLE TO CRUNCHY; BLOCKY TO IRREGULAR FRACTURE; MASSIVE TO PLATY CUTTINGS HABIT WITH SOME SAMPLES BEING WEDGE LIKE; LUSTER IS DULL TO EARTHLY; SILTY TO GRITTY TEXTURE; NO VISIBLE STRUCTURE PRESENT; SAMPLES INTERBEDDED WITH SHALE AND CARBONACEOUS SHALE; SOME SAMPLES ARE NOT VERY WELL CONSOLIDATED; NO ACCESSORY MINERALS PRESENT IN THE SAMPLE.  
 SANDSTONE = TRANSLUCENT TO WHITE TO GRAY IN COLOR WITH SOME SAMPLES HAVING BEING A RUSTY BROWN AND SOME HAVING A BLuish GREEN HUE; FRAMEWORK IS DOMINATED BY QUARTZ GRAIN WITH K-SPAR AND LITHIC FRAGMENTS; GRAIN SIZE IS LOWER MEDIUM TO UPPER FINE GRAINED; VERY WELL TO WELL SORTING; ROUNDED TO SUBROUNDED TO SUBANGULAR GRAINS; HIGH TO MODERATE SPHERICITY; SOME INDIVIDUAL GRAINS ARE FROSTED DUE TO MECHANICAL ABRASION; HARDNESS IS HARD TO FRIABLE WITH SOME SAMPLES BEING SOFT AND NOT WELL CONSOLIDATED; VERY LITTLE REACTION WITH 10% HCL SOLUTION; GRAIN SUPPORTED WITH POSSIBLE SILICA CEMENTATION.  
 NOTE : CHANGE OF THA ATTENUATION FROM x100 TO x10 AT 8339' MD.  
 SHALE = LIGHT GRAY TO MEDIUM DARK GRAY IN COLOR WITH SOME SAMPLES BEING A VERY LIGHT BROWNISH GRAY OR A BLUEISH GREEN GRAY; TOUGH TO DENSE TO BRITTLE TENACITY; FRACTURE IS PLANAR TO BLOCKY; THE CUTTINGS HABIT IS MASSIVE TO PLATY WITH SOME SAMPLES SHOWING A FLAKY OR SCALY HABIT; DULL TO EARTHLY LUSTER;

ROP  
Gamma

ROP  
Gamma

09/16/2010

DAY TOUR  
NIGHT TOUR

OHIO CREEK @ 8428'

CG 240u  
MAX GAS 215u  
MAX GAS 289u  
CG 138u  
Ti Gas 100 < 10  
CO2 10K < 10  
Flare Ht. 100 < 10  
MAX GAS 304u  
MW IN 9.2 VIS 58 PH 9.4  
MW OUT 9.2 VIS 56 PH 9.3  
Ethn C-1 100K  
Ethn C-2 100K  
Frac C-3 100K  
Burn C-4 100K  
Perm C-5 100K

MUD DATA @ 7640'  
MW 9.20 VIS 56 PH 15.18  
API FL 8.4 GELS 10.86/31 PH 9.90  
CL 1300 Ca 20 MBT 20.0 SOL 4.7  
24 HR MUD LOSS 4885.2  
MW IN 9.2 VIS 57 PH 9.7  
MW OUT 9.2 VIS 56 PH 9.6

CG 48u  
CG 70u  
CG 100u  
C-3.2.1  
PARTIAL LOSS OF RETURNS  
PARTIAL LOSS OF RETURNS

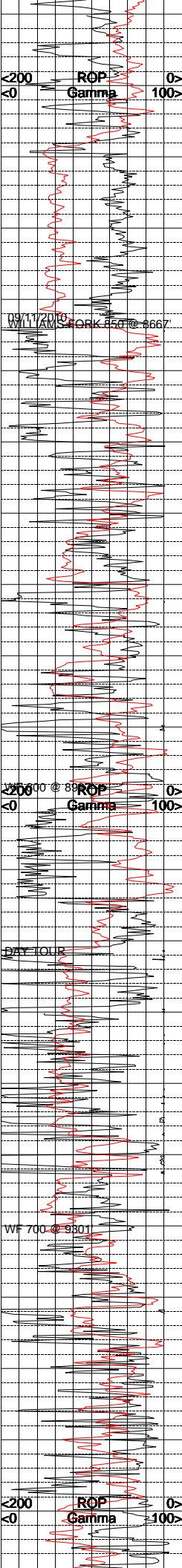
CG 177u  
MAX GAS 1010u  
MAX GAS 75u  
CG 81u  
C-3.2.4

CG 92u  
MW IN 9.2 VIS 58 PH 9.7  
MW OUT 9.2 VIS 58 PH 9.6  
Ethn C-1 100K  
Ethn C-2 100K  
Frac C-3 100K  
Burn C-4 100K  
Perm C-5 100K

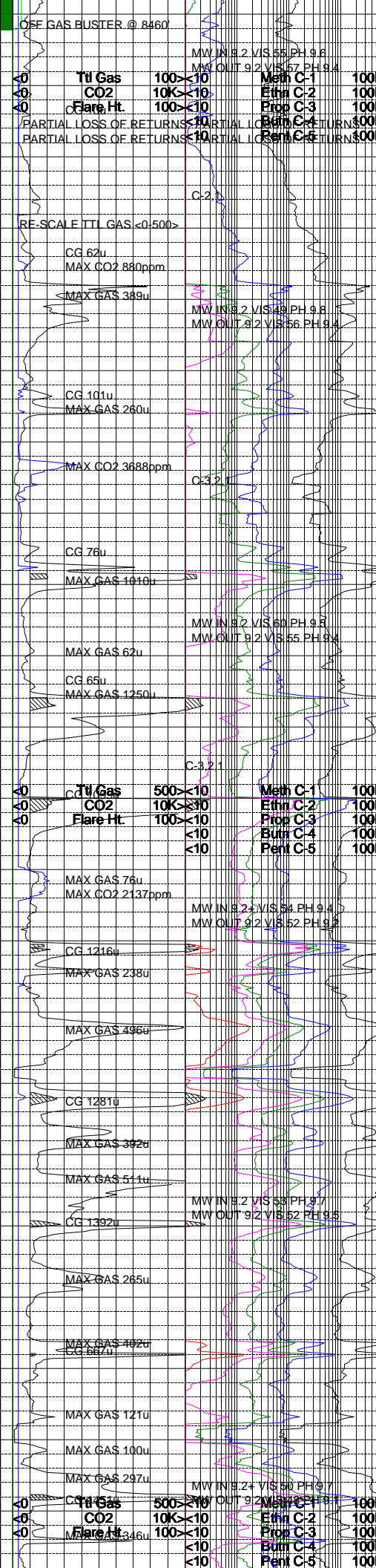
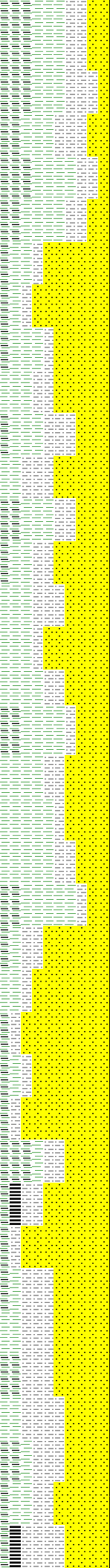
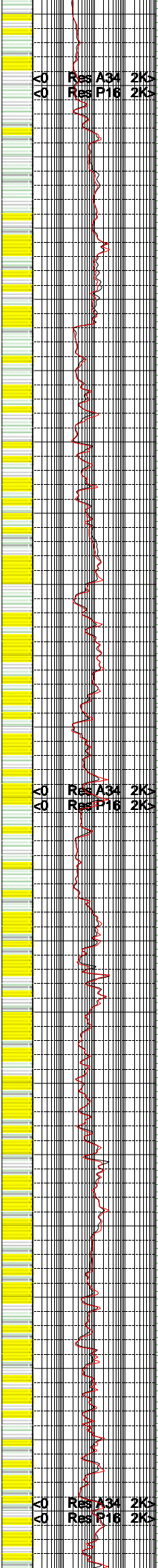
CG 79u  
C-1.2.5

MUD DATA @ 8332'  
MW 9.20 VIS 51 PH 15.15  
API FL 7.8 GELS 9.17/21 PH 9.90  
CL 1300 Ca 20 MBT 17.5 SOL 4.7  
24 HR MUD LOSS 2975.4  
C-2.2.1  
ON GAS BUSTER @ 8375'  
OFF GAS BUSTER @ 8390'

CG 21u  
ON GAS BUSTER @ 8440'



8500  
8600  
8700  
8800  
8900  
9000  
9100  
9200  
9300  
9400  
9500



SMOOTH TO CLAYEY TO SILTY TEXTURE; SOME SAMPLES SHOW LAMINAE TO VERY THIN STRUCTURE WITH THE MAJORITY OF THE SAMPLE HAVING NO STRUCTURE.

CARBONEOUS SHALE = BLACK TO A VERY DARK BROWN COLOR; DENSE TO BRITTLE TENACITY; IRREGULAR TO PLANAR FRACTURE; CUTTINGS HABIT IS PLATY TO WEDGE LIKE TO BLADED; DULL TO EARTHY LUSTER; SMOOTH TO CLAYEY TO SILTY TEXTURE; NO VISIBLE STRUCTURE IN THE SAMPLE.

SILTSTONE = LIGHT BROWN TO TAN TO A REDISH BROWN COLOR; CRUMBLY TO CRUNCHY TENACITY; SOME SAMPLE IS NOT VERY WELL CONSOLIDATED; IRREGULAR TO BLOCKY FRACTURE; MASSIVE CUTTINGS HABIT; DULL EARTHY LUSTER WITH SOME HAVING A GREASY LUSTER; SILTY TO GRITTY TEXTURE; NO VISIBLE STRUCTURE OR ACCESSORY MINERALS.

SANDSTONE = TRANSLUCENT TO WHITE GRAINS; QUARTZ FRAMEWORK; UPPER FINE TO LOWER MEDIUM GRAIN SIZE; VERY WELL TO WELL SORTING; ROUND TO SUBROUND TO SUB ANGULAR GRAINS; SPERICITY IS HIGH TO MODERATE; SOME FROSTED GRAINS; FIRMLY FRIABLE TO HARD; CALCITE CEMENTATION; GRAIN SUPPORTED; FEW LITHIC CLASTS; HIGHLY REACTIVE WITH A 10% HCL SOLUTION; NO VISIBLE FLOURECENSE.

SHALE = VERY LIGHT GRAY TO DARK GRAY TO A VERY LIGHT BLUEISH GRAY; BRITTLE TO CRUNCHY TENACITY; PLANAR TO IRREGULAR FRACTURE; PLATY TO WEDGE LIKE TO BLADED CUTTINGS HABIT; DULL TO EARTHY LUSTER; SMOOTH TO CLAYEY TEXTURE; LAMINAE TO THIN STRUCTURE; INTERBEDDED WITH SILTSTONE AND SANDSTONE.

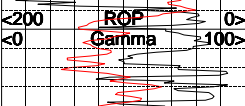
SILTSTONE = LIGHT BROWN TO TAN TO A REDISH BROWN COLOR; CRUMBLY TO CRUNCHY TENACITY; SOME SAMPLE IS NOT VERY WELL CONSOLIDATED; IRREGULAR TO BLOCKY FRACTURE; MASSIVE CUTTINGS HABIT; DULL EARTHY LUSTER WITH SOME HAVING A GREASY LUSTER; SILTY TO GRITTY TEXTURE; NO VISIBLE STRUCTURE OR ACCESSORY MINERALS.

SANDSTONE = TRANSLUCENT TO WHITE GRAINS; QUARTZ FRAMEWORK; UPPER FINE TO LOWER MEDIUM GRAIN SIZE; VERY WELL TO WELL SORTING; ROUND TO SUBROUND TO SUB ANGULAR GRAINS; SPERICITY IS HIGH TO MODERATE; SOME FROSTED GRAINS; FIRMLY FRIABLE TO HARD; CALCITE CEMENTATION; GRAIN SUPPORTED; FEW LITHIC CLASTS; HIGHLY REACTIVE WITH A 10% HCL SOLUTION; NO VISIBLE FLOURECENSE.

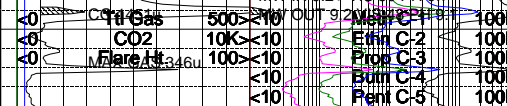
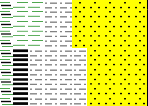
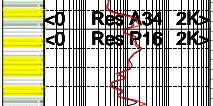
CARBONEOUS SHALE = BROWNISH GRAY TO DARK BROWNISH GRAY TO BROWNISH BLACK TO OCCASIONAL OLIVE BLACK IN COLOR; MODERATELY DENSE TO SLIGHTLY TOUGH TENACITY; IRREGULAR TO SUB-BLOCKY TO SUB-PLANAR TO EARTHY FRACTURE; MOSTLY SMALLER CUTTINGS HABIT; DULL TO EARTHY DULL TO OCCASIONAL SEMI-SPARKLING LUSTER; SEMI-SMOOTH TO VERY SLIGHTLY GRITTY TEXTURE; POOR GRADE SILTSTONE VISIBLE GRADING WITH POOR GRADE SANDSTONE, VERY THIN COAL LAMINAE VISIBLE IN SHALE CUTTING, VERY SMALL AMOUNT OF CARBONEOUS SHALE VISIBLE EFFERVESCING IN SAMPLE, NO OTHER DISTINGUISHABLE STRUCTURAL FEATURES PRESENT IN SAMPLE; NO VISIBLE ACCESSORY MINERALS PRESENT IN SAMPLE.

SHALE = VERY LIGHT GRAY TO LIGHT GRAY TO OCCASIONAL MEDIUM LIGHT GRAY IN COLOR; MODERATELY DENSE TO VERY SLIGHTLY TOUGH TO OCCASIONAL CRUNCHY TENACITY; IRREGULAR TO SEMI-BLOCKY TO SEMI-PLANAR TO EARTHY FRACTURE; OCCASIONAL MASSIVE TO SUB-PLANAR TO WEDGE LIKE TO OCCASIONAL ELONGATED CUTTINGS HABIT; DULL TO EARTHY DULL TO OCCASIONAL SEMI-FROSTED TO SEMI-WAXY LUSTER; MODERATELY SMOOTH TO SEMI-SILTY TEXTURE; POOR GRADE SANDSTONE VISIBLE IN CONTACT WITH COAL, SMALL AMOUNT OF CARBONEOUS SHALE AND COAL VISIBLE EFFERVESCING IN SAMPLE, NO OTHER DISTINGUISHABLE STRUCTURAL FEATURES PRESENT IN SAMPLE; TRACE AMOUNTS OF ACCESSORY MINERAL PYRITE PRESENT IN SAMPLE.

SILTSTONE = LIGHT GRAY TO MEDIUM LIGHT GRAY WITH FEW BLACK HUES IN COLOR; MODERATELY DENSE TO OCCASIONAL BRITTLE TENACITY; IRREGULAR TO SUB-PLANAR TO EARTHY-FRACTURE; SUB-TABULAR TO SUB-ANGULAR CUTTINGS HABIT; DULL TO EARTHY DULL TO OCCASIONAL SEMI-SPARKLING LUSTER; SLIGHTLY GRITTY TO VERY SLIGHTLY GRANULAR TEXTURE; POOR GRADE SANDSTONE VISIBLE GRADING WITH POOR GRADE SILTSTONE, NO LAMINAE OR OTHER DISTINGUISHABLE STR

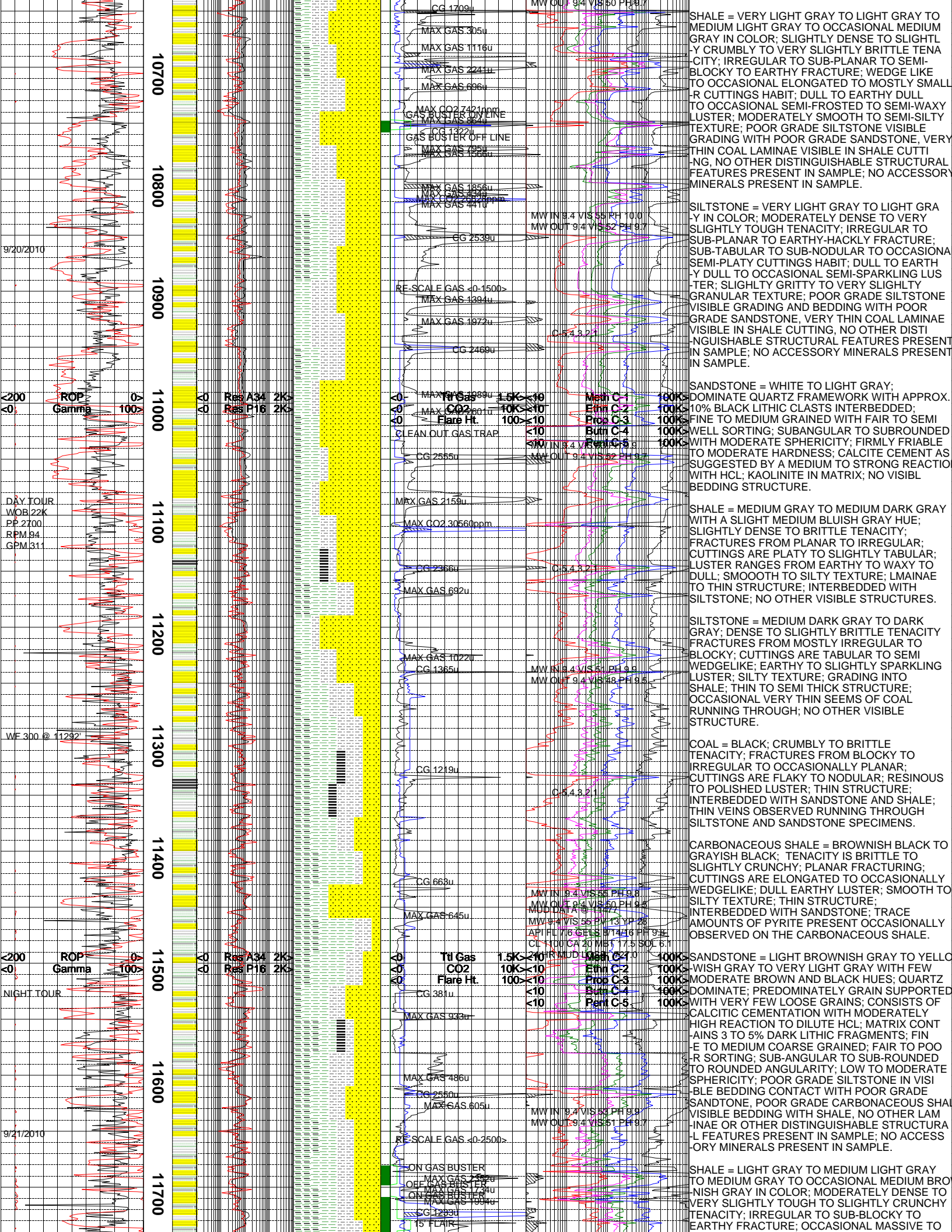


9500



SILTSTONE = LIGHT GRAY TO MEDIUM LIGHT GRAY WITH FEW BLACK HUES IN COLOR; MODERATELY DENSE TO OCCASIONAL BRITTLE TENACITY; IRREGULAR TO SUB-PLANAR TO EARTHY-FRACTURE; SUB-TABULAR TO SUB-ANGULAR CUTTINGS HABIT; DULL TO EARTHY DULL TO OCCASIONAL SEMI-SPARKLING LUSTER; SLIGHTLY GRITTY TO VERY SLIGHTLY GRANULAR TEXTURE; POOR GRADE SANDSTONE VISIBLE GRADING WITH POOR GRADE SILTSTONE, NO LAMINAE OR OTHER DISTINGUISHABLE STR





10700  
10800  
10900  
11000  
11100  
11200  
11300  
11400  
11500  
11600  
11700

ROP  
Gamma  
DAY TOUR  
WOB 22K  
PP 2700  
RPM 94  
GPM 311  
WF 300 @ 11292  
NIGHT TOUR

Res A34 2K  
Res P16 2K

CG 1709u  
MAX GAS 305u  
MAX GAS 1116u  
MAX GAS 224u  
MAX GAS 696u  
MAX CO2 7421ppm  
GAS BUSTER OFF LINE  
ICG 1322u  
GAS BUSTER OFF LINE  
MAX GAS 795u  
MAX GAS 1528u  
MAX GAS 1856u  
MAX GAS 1824u  
MAX CO2 2322ppm  
MAX GAS 4410u  
MW IN 9.4 VIS 55 PH 9.7  
MW OUT 9.4 VIS 52 PH 9.7  
CG 2539u  
RE-SCALE GAS <0-1500>  
MAX GAS 1994u  
MAX GAS 1972u  
CG 2469u  
MAX GAS 1999u  
MAX GAS 1600u  
CLEAN OUT GAS TRAP  
CG 2555u  
MW IN 9.4 VIS 52 PH 9.7  
MW OUT 9.4 VIS 52 PH 9.7  
MAX GAS 2159u  
MAX CO2 3056ppm  
CG 2356u  
MAX GAS 692u  
MAX GAS 1022u  
CG 1365u  
MW IN 9.4 VIS 53 PH 9.8  
MW OUT 9.4 VIS 48 PH 8.5  
CG 1219u  
CG 663u  
MW IN 9.4 VIS 53 PH 9.8  
MW OUT 9.4 VIS 50 PH 8.4  
MUD DATA @ 11472  
MW 9.4 VIS 55 PH 13 VP 28  
API FLUID GELS 17446 PH 9.8  
CL <100> CA 20 HES 17.5 SOL 6.1  
MAX GAS 645u  
CG 381u  
MAX GAS 933u  
MAX GAS 486u  
CG 2550u  
MAX GAS 605u  
MW IN 9.4 VIS 53 PH 9.8  
MW OUT 9.4 VIS 51 PH 9.7  
RE-SCALE GAS <0-2500>  
ON GAS BUSTER  
OFF MAX GAS 1734u  
ON GAS BUSTER  
MAX GAS 1094u  
CG 1233u  
15 FLAIR

SHALE = VERY LIGHT GRAY TO LIGHT GRAY TO MEDIUM LIGHT GRAY TO OCCASIONAL MEDIUM GRAY IN COLOR; SLIGHTLY DENSE TO SLIGHTLY CRUMBLY TO VERY SLIGHTLY BRITTLE TENACITY; IRREGULAR TO SUB-PLANAR TO SEMI-BLOCKY TO EARTHY FRACTURE; WEDGE LIKE TO OCCASIONAL ELONGATED TO MOSTLY SMALL FR CUTTINGS HABIT; DULL TO EARTHY DULL TO OCCASIONAL SEMI-FROSTED TO SEMI-WAXY LUSTER; MODERATELY SMOOTH TO SEMI-SILTY TEXTURE; POOR GRADE SILTSTONE VISIBLE GRADING WITH POOR GRADE SANDSTONE, VERY THIN COAL LAMINAE VISIBLE IN SHALE CUTTING, NO OTHER DISTINGUISHABLE STRUCTURAL FEATURES PRESENT IN SAMPLE; NO ACCESSORY MINERALS PRESENT IN SAMPLE.

SILTSTONE = VERY LIGHT GRAY TO LIGHT GRAY IN COLOR; MODERATELY DENSE TO VERY SLIGHTLY TOUGH TENACITY; IRREGULAR TO SUB-PLANAR TO EARTHY-HACKLY FRACTURE SUB-TABULAR TO SUB-NODULAR TO OCCASIONAL SEMI-PLATY CUTTINGS HABIT; DULL TO EARTHY DULL TO OCCASIONAL SEMI-SPARKLING LUSTER; SLIGHTLY GRITTY TO VERY SLIGHTLY GRANULAR TEXTURE; POOR GRADE SILTSTONE VISIBLE GRADING AND BEDDING WITH POOR GRADE SANDSTONE, VERY THIN COAL LAMINAE VISIBLE IN SHALE CUTTING, NO OTHER DISTINGUISHABLE STRUCTURAL FEATURES PRESENT IN SAMPLE; NO ACCESSORY MINERALS PRESENT IN SAMPLE.

SANDSTONE = WHITE TO LIGHT GRAY; DOMINATE QUARTZ FRAMEWORK WITH APPROX. 10% BLACK LITHIC CLASTS INTERBEDDED; FINE TO MEDIUM GRAINED WITH FAIR TO SEMI WELL SORTING; SUBANGULAR TO SUBROUNDED WITH MODERATE SPHERICITY; FIRMLY FRIABLE TO MODERATE HARDNESS; CALCITE CEMENT AS SUGGESTED BY A MEDIUM TO STRONG REACTION WITH HCL; KAOLINITE IN MATRIX; NO VISIBLE BEDDING STRUCTURE.

SHALE = MEDIUM GRAY TO MEDIUM DARK GRAY TO A SLIGHT MEDIUM BLuish GRAY HUE; SLIGHTLY DENSE TO BRITTLE TENACITY; FRACTURES FROM PLANAR TO IRREGULAR; CUTTINGS ARE PLATY TO SLIGHTLY TABULAR; LUSTER RANGES FROM EARTHY TO WAXY TO DULL; SMOOTH TO SILTY TEXTURE; LAMINAE TO THIN STRUCTURE; INTERBEDDED WITH SILTSTONE; NO OTHER VISIBLE STRUCTURES.

SILTSTONE = MEDIUM DARK GRAY TO DARK GRAY; DENSE TO SLIGHTLY BRITTLE TENACITY FRACTURES FROM MOSTLY IRREGULAR TO BLOCKY; CUTTINGS ARE TABULAR TO SEMI WEDGELIKE; EARTHY TO SLIGHTLY SPARKLING LUSTER; SILTY TEXTURE; GRADING INTO SHALE; THIN TO SEMI THICK STRUCTURE; OCCASIONAL VERY THIN SEEMS OF COAL RUNNING THROUGH; NO OTHER VISIBLE STRUCTURE.

COAL = BLACK; CRUMBLY TO BRITTLE TENACITY; FRACTURES FROM BLOCKY TO IRREGULAR TO OCCASIONALLY PLANAR; CUTTINGS ARE FLAKY TO NODULAR; RESINOUS TO POLISHED LUSTER; THIN STRUCTURE; INTERBEDDED WITH SANDSTONE AND SHALE; THIN VEINS OBSERVED RUNNING THROUGH SILTSTONE AND SANDSTONE SPECIMENS.

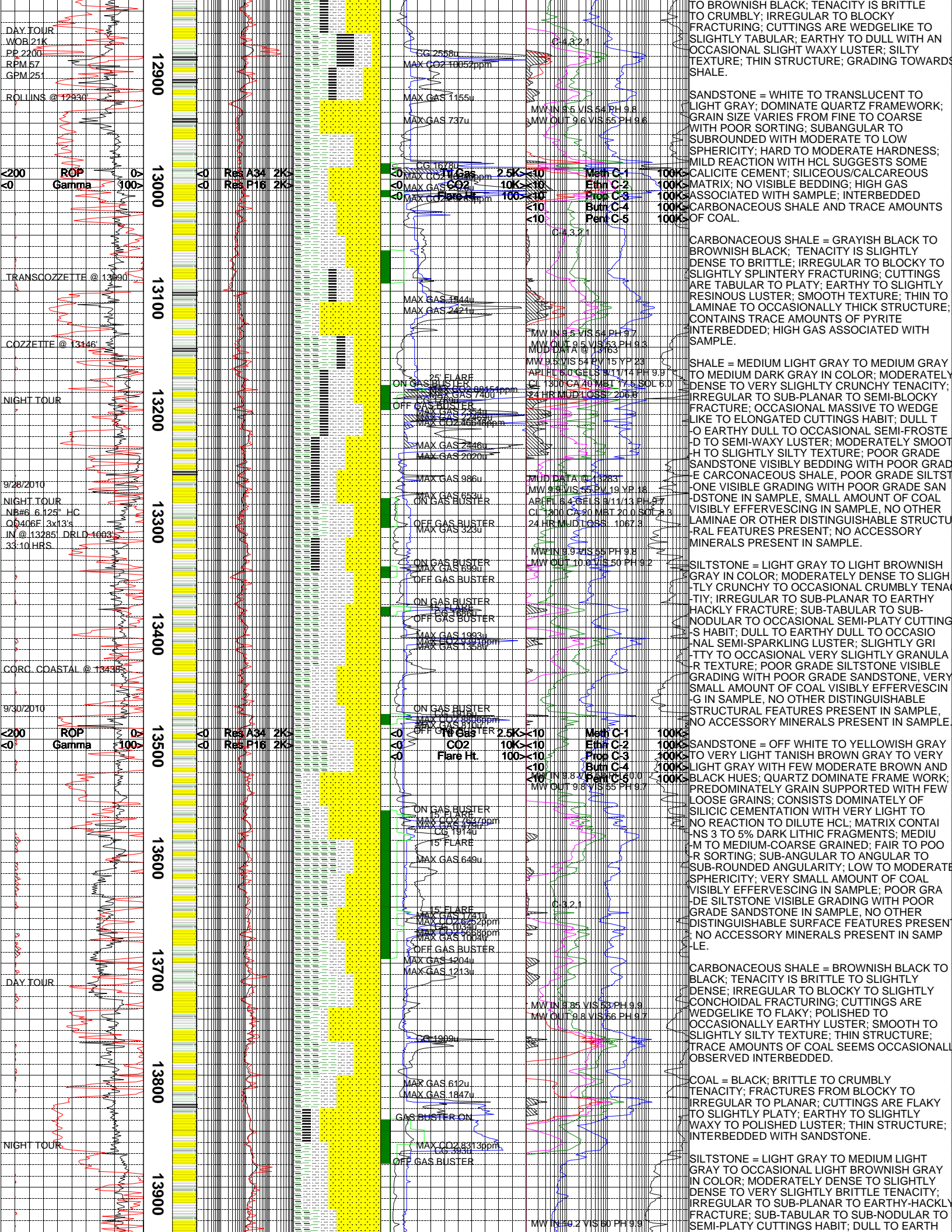
CARBONACEOUS SHALE = BROWNISH BLACK TO GRAYISH BLACK; TENACITY IS BRITTLE TO SLIGHTLY CRUNCHY; PLANAR FRACTURING; CUTTINGS ARE ELONGATED TO OCCASIONALLY WEDGELIKE; DULL EARTHY LUSTER; SMOOTH TO SILTY TEXTURE; THIN STRUCTURE; INTERBEDDED WITH SANDSTONE; TRACE AMOUNTS OF PYRITE PRESENT OCCASIONALLY OBSERVED ON THE CARBONACEOUS SHALE.

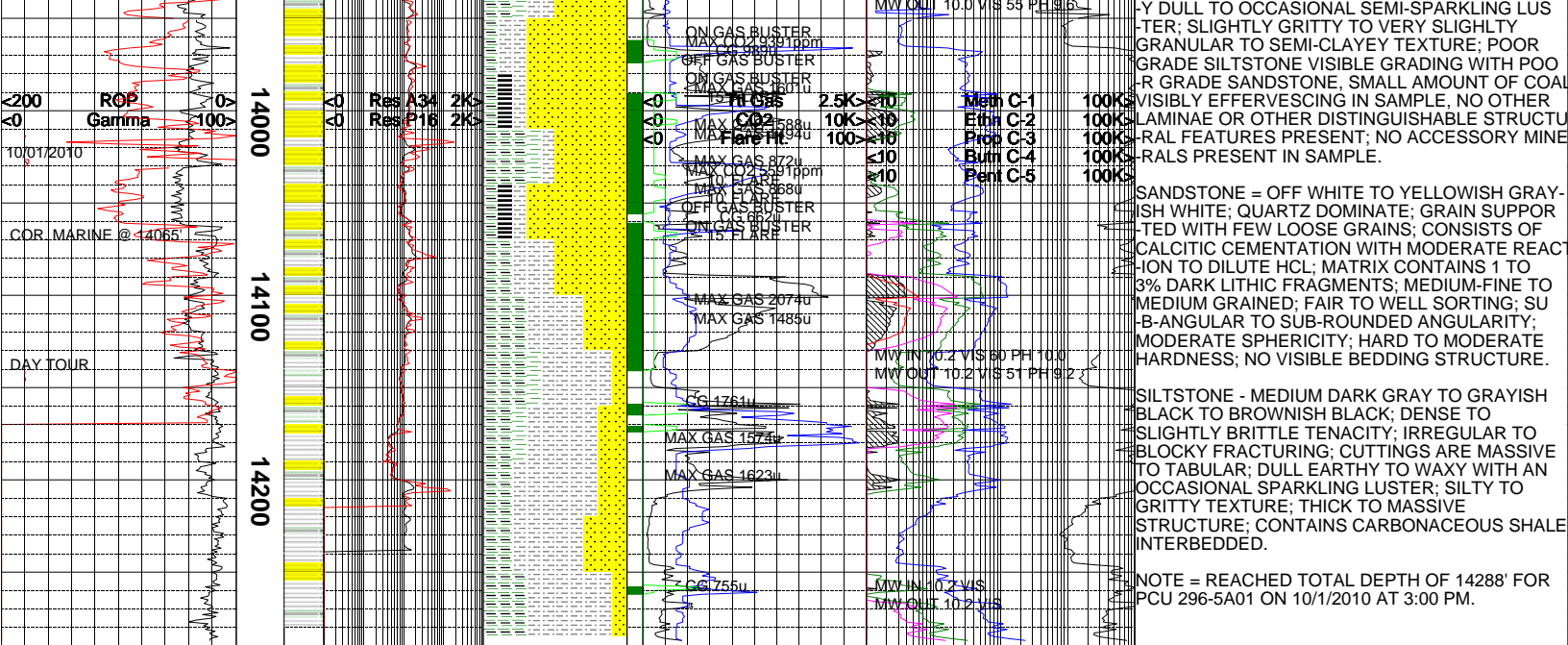
SANDSTONE = LIGHT BROWNISH GRAY TO YELLOWISH GRAY TO VERY LIGHT GRAY WITH FEW MODERATE BROWN AND BLACK HUES; QUARTZ DOMINATE; PREDOMINATELY GRAIN SUPPORTED WITH VERY FEW LOOSE GRAINS; CONSISTS OF CALCITIC CEMENTATION WITH MODERATELY HIGH REACTION TO DILUTE HCL; MATRIX CONTAINS 3 TO 5% DARK LITHIC FRAGMENTS; FINE TO MEDIUM COARSE GRAINED; FAIR TO POOR SORTING; SUB-ANGULAR TO SUB-ROUNDED TO ROUNDED ANGULARITY; LOW TO MODERATE SPHERICITY; POOR GRADE SILTSTONE IN VISIBLE BEDDING CONTACT WITH POOR GRADE SANDSTONE, POOR GRADE CARBONACEOUS SHALE VISIBLE BEDDING WITH SHALE, NO OTHER LAMINAE OR OTHER DISTINGUISHABLE STRUCTURAL FEATURES PRESENT IN SAMPLE; NO ACCESSORY MINERALS PRESENT IN SAMPLE.

SHALE = LIGHT GRAY TO MEDIUM LIGHT GRAY TO MEDIUM GRAY TO OCCASIONAL MEDIUM BROWNISH GRAY IN COLOR; MODERATELY DENSE TO VERY SLIGHTLY TOUGH TO SLIGHTLY CRUNCHY TENACITY; IRREGULAR TO SUB-BLOCKY TO EARTHY FRACTURE; OCCASIONAL MASSIVE TO

Ttl Gas 1.5K <10  
CO2 10K <10  
Flare Ht. 100 >10  
Eth C-1 100K  
Eth C-2 100K  
Eth C-3 100K  
Eth C-4 100K  
Eth C-5 100K







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