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MUDLOG MD

COMPANY ExxonMobil
WELL FRU197-33B5
FIELD Freedom Ranch
REGION Rockies
COORDINATES 39.921295000
108.282534000
ELEVATION 6460.5'
COUNTY, STATE Rio Blanco, CO
API INDEX 051031142500
SPUD DATE 04/24/2010
CONTRACTOR HE
CO. REP. Chad Jarvis
RIG/TYPE HP321
LOGGING UNIT Unit #31
GEOLOGISTS Barbara Delaney
Mike Franco
ADD. PERSONS Chad Record
CO. GEOLOGIST Chris Alba

LOG INTERVAL

CASING DATA

DEPTHS: 4524' TO 12445'
DATES: 04/25/2010 TO 05/13/2010
SCALE: 1"=100'

10.75" AT 4524'
4.5" AT 12444'
AT
AT

MUD TYPES

HOLE SIZE

WATER-BASED TO 12445'
TO
TO
TO

8.750" TO 11087'
7.875" TO 12445'
TO
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	

<100 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

Interp. Lith

Remarks
 Survey Data, Mud Reports, Other Info.

3800

3900

4000

4100

4200

4300

4400

4500

4600

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

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

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

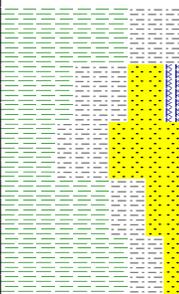
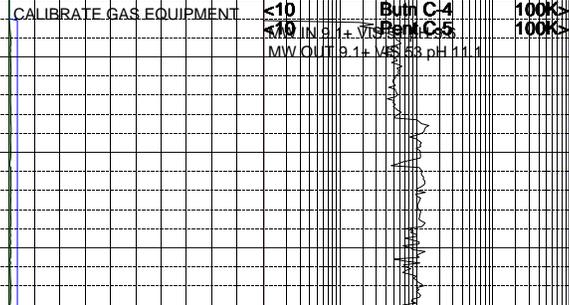
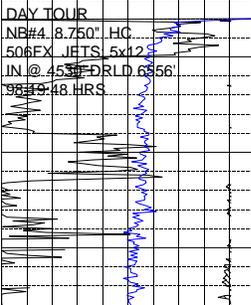
GAS CALIBRATED TO S.P.L.W.A. STANDARDS (2% ME = 100 UNITS). GAS CHROMOTOGRAPHY EQUIPMENT CALIBRATED TO A TEST GAS COMPOSED OF THE FOLLOWING:

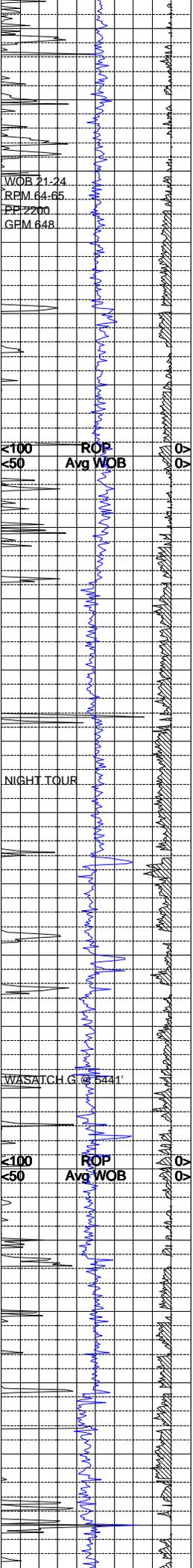
- METHANE = 10,000 PPM
- ETHANE = 1,000 PPM
- PROPANE = 1,000 PPM
- I - BUTANE = 1,000 PPM
- N - BUTANE = 1,000 PPM
- I - PENTANE = 1,000 PPM
- N - PENTANE = 1,000 PPM

EPOCH WELL SERVICES COMMENCED LOGGING ON 04/25/2010 @ 4530'

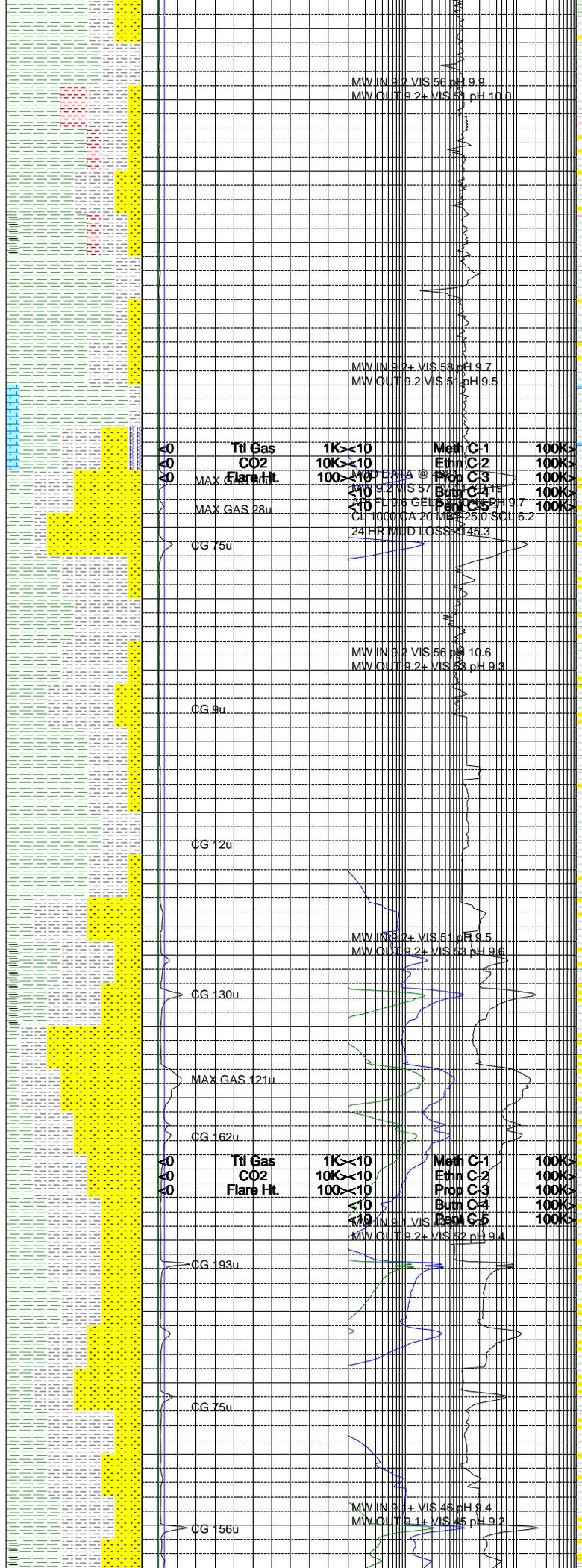
SHALE = LIGHT GRAY TO LIGHT OLIVE GRAY; BRITTLE TO CRUMBLY TO CRUNCHY TENACITY; PREDOMINATELY PLANAR TO OCCASIONALLY BLOCKY FRACTURING; CUTTINGS TEND TO BE PLATY TO FLAKY TO OCCASIONALLY ELONGATED TABULAR IN HABIT; DULL TO SEMI GREASY TO EARTHY LUSTER; SILTY TO SMOOTH TO CLAYEY TEXTURE; VISIBLE NACHOLITE CRYSTALS IN MOST OF SAMPLE; 5-10% PALEOSOLS VISIBLE IN SAMPLE.

SANDSTONE = TRANSLUCENT TO WHITE TO SEMI YELLOWISH GRAY; MOSTLY QUARTZ FRAMEWORK WITH 2-3% DARK LITHICS VISIBLE IN SAMPLE; COARSE TO MEDIUM TO FINE GRAIN SIZE;





4700
4800
4900
5000
5100
5200
5300
5400
5500
5600
5700



MW IN 8.2 VIS 56 pH 9.9
MW OUT 9.2+ VIS 51 pH 10.0

MW IN 8.2+ VIS 58 pH 9.7
MW OUT 9.2 VIS 51 pH 9.5

MW IN 8.2 VIS 56 pH 10.6
MW OUT 9.2+ VIS 53 pH 9.3

MW IN 8.2+ VIS 51 pH 9.5
MW OUT 9.2+ VIS 53 pH 9.6

MW IN 8.1 VIS 53 pH 9.4
MW OUT 9.2+ VIS 52 pH 9.4

MW IN 8.1+ VIS 46 pH 9.4
MW OUT 9.1+ VIS 45 pH 9.2

FAIR TO POORLY SORTED; SUBGROUND TO ROUND GRAINS; MODERATE TO HIGH SPHERICITY; A FEW SAMPLES HAVE A FROSTED APPEARANCE; A FEW CONSOLIDATED GRAINS DUE TO BIT ACTION; CALCITE CEMENTATION DUE TO MODERATE REACTION IN DILUTE HCl; GRAIN-SUPPORTED; NO VISIBLE HYDROCARBONS IN SAMPLE.

SILTSTONE = LIGHT BROWNISH GRAY TO SLIGHT PINISH GRAY TO PALE BROWN; STIFF TO CRUNCHY TO OCCASIONALLY BRITTLE TENACITY; IRREGULAR TO HACKLY TO SEMI BLOCKY FRACTURING; PLATY TO FLAKY TO SLIGHT TABULAR CUTTINGS HABIT; DULL TO FROSTED TO SEMI SPARKLING LUSTER; SILTY TO GRITTY TO OCCASIONAL GRITTY TEXTURE; NO OTHER VISIBLE BEDDING FEATURES.

SHALE = CRUMBLY TO CRUNCHY TO BRITTLE TENACITY; PLANAR TO BLOCKY TO OCCASIONAL HACKLY FRACTURING; CUTTINGS TEND TO BE PLATY TO FLAKY TO SLIGHT TABULAR TO SEMI WEDGELIKE IN HABIT; SEMI GREASY TO SLIGHT WAXY TO DULL EARTHY LUSTER; SMOOTH TO CLAYEY TEXTURE; NO OTHER VISIBLE BEDDING FEATURES.

LIMESTONE = VERY LIGHT GRAY TO LIGHT BROWNISH GRAY TO WHITE; HIGH REACTION IN DILUTE HCl; STIFF TO TOUGH TO CRUNCHY TENACITY; IRREGULAR TO SEMI BLOCKY TO SPLINTERY FRACTURING; WEDGELIKE TO BLADED TO TABULAR CUTTINGS HABIT; VITREOUS TO WAXY TO SLIGHT SPARKLING LUSTER; SMOOTH TO CRYSTAL'N TEXTURE; NO OTHER VISIBLE BEDDING FEATURES.

SILTSTONE = VERY LIGHT GRAY TO LIGHT BROWNISH GRAY TO BROWNISH GRAY; STIFF TO CRUNCHY TENACITY; IRREGULAR TO HACKLY TO PLATY TO FLAKY CUTTINGS HABIT; DULL TO SPARKLING TO SLIGHT FROSTED TO SEMI GREASY LUSTER; GRITTY TO OCCASIONALLY GRANULAR TO PREDOMINATELY SILTY TEXTURE; 1-5% PALEOSOLS VISIBLE IN SAMPLE.

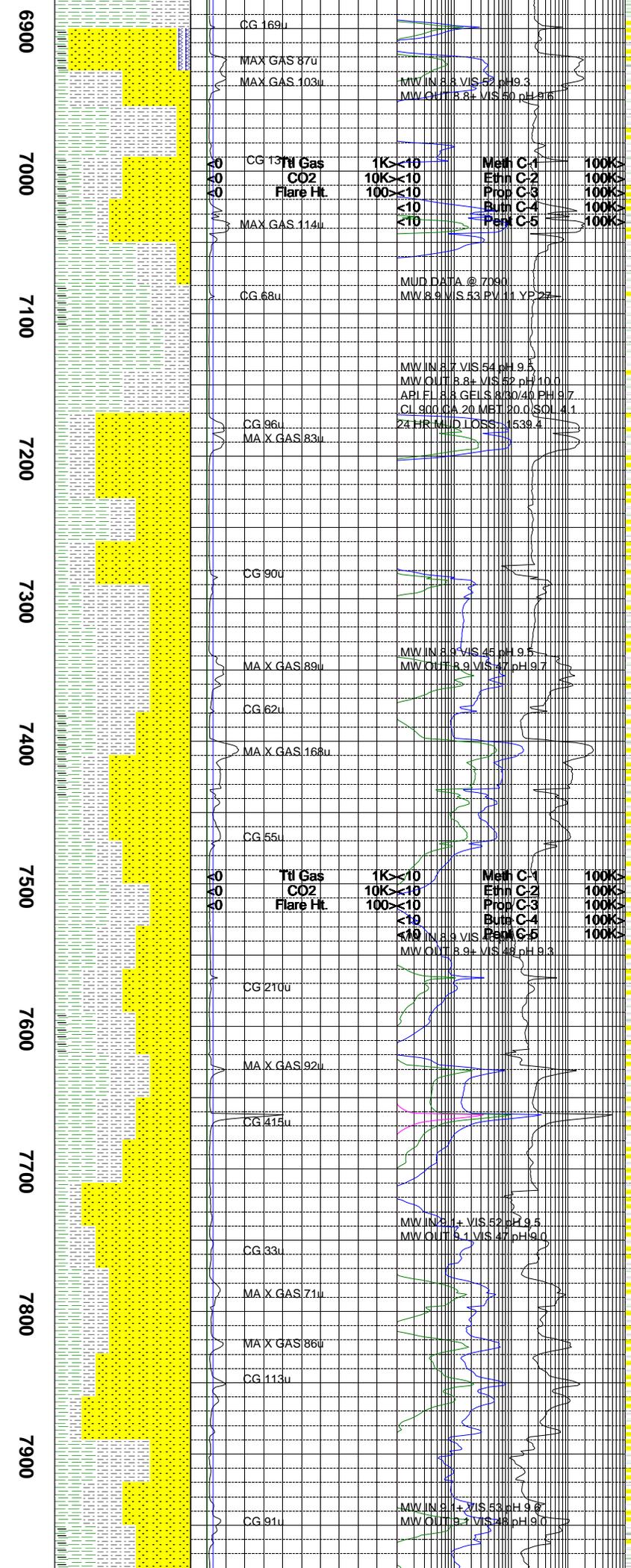
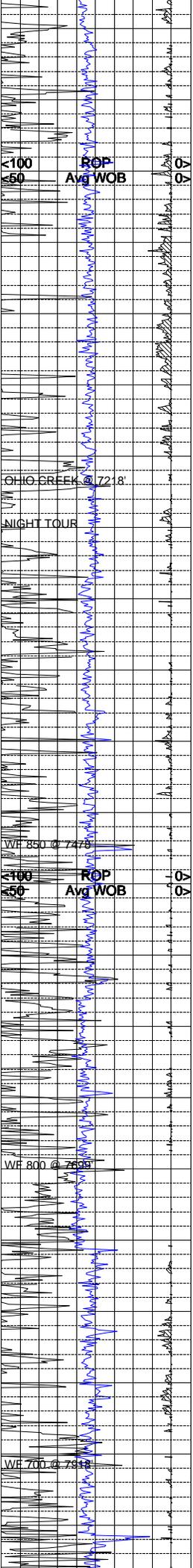
SANDSTONE = WHITE TO TRANSLUCENT TO SEMI LIGHT BROWNISH GRAY; MOSTLY QUARTZ FRAMEWORK WITH 1-5% DARK LITHICS VISIBLE IN SAMPLE; MEDIUM TO FINE TO PREDOMINATELY COARSE GRAIN SIZE; FAIR TO WELL TO VERY WELL SORTED; SUBANGULAR TO SUBROUND GRAINS; MODERATE TO HIGH SPHERICITY; NO VISIBLE BEDDING OR OTHER DISTINGUISHABLE SURFACE FEATURES PRESENT IN SAMPLE; NO ACCESSORY MINERALS PRESENT IN SAMPLE.

SHALE = VERY LIGHT GRAY TO LIGHT GRAY TO OCCASIONAL MEDIUM LIGHT GRAY; MODERATELY DENSE TO SLIGHTLY CRUNCHY TENACITY; IRREGULAR TO SUB-BLOCKY TO SUB-PLANAR TO HACKLY FRACTURE; MOSTLY MASSIVE TO SUB-TABULAR TO WEDGE LIKE TO 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 IN SAMPLE; ACCESSORY MINERAL PYRITE PRESENT IN SAMPLE.

WASATCH G SANDSTONE = WHITE TO OFF WHITE TO VERY LIGHT GRAY TO TRANSLUCENT WITH OCCASIONAL MODERATE GREEN HUES; QUARTZ DOMINATE FRAMEWORK; CONSISTS OF CALCITE CEMENTATION WITH LIGHT TO MODERATE REACTION TO DILUTE HCl; MATRIX CONTAINS 1 TO 3% DARK LITHIC FRAGMENTS; MOSTLY LOOSE GRAINS WITH FEW SUPPORTING GRAINS; FINE TO MEDIUM-FINE GRAINED; FAIR TO WELL SORTING; SUB-ANGULAR TO SUB-ROUNDED TO ROUNDED ANGULARITY; LOW TO MODERATE SPHERICITY; POOR GRADE SILTSTONE VISIBLE GRADING WITH POOR GRADE SANDSTONE; NO OTHER SURFACE FEATURES PRESENT; ACCESSORY MINERAL PYRITE PRESENT IN SAMPLE.

SILTSTONE = VERY LIGHT GRAY TO LIGHT GRAY TO OCCASIONAL MODERATE REDDISH BROWN; SLIGHTLY DENSE TO SLIGHTLY BRITTLE TO SLIGHTLY CRUMBLY TENACITY; IRREGULAR TO SUB-PLANAR TO EARTHY-HACKLY FRACTURE; SUB-TABULAR TO SUB-NODULAR CUTTINGS HABIT; DULL TO EARTHY DULL TO OCCASIONAL SEMI-SPARKLING LUSTER; SLIGHTLY GRITTY TO VERY SLIGHTLY GRANULAR TEXTURE; POOR GRADE SILTSTONE VISIBLE GRADING WITH POOR GRADE SANDSTONE AND SHALE VISIBLE INTERBEDDED IN SILTSTONE, PRESENT IN SAMPLE; ACCESSORY MINERAL PYRITE PRESENT IN SAMPLE.

SHALE = VERY LIGHT GRAY TO LIGHT GRAY TO MEDIUM LIGHT GRAY WITH OCCASIONAL GRAYISH RED PURPLE MOTTLING; SLIGHTLY DENSE TO SLIGHTLY CRUMBLY TENACITY; IRREGULAR TO SUB-BLOCKY TO SUB-PLANAR FRACTURE; MODERATELY MASSIVE TO ELONGATED TO



YELLOWISH GRAY TO WHITE TO TRANSLUCENT; COARSE TO VERY COARSE TO MEDIUM GRAIN SIZE; CALCITE CEMENTATION DUE TO HIGH REACTION IN DILUTE HCl; MOSTLY QUARTZ FRAMEWORK 3-4% DARK LITHICS VISIBLE IN SAMPLE; WELL TO FAIR TO POORLY SORTED; SUB ANGULAR TO SUB ROUND GRAINS; HIGH TO MODERATE TO OCCASIONAL LOW SPHERICITY; GRAIN SUPPORTED; FIRM FRIABLE TO HARD TO FRIABLE; NO VISIBLE HYDROCARBONS IN SAMPLE; 10-15% PALEOSOLS VISIBLE IN SAMPLE.

SHALE = LIGHT BLuish GRAY TO LIGHT GRAY TO CRUMBLY TO CRUNCHY TENACITY; PLANAR TO IRREGULAR TO SLIGHT BLOCKY FRACTURING; CUTTINGS TEND TO BE PLATY TO FLAKY TO SEMI WEDGELIKE IN HABIT; SLIGHT GREASY TO SEMI WAXY TO PREDOMINATELY DULL EARTHY LUSTER; SMOOTH TO CLAYEY TEXTURE; NO OTHER VISIBLE BEDDING FEATURES; NO ACCESSORY MINERALS VISIBLE IN SAMPLE.

SILTSTONE = VERY LIGHT GRAY TO LIGHT BLuish GRAY TO LIGHT GRAY; CRUMBLY TO CRUMBLY TO OCCASIONALLY BRITTLE TENACITY; IRREGULAR TO PREDOMINATELY HACKLY TO SLIGHT PLANAR FRACTURING; CUTTINGS TEND TO BE PLATY TO FLAKY TO SLIGHT NODULAR TO PREDOMINATELY ELONGATE TABULAR IN HABIT; DULL EARTHY TO SLIGHT GREASY TO FROSTED LUSTER; GRITTY TO SLIGHTLY GRANULAR TO SILTY TEXTURE; NO OTHER VISIBLE BEDDING FEATURES.

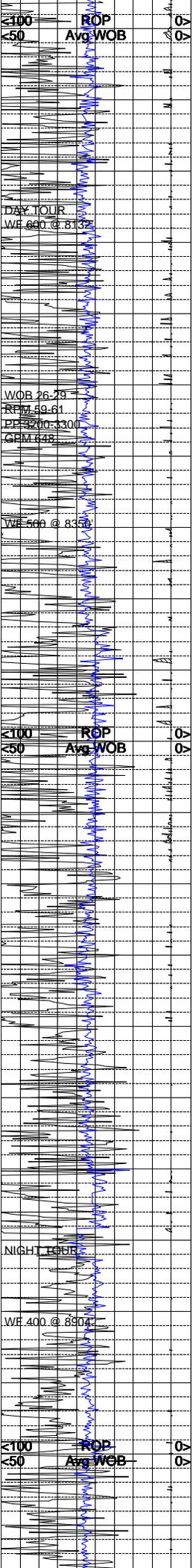
OHIO CREEK SANDSTONE = OFF WHITE TO WITH TO TRANSPARENT WITH BLACK AND MODERATE BROWN HUES; QUARTZ DOMINANT FRAME WORK; QUARTZ CUTTINGS RANGE FROM SMOKY TO TRANSLUCENT; MOSTLY LOOSE GRAIN WITH GRAIN SUPPORTED SANDSTONE CUTTINGS; CONSISTS OF CALCITIC CEMENTATION WITH MODERATELY HIGH REACTION TO DILUTE HCl; MATRIX CONTAINS 5 TO 8% DARK LITHIC FRAGMENTS; MEDIUM-FINE TO MEDIUM-COARSE GRAINE; MODERATELY FAIR TO POOR SORTING; SUB-ANGULAR TO SUB-ROUNDED ANGULARITY; LOW TO MODERATE SPHERICITY; NO VISIBLE BEDDING OR OTHER DISTINGUISHABLE SURFACE FEATURES PRESENT; NO ACCESSORY MINERALS PRESENT IN SAMPLE.

CARBONACEOUS SHALE = BROWNISH BLACK TO OLIVE BLACK TO DARK BROWNISH GRAY; MODERATELY TOUGH TO SLIGHTLY DENSE TENACITY; IRREGULAR TO SUB-BLOCKY TO SUB-PLANAR TO EARTHY FRACTURE; OCCASIONAL MASSIVE TO SUB-TABULAR TO SUB-NODULAR TO OCCASIONAL ELONGATED CUTTINGS HABIT; DULL TO EARTHY DULL TO OCCASIONAL VERY LIGHT SEMI-SPARKLING LUSTER; SEMI-SMOOTH TO SLIGHTLY CLAYEY TEXTURE; VERY THIN LAMINAE VISIBLE; POOR GRADE SHALE VISIBLE BEDDING WITH CARBONACEOUS SHALE; ACCESSORY MINERAL PYRITE, AND SEVERAL LARGE CUTTINGS OF CALCITE PRESENT IN SAMPLE.

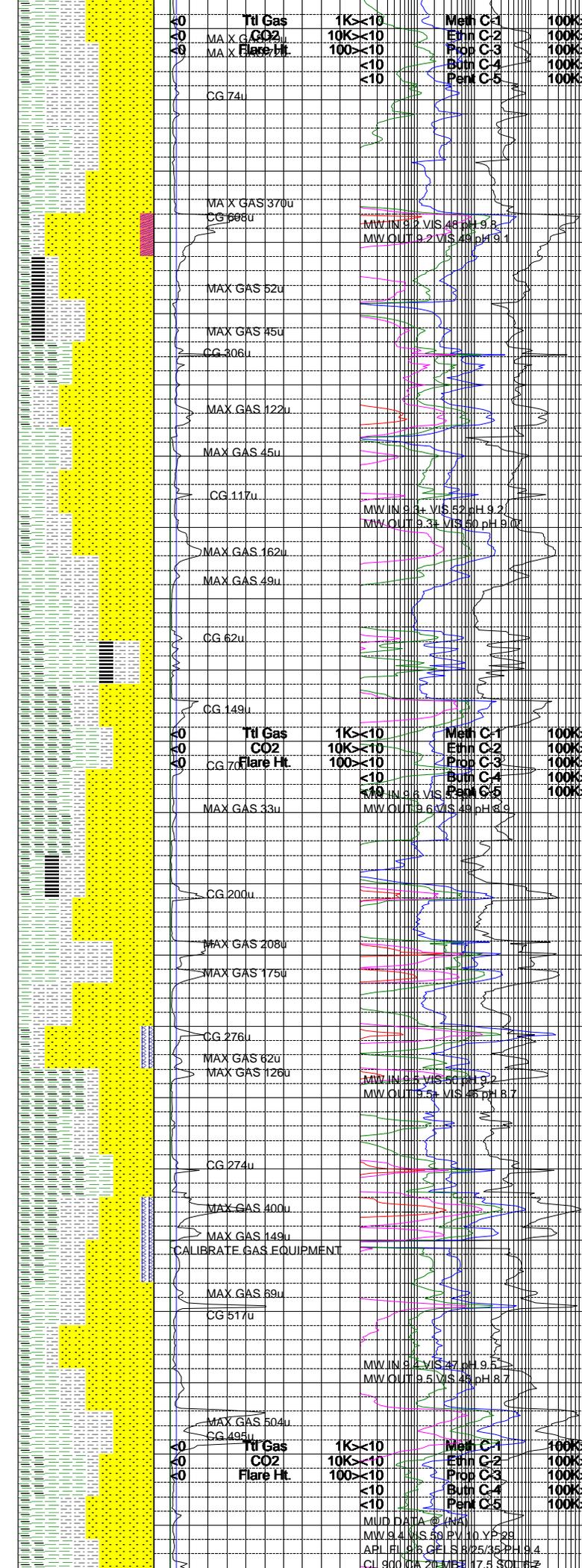
SHALE = VERY LIGHT GRAY TO LIGHT GRAY TO MEDIUM LIGHT GRAY; MODERATELY TOUGH TO MODERATELY DENSE TENACITY; IRREGULAR TO SUB-PLANAR TO EARTHY HACKLY FRACTURE; MASSIVE TO WEDGE LIKE TO ELONGATED CUTTINGS HABIT; DULL TO EARTHY DULL TO OCCASIONAL SEMI-FROSTED TO SEMI-WAXY LUSTER; MODERATELY SMOOTH TO SLIGHTLY SILTY TO SLIGHTLY CLAYEY TEXTURE; POOR GRADE SILTSTONE VISIBLE GRADING WITH POOR GRADE SANDSTONE, NO OTHER DISTINGUISHABLE STRUCTURAL FEATURES PRESENT; ACCESSORY MINERAL PYRITE PRESENT IN SAMPLE.

SILTSTONE = VERY LIGHT GRAY TO LIGHT GRAY TO MEDIUM LIGHT GRAY; OCCASIONAL VERY LIGHT BLuish GRAY; SLIGHTLY DENSE TO OCCASIONAL CRUMBLY TO SLIGHTLY TOUGH TENACITY; IRREGULAR TO SUB-PLANAR TO EARTHY HACKLY FRACTURE; SUB-TABULAR TO SUB-NODULAR CUTTINGS HABIT; DULL TO EARTHY DULL TO OCCASIONAL VERY SEMI-SPARKLING LUSTER; SLIGHTLY GRITTY TO VERY SLIGHTLY GRANULAR TEXTURE; POOR GRADE SILTSTONE VISIBLE GRADING WITH POOR GRADE SANDSTONE, NO OTHER DISTINGUISHABLE STRUCTURAL FEATURES PRESENT; NO ACCESSORY MINERALS PRESENT IN SAMPLE.

SANDSTONE = OFF WHITE TO WHITE TO TRANSLUCENT WITH BLACK HUES; QUARTZ DOMINANT FRAME WORK; MOSTLY LOOSE GRAINS WITH FEW GRAIN SUPPORTING CUTTINGS; CONSISTS OF CALCITIC CEMENTATION WITH LIGHT TO MODERATE REACTION TO DILUTE HCl; MATRIX CONTAINS 3 TO 5% DARK LITHIC FRAGMENT IN GRAIN SUPPORTED CUTTINGS; MEDIUM-FINE TO FINE GRAINED; SUB-ANGULAR TO SUB-ROUNDED TO ROUNDED ANGULARITY; LOW TO MODERATE SPHERICITY; NO VISIBLE BEDDING OR OTHER DISTINGUISHABLE SURFACE FEATURES PRESENT; ACCESSORY MINERAL PRESENT ATTACHED TO



8000
8100
8200
8300
8400
8500
8600
8700
8800
8900
9000



SMALL CARBONACEOUS SHALE CUTTING IN SAMPLE.

SHALE = VERY LIGHT GRAY TO LIGHT GRAY; SLIGHTLY TOUGH TO MODERATELY DENSE TENACITY; IRREGULAR TO SUB-BLOCKY TO SUB-PLANAR TO EARTHY HACKLY FRACTURE; OCCASIONAL MASSIVE TO ELONGATED TO WEDGE LIKE CUTTINGS HABIT; DULL TO EARTHY DULL TO OCCASIONAL SEMI-FROSTED TO SEMI-WAXY LUSTER; MODERATELY SMOOTH TO SLIGHTLY CLAYEY TO SLIGHTLY SILTY TEXTURE; POOR GRADE SILTSTONE VISIBLE GRADING WITH POOR GRADE SANDSTONE, SMALL AMOUNT OF CARBONACEOUS SHALE VISIBLY DEGASSING IN

SANDSTONE = WHITE TO TRANSLUCENT TO VERY LIGHT GRAY; MOSTLY QUARTZ FRAMEWORK WITH 2-5% DARK LITHICS VISIBLE IN SAMPLE; VERY COARSE TO MEDIUM TO FINE GRAIN SANDSTONES; FAIR TO WELL SORTED; SUB-ANGULAR TO SUB-ROUND GRAINS; MODERATE TO HIGH SPHERICITY; FINE GRAIN SANDSTONES HAVE A SLIGHT FROSTED APPEARANCE; FRIABLE TO MODERATE HARD; UNCONSOLIDATED GRAINS DUE TO BIT ACTION; GRAIN SUPPORTED; NO VISIBLE HYDROCARBONS IN SAMPLE; GRADES INTO A COARSE GRAIN CARBONACEOUS SHALE BED; CALCITE CEMENTATION DUE TO HIGH REACTION IN DILUTE HCl; LARGE CRYSTALS OF CALCITE VISIBLE IN SAMPLE.

SHALE = PALE BROWN TO YELLOWISH GRAY TO GRAYISH YELLOW GREEN; BRITTLE TO CRUMBLY TENACITY; PLANAR TO SLIGHT BLOCKY TO SEMI HACKLY FRACTURING; CUTTINGS TEND TO PLATY TO FLAKY IN HABIT; DULL EARTHY TO OCCASIONALLY GREASY LUSTER; CLAYEY TO SMOOTH TEXTURE; NO OTHER VISIBLE BEDDING IN SAMPLE.

SILTSTONE = VERY LIGHT GRAY TO LIGHT BLUISH GRAY TO MEDIUM GRAY; STIFF TO CRUNCHY TO OCCASIONAL BRITTLE TENACITY; IRREGULAR TO PREDOMINATELY HACKLY TO OCCASIONALLY PLANAR FRACTURING; PLATY TO FLAKY TO SLIGHT TABULAR CUTTINGS HABIT; SLIGHT FROSTED TO SPARKLING TO SEMI DULL LUSTER; GRITTY TO SILTY TO GRITTY TO SLIGHT GRANULAR TEXTURE; VISIBLE FRACTURE FILL IN SILTY SAMPLE PIECES.

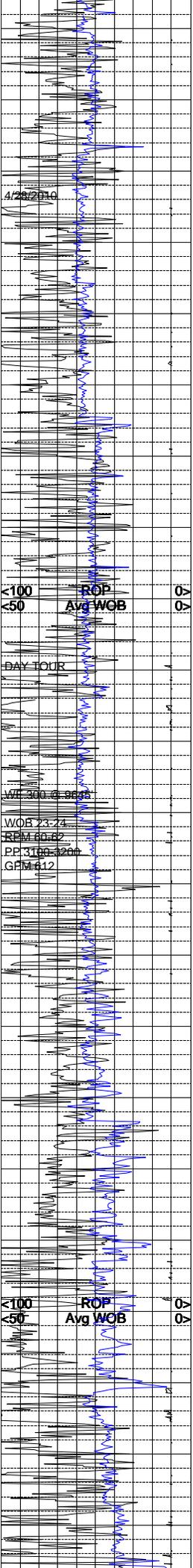
CARBONACEOUS SHALE = DARK GRAY TO BROWNISH GRAY TO OLIVE GRAY; CRUNCHY TO CRUMBLY TO OCCASIONAL BRITTLE TENACITY; BLOCKY TO PLANAR TO SPLINTERY FRACTURING; FRACTURED ALONG THE CARBONACEOUS MATERIAL; CUTTINGS TEND TO BE PLATY TO SEMI WEDGELIKE TO OCCASIONALLY SLIGHTLY NODULAR; SPARKLING TO SLIGHT WAXY TO SEMI GREASY LUSTER; GRANULAR TO GRITTY TO SILTY WITH A OCCASIONAL CLAYEY TEXTURE; VISIBLE BANDS OF CARBONACEOUS MATERIAL; 1-2% KALONITIC SANDS VISIBLE IN SAMPLE.

SANDSTONE = TRANSLUCENT TO WHITE TO VERY LIGHT GRAY; MOSTLY QUARTZ FRAMEWORK WITH 3-6% DARK LITHICS VISIBLE IN SAMPLE; VERY COARSE TO COARSE SIZE; FAIR TO MODERATE SORTED; SUBROUND TO SUBANGULAR GRAINS; LOW TO MODERATE SPHERICITY; GRAINS HAVE A SLIGHT POLISH APPEARANCE; UNCONSOLIDATED GRAINS DUE TO BIT ACTION; FRIABLE TO FIRM FRIABLE TO MODERATE HARD; CALCITE CEMENTATION DUE TO MODERATE REACTION IN DILUTE HCl; GRAIN SUPPORTED; NO VISIBLE HYDROCARBONS IN SAMPLE; THIN FRACTURES FOUND IN COARSE GRAIN SANDSTONES; NO ACCESSORY MINERALS PRESENT.

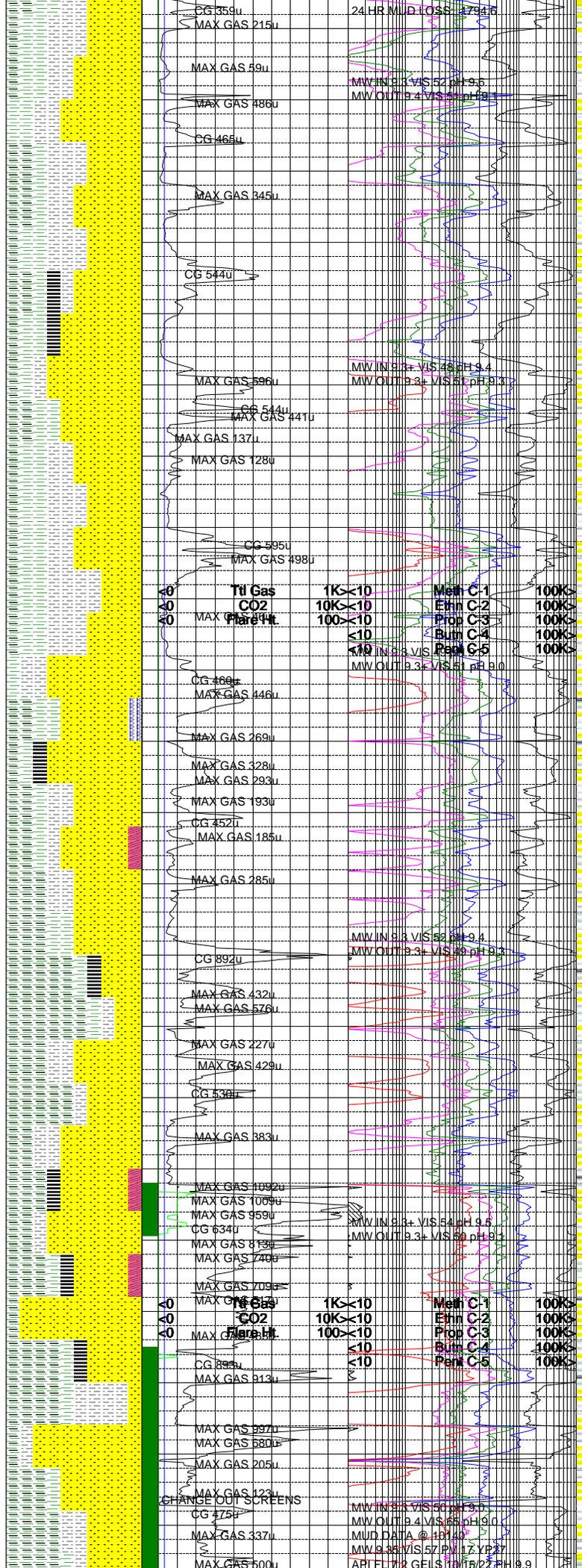
CARBONACEOUS SHALE = MEDIUM GRAY TO BROWNISH GRAY TO OLIVE GRAY; BRITTLE TO STIFF TO CRUNCHY TENACITY; PREDOMINATELY HACKLY TO PLANAR TO OCCASIONAL BLOCKY FRACTURING; CUTTINGS TEND TO BE PLATY TO FLAKY TO WEDGELIKE IN HABIT; FROSTED TO DULL TO EARTHY DULL TO OCCASIONAL SEMI-SPARKLING LUSTER; MODERATELY CLAYEY TO VERY SLIGHTY GRITTY TEXTURE; VERY THIN LAMINAE VISIBLE IN SAMPLE, NO OTHER DISTINGUISHABLE STRUCTURAL FEATURES PRESENT IN SAMPLE; NO ACCESSORY MINERALS PRESENT IN SAMPLE.

SHALE = VERY LIGHT GRAY TO LIGHT GRAY TO OCCASIONAL MEDIUM LIGHT GRAY; VERY SLIGHTLY DENSE TO MODERATELY BRITTLE TO MODERATELY CRUMBLY TENACITY; IRREGULAR TO EARTHY HACKLY TO OCCASIONAL SUB-BLOCKY FRACTURE; WEDGE LIKE TO ELONGATED TO MOSTLY SMALLER CUTTINGS HABIT; DULL TO EARTHY DULL TO OCCASIONAL SEMI-WAXY TO SEMI-FROSTED LUSTER; MODERATELY SMOOTH TO SLIGHTY SILTY TO VERY SLIGHTY CLAYEY TEXTURE; NO VISIBLE LAMINAE OR OTHER DISTINGUISHABLE STRUCTURAL FEATURES PRESENT; NO ACCESSORY MINERALS PRESENT IN SAMPLE.

MUD DATA @ WVA
MW 9.4 MS 50 PV 10 YP 28
API FL 9.6 GEL 5.8/25/35 @ 9.4
CL 900 CIA 20.5 VES 17.5 SOT 6.2



9100
9200
9300
9400
9500
9600
9700
9800
9900
10000
10100



SILTSTONE = LIGHT GRAY TO MEDIUM LIGHT GRAY TO OCCASIONAL VERY LIGHT GRAY; MODE -RATE TOUGH TO SLIGHTLY DENSE TENACITY; IRREGULAR TO SUB-PLANAR TO EARTHY HACKLY FRACTURE; SUB-TABULAR TO SUB-NODULAR CUTTINGS HABIT; DULL TO EARTHY DULL TO OCCASIONAL SEMI-SPARKLING LUSTER; OCCASIONAL CLAYEY TO SLIGHTLY GRITTY TO VERY SLIGHTLY GRANULAR TEXTURE; POOR GRADE SILTSTONE VISIBLE BEDDING AND GRADING WITH POOR GRADE SANDSTONE; NO ACCESSORY MINERALS PRESENT IN SAMPLE.

SANDSTONE = OFF WHITE TO WHITE TO VERY LIGHT BROWNISH GRAY WITH BLACK HUES; QUARTZ DOMINANT FRAME WORK; MOSTLY LOOSE GRAINS WITH FEW GRAIN SUPPORTED CUTTINGS; CONSISTS OF CALCITIC CEMENTATION; MODERATELY HIGH REACTION TO DILUTE HCL; MATRIX CONTAINS 3 TO 5% DARK LITHIC FRAGMENTS; MEDIUM-FINE TO MEDIUM-COARSE GRAINED; FAIR TO POOR SORTING; SUB-ANGULAR TO SUB- ROUNDED ANGULARITY; LOW TO MODERATE SPHERICITY; VERY SMALL AMOUNT OF COAL AND CARBONACEOUS MATERIAL VISIBLE DEGASSING, POOR GRADE SILTSTONE VISIBLE BEDDING WITH POOR GRADE SANDSTONE ; NO ACCESSORY MINERALS PRESENT IN SAMPLE.

CARBONACEOUS SHALE = BROWNISH BLACK TO OLIVE BLACK TO VERY DARK BROWNISH GRAY; MODERATELY TOUGH TO SLIGHTLY DENSE TENACITY; IRREGULAR TO SUB-PLANAR TO EARTHY TO EARTHY-HACKLY FRACTURE; OCCASIONAL MASSIVE TO ELONGATED TO SUB-TABULAR CUTTINGS HABIT; DULL TO EARTHY DULL TO OCCASIONAL SEMI-SPARKLING LUSTER; MODERATELY CLAYEY TO SEMI-SMOOTH TO SLIGHTLY SILTY TEXTURE; VERY THIN LAMINAE VISIBLE ; SMALL AMOUNT OF COAL AND CARBONACEOUS SHALE VISIBLY DEGASSING IN SAMPLE, NO OTHER DISTINGUISHABLE STRUCTURAL FEATURES PRESENT IN SAMPLE; NO ACCESSORY MINERALS PRESENT IN SAMPLE.

SHALE = VERY LIGHT GREENISH GRAY TO LIGHT BLUISH GRAY TO VERY LIGHT GRAY; BRITTLE TO CRUMBLY TO SLIGHT CRUNCHY TENACITY; OCCASIONALLY IRREGULAR TO MOSTLY PLANAR TO HACKLY FRACTURING; CUTTINGS TEND TO BE PLATY TO FLAKY TO SEMI TABULAR IN HABIT; SLIGHT GREASY TO DULL EARTHY LUSTER; CLAYEY TO SMOOTH TEXTURE; NO OTHER VISIBLE BEDDING FEATURES.

SANDSTONE = WHITE TO VERY LIGHT GRAY TO LIGHT BROWNISH GRAY; MOSTLY QUARTZ FRAME WORK WITH 4-6% DARK LITHICS VISIBLE IN SAMPLE; MOSTLY COARSE GRAIN TO MEDIUM TO FINE GRAIN SANDSTONES; POOR TO FAIR SORTED; SUB ROUND TO ROUND GRAINS; HIGH TO MODERATE SPHERICITY; GRAINS HAVE A POLISH APPEARANCE; UNCONSOLIDATED GRAINS DUE TO BIT ACTION; GRAIN SUPPORTED WITH A FEW MATRIX SUPPORTED; CALCITE CEMENTATION DUE TO MODERATE REACTION IN DILUTE HCl; NO VISIBLE HYDROCARBONS DUE TO LACK OF FLUORENCE UNDER UV LIGHT; THIN BEDS OF COAL THROUGH OUT THE SAMPLE.

CARBONACEOUS SHALE = LIGHT OLIVE GRAY TO OLIVE GRAY TO BROWNISH GRAY; BRITTLE TO CRUNCHY TO CRUMBLY TENACITY; PREDOMINATELY HACKLY TO PLANAR TO SLIGHT BLOCKY FRACTURING; CUTTINGS TEND TO BE WEDGE-LIKE TO SLIGHT NODULAR TO SEMI TABULAR IN HABIT; SLIGHT GREASY TO FROSTED TO OCCASIONAL METALLIC LUSTER; GRANULAR TO GRITTY TO SILTY TEXTURE; VISIBLE BEDS OF CARBONACEOUS MATERIAL; VISIBLE DEGASSING ALONG CARBONACEOUS BEDS; GRADES INTO A COARSE GRAIN SANDSTONE.

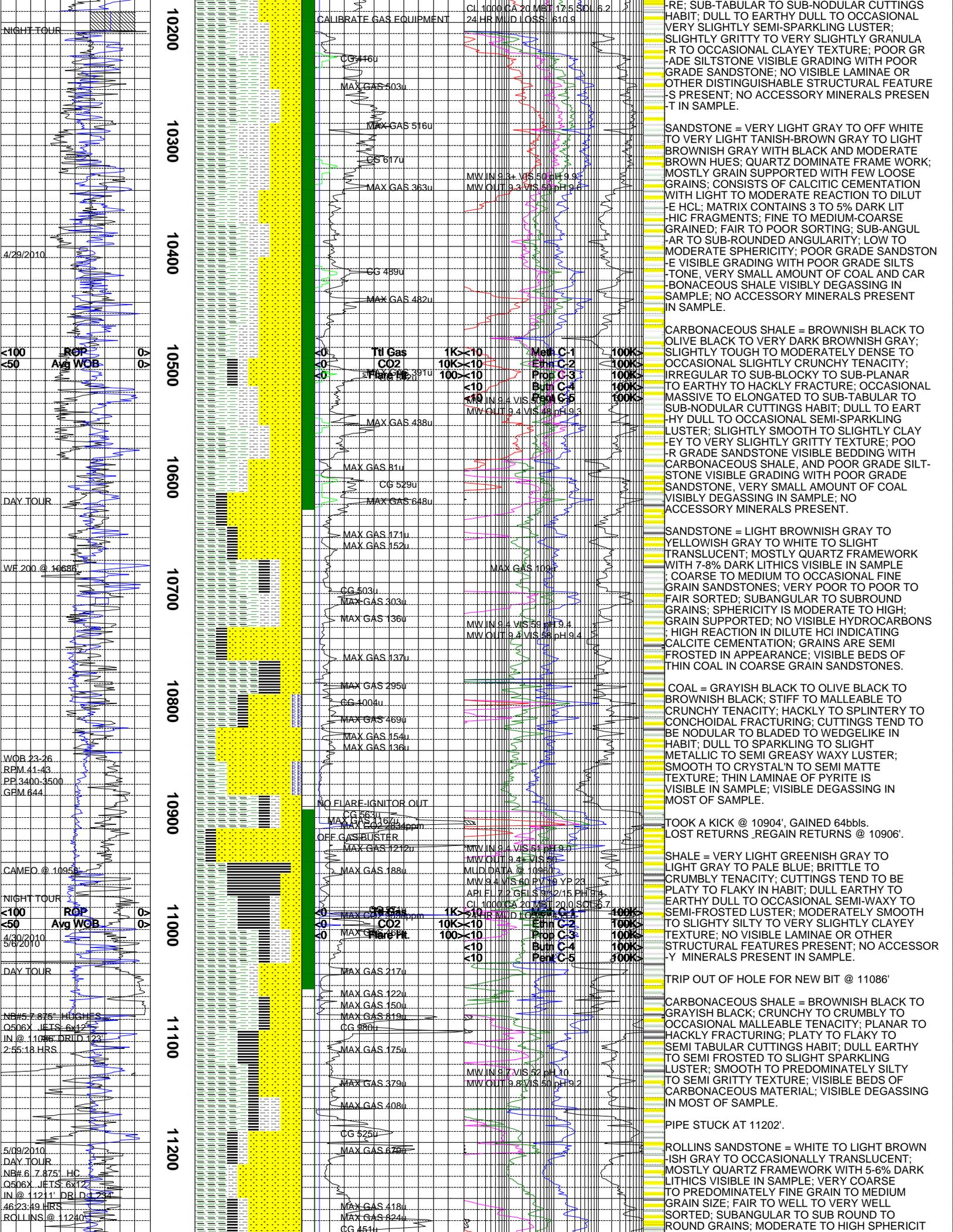
COAL = OLIVE BLACK TO BROWNISH BLACK TO GRAYISH BLACK; BRITTLE TO MALLEABLE TO STIFF TENACITY; IRREGULAR TO SEMI BLOCKY TO PREDOMINATELY CONCHOIDAL FRACTURING; CUTTINGS TEND TO BE MOSTLY NODULAR TO OCCASIONALLY WEDGELIKE TO TABULAR IN HABIT; PREDOMINATELY WAXY TO GREASY TO SEMI SPARKLING LUSTER; SMOOTH TO MATTE TO GRITTY TEXTURE; VISIBLE DEGASSING IN MOST OF THE SAMPLE; VISIBLE PYRITE IN SAMPLE.

SHALE = VERY LIGHT GREENISH GRAY TO LIGHT GRAY TO MEDIUM GRAY; CRUNCHY TO CRUMBLY TENACITY; PREDOMINATELY PLANAR TO HACKLY TO SEMI BLOCKY FRACTURING; CUTTINGS TEND TO BE PLATY TO FLAKY IN HABIT; DULL EARTHY TO OCCASIONALLY WAXY LUSTER; CLAYEY TO SMOOTH TEXTURE; NO OTHER VISIBLE BEDDING FEATURES.

SILTSTONE = VERY LIGHT BROWNISH GRAY TO LIGHT GRAY TO WHITE; CRUNCHY TO CRUMBLY TO SEMI BRITTLE TENACITY; HACKLY TO IRREGULAR TO SUB-PLANAR TO EARTHY FRACTURE

1K < 10	Meth C-1	100K >
10K < 10	Eth C-2	100K >
100 < 10	Prop C-3	100K >
< 10	But C-4	100K >
< 10	Pen C-5	100K >

1K < 10	Meth C-1	100K >
10K < 10	Eth C-2	100K >
100 < 10	Prop C-3	100K >
< 10	But C-4	100K >
< 10	Pen C-5	100K >



-RE: SUB-TABULAR TO SUB-NODULAR CUTTINGS HABIT; DULL TO EARTHY DULL TO OCCASIONAL VERY SLIGHTLY SEMI-SPARKLING LUSTER; SLIGHTLY GRITTY TO VERY SLIGHTLY GRANULAR TO OCCASIONAL CLAYEY TEXTURE; POOR GRADE SILTSTONE VISIBLE GRADING WITH POOR GRADE SANDSTONE; NO VISIBLE LAMINAE OR OTHER DISTINGUISHABLE STRUCTURAL FEATURE -S PRESENT; NO ACCESSORY MINERALS PRESENT IN SAMPLE.

SANDSTONE = VERY LIGHT GRAY TO OFF WHITE TO VERY LIGHT TANISH-BROWN GRAY TO LIGHT BROWNISH GRAY WITH BLACK AND MODERATE BROWN HUES; QUARTZ DOMINATE FRAME WORK; MOSTLY GRAIN SUPPORTED WITH FEW LOOSE GRAINS; CONSISTS OF CALCITIC CEMENTATION WITH LIGHT TO MODERATE 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 ANGULARITY; LOW TO MODERATE SPHERICITY; POOR GRADE SANDSTONE VISIBLE GRADING WITH POOR GRADE SILTSTONE, VERY SMALL AMOUNT OF COAL AND CARBONACEOUS SHALE VISIBLY DEGASSING IN SAMPLE; NO ACCESSORY MINERALS PRESENT IN SAMPLE.

CARBONACEOUS SHALE = BROWNISH BLACK TO OLIVE BLACK TO VERY DARK BROWNISH GRAY; SLIGHTLY TOUGH TO MODERATELY DENSE TO OCCASIONAL SLIGHTLY CRUNCHY TENACITY; IRREGULAR TO SUB-BLOCKY TO SUB-PLANAR TO EARTHY TO HACKLY FRACTURE; OCCASIONAL MASSIVE TO ELONGATED TO SUB-TABULAR TO SUB-NODULAR CUTTINGS HABIT; DULL TO EARTHY DULL TO OCCASIONAL SEMI-SPARKLING LUSTER; SLIGHTLY SMOOTH TO SLIGHTLY CLAYEY TO VERY SLIGHTLY GRITTY TEXTURE; POOR GRADE SANDSTONE VISIBLE BEDDING WITH CARBONACEOUS SHALE, AND POOR GRADE SILTSTONE VISIBLE GRADING WITH POOR GRADE SANDSTONE, VERY SMALL AMOUNT OF COAL VISIBLY DEGASSING IN SAMPLE; NO ACCESSORY MINERALS PRESENT.

SANDSTONE = LIGHT BROWNISH GRAY TO YELLOWISH GRAY TO WHITE TO SLIGHT TRANSLUCENT; MOSTLY QUARTZ FRAMEWORK WITH 7-8% DARK LITHICS VISIBLE IN SAMPLE; COARSE TO MEDIUM TO OCCASIONAL FINE GRAIN SANDSTONES; VERY POOR TO POOR TO FAIR SORTED; SUBANGULAR TO SUBROUND GRAINS; SPHERICITY IS MODERATE TO HIGH; GRAIN SUPPORTED; NO VISIBLE HYDROCARBONS; HIGH REACTION IN DILUTE HCL INDICATING CALCITE CEMENTATION; GRAINS ARE SEMI FROSTED IN APPEARANCE; VISIBLE BEDS OF THIN COAL IN COARSE GRAIN SANDSTONES.

COAL = GRAYISH BLACK TO OLIVE BLACK TO BROWNISH BLACK; STIFF TO MALLEABLE TO CRUNCHY TENACITY; HACKLY TO SPLINTERY TO CONCHOIDAL FRACTURING; CUTTINGS TEND TO BE NODULAR TO BLADED TO WEDGE LIKE IN HABIT; DULL TO SPARKLING TO SLIGHT METALLIC TO SEMI GREASY WAXY LUSTER; SMOOTH TO CRYSTALLINE TO SEMI MATTE TEXTURE; THIN LAMINAE OF PYRITE IS VISIBLE IN SAMPLE; VISIBLE DEGASSING IN MOST OF SAMPLE.

TOOK A KICK @ 10904', GAINED 64bbls. LOST RETURNS _REGAIN RETURNS @ 10906'.

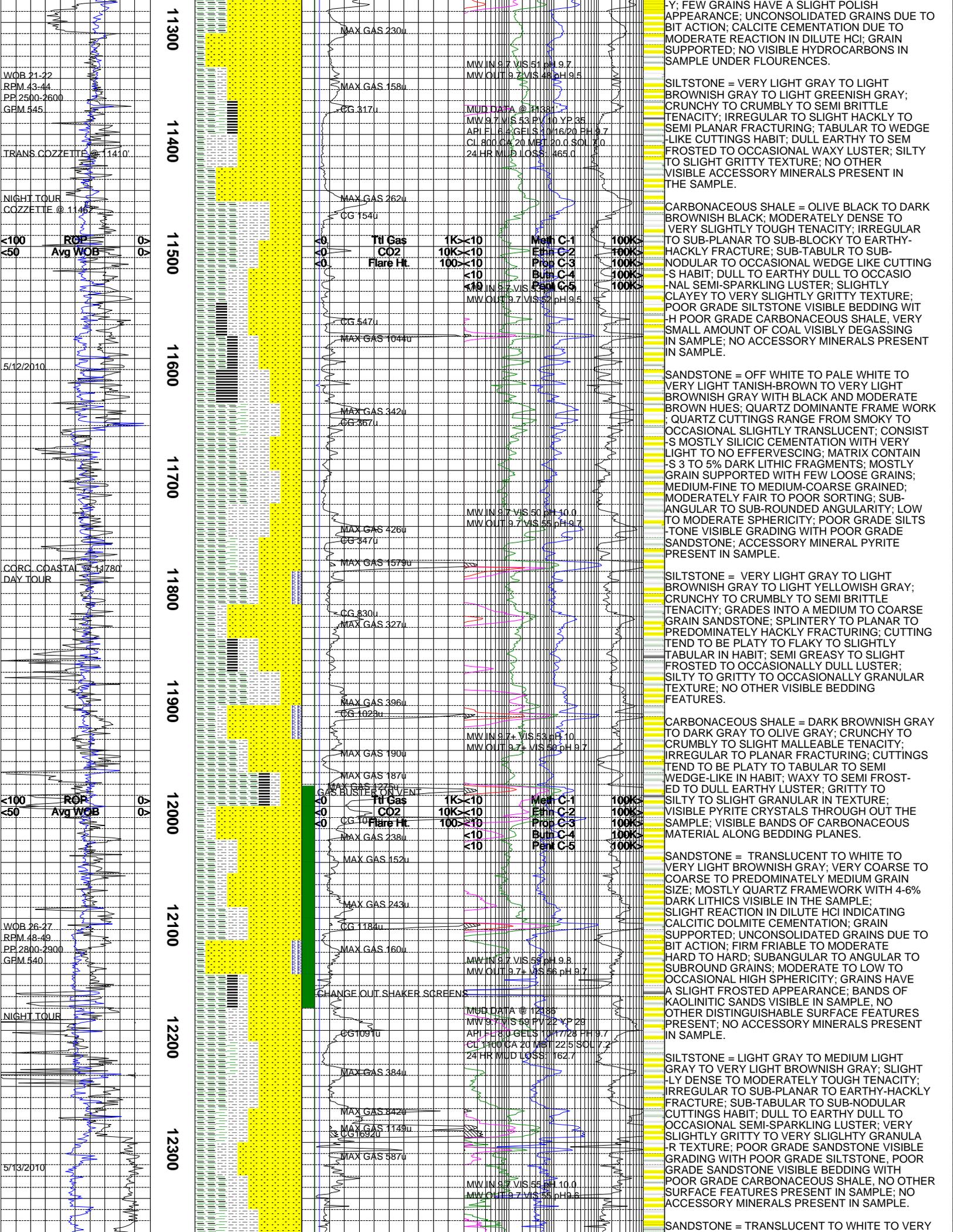
SHALE = VERY LIGHT GREENISH GRAY TO LIGHT GRAY TO PALE BLUE; BRITTLE TO CRUMBLY TENACITY; CUTTINGS TEND TO BE PLATY TO FLAKY IN HABIT; DULL EARTHY TO EARTHY DULL TO OCCASIONAL SEMI-WAXY TO SEMI-FROSTED LUSTER; MODERATELY SMOOTH TO SLIGHTLY SILTY TO VERY SLIGHTLY CLAYEY TEXTURE; NO VISIBLE LAMINAE OR OTHER STRUCTURAL FEATURES PRESENT; NO ACCESSORY MINERALS PRESENT IN SAMPLE.

TRIP OUT OF HOLE FOR NEW BIT @ 11086'

CARBONACEOUS SHALE = BROWNISH BLACK TO GRAYISH BLACK; CRUNCHY TO CRUMBLY TO OCCASIONAL MALLEABLE TENACITY; PLANAR TO HACKLY FRACTURING; PLATY TO FLAKY TO SEMI TABULAR CUTTINGS HABIT; DULL EARTHY TO SEMI FROSTED TO SLIGHT SPARKLING LUSTER; SMOOTH TO PREDOMINATELY SILTY TO SEMI GRITTY TEXTURE; VISIBLE BEDS OF CARBONACEOUS MATERIAL; VISIBLE DEGASSING IN MOST OF SAMPLE.

PIPE STUCK AT 11202'.

ROLLINS SANDSTONE = WHITE TO LIGHT BROWNISH GRAY TO OCCASIONALLY TRANSLUCENT; MOSTLY QUARTZ FRAMEWORK WITH 5-6% DARK LITHICS VISIBLE IN SAMPLE; VERY COARSE TO PREDOMINATELY FINE GRAIN TO MEDIUM GRAIN SIZE; FAIR TO WELL TO VERY WELL SORTED; SUBANGULAR TO SUB ROUND TO ROUND GRAINS; MODERATE TO HIGH SPHERICITY



11300
11400
11500
11600
11700
11800
11900
12000
12100
12200
12300

WOB 21-22
RPM 43-44
PP 2500-2600
GFM 545

TRANS COZZETTE @ 11410

NIGHT TOUR
COZZETTE @ 11457

5/12/2010

CORC COASTAL @ 11780
DAY TOUR

WOB 26-27
RPM 48-49
PP 2800-2900
GFM 540

NIGHT TOUR

5/13/2010

MAX GAS 230u
CG 317u

MAX GAS 158u
CG 317u

MAX GAS 262u
CG 154u

MAX GAS 1044u
CG 547u

MAX GAS 342u
CG 367u

MAX GAS 426u
CG 347u

MAX GAS 1579u
CG 830u

MAX GAS 327u
CG 830u

MAX GAS 396u
CG 1028u

MAX GAS 190u
CG 1028u

MAX GAS 187u
CG 1028u

MAX GAS 238u
CG 1028u

MAX GAS 152u
CG 1028u

MAX GAS 243u
CG 1184u

MAX GAS 160u
CG 1184u

MAX GAS 384u
CG 1091u

MAX GAS 242u
CG 1091u

MAX GAS 1149u
CG 1091u

MAX GAS 587u
CG 1091u

MW IN 8.7 VIS 51 pH 9.7
MW OUT 9.7 VIS 48 pH 9.5

MUD DATA @ 11388
MW 9.7 VIS 53 PV 10 YP 36
API FL 8.0 GELS 10/16/20 PH 9.7
CL 800 CA 20 MB 20.0 SOL 20
24 HR MUD LOSS 1465.0

MW IN 8.7 VIS 50 pH 10.0
MW OUT 9.7 VIS 55 pH 9.7

MW IN 8.7 VIS 50 pH 10.0
MW OUT 9.7 VIS 55 pH 9.7

MW IN 8.7 VIS 55 pH 9.8
MW OUT 9.7 VIS 56 pH 9.7

MUD DATA @ 12188
MW 9.7 VIS 59 PV 22 YP 29
API FL 8.0 GELS 10/17/28 PH 9.7
CL 1100 CA 20 MB 22.5 SOL 7.2
24 HR MUD LOSS 162.7

MW IN 8.7 VIS 55 pH 10.0
MW OUT 9.7 VIS 55 pH 9.5

FEW GRAINS HAVE A SLIGHT POLISH APPEARANCE; UNCONSOLIDATED GRAINS DUE TO BIT ACTION; CALCITE CEMENTATION DUE TO MODERATE REACTION IN DILUTE HCl; GRAIN SUPPORTED; NO VISIBLE HYDROCARBONS IN SAMPLE UNDER FLOURENCES.

SILTSTONE = VERY LIGHT GRAY TO LIGHT BROWNISH GRAY TO LIGHT GREENISH GRAY; CRUNCHY TO CRUMBLY TO SEMI BRITTLE TENACITY; IRREGULAR TO SLIGHT HACKLY TO SEMI PLANAR FRACTURING; TABULAR TO WEDGE LIKE CUTTINGS HABIT; DULL EARTHY TO SEMI FROSTED TO OCCASIONAL WAXY LUSTER; SILTY TO SLIGHT GRITTY TEXTURE; NO OTHER VISIBLE ACCESSORY MINERALS PRESENT IN THE SAMPLE.

CARBONACEOUS SHALE = OLIVE BLACK TO DARK BROWNISH BLACK; MODERATELY DENSE TO VERY SLIGHTLY TOUGH TENACITY; IRREGULAR TO SUB-PLANAR TO SUB-BLOCKY TO EARTHY-HACKLY FRACTURE; SUB-TABULAR TO SUB-NODULAR TO OCCASIONAL WEDGE LIKE CUTTING S 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 CARBONACEOUS SHALE, VERY SMALL AMOUNT OF COAL VISIBLY DEGASSING IN SAMPLE; NO ACCESSORY MINERALS PRESENT IN SAMPLE.

SANDSTONE = OFF WHITE TO PALE WHITE TO VERY LIGHT TANISH-BROWN TO VERY LIGHT BROWNISH GRAY WITH BLACK AND MODERATE BROWN HUES; QUARTZ DOMINANT FRAMEWORK; QUARTZ CUTTINGS RANGE FROM SMOKY TO OCCASIONAL SLIGHTLY TRANSLUCENT; CONSISTENTLY MOSTLY SILICIC CEMENTATION WITH VERY LIGHT TO NO EFFERVESCING; MATRIX CONTAINS 3 TO 5% DARK LITHIC FRAGMENTS; MOSTLY MEDIUM-FINE TO MEDIUM-COARSE GRAINED; MODERATELY FAIR TO POOR SORTING; SUB-ANGULAR TO SUB-ROUNDED ANGULARITY; LOW TO MODERATE SPHERICITY; POOR GRADE SILTSTONE VISIBLE GRADING WITH POOR GRADE SANDSTONE; ACCESSORY MINERAL PYRITE PRESENT IN SAMPLE.

SILTSTONE = VERY LIGHT GRAY TO LIGHT BROWNISH GRAY TO LIGHT YELLOWISH GRAY; CRUNCHY TO CRUMBLY TO SEMI BRITTLE TENACITY; GRADES INTO A MEDIUM TO COARSE GRAIN SANDSTONE; SPLINTERY TO PLANAR TO PREDOMINATELY HACKLY FRACTURING; CUTTINGS TEND TO BE PLATY TO FLAKY TO SLIGHTLY TABULAR IN HABIT; SEMI GREASY TO SLIGHT FROSTED TO OCCASIONALLY DULL LUSTER; SILTY TO GRITTY TO OCCASIONALLY GRANULAR TEXTURE; NO OTHER VISIBLE BEDDING FEATURES.

CARBONACEOUS SHALE = DARK BROWNISH GRAY TO DARK GRAY TO OLIVE GRAY; CRUNCHY TO CRUMBLY TO SLIGHT MALLEABLE TENACITY; IRREGULAR TO PLANAR FRACTURING; CUTTINGS TEND TO BE PLATY TO TABULAR TO SEMI WEDGE-LIKE IN HABIT; WAXY TO SEMI FROSTED TO DULL EARTHY LUSTER; GRITTY TO SILTY TO SLIGHT GRANULAR IN TEXTURE; VISIBLE PYRITE CRYSTALS THROUGH OUT THE SAMPLE; VISIBLE BANDS OF CARBONACEOUS MATERIAL ALONG BEDDING PLANES.

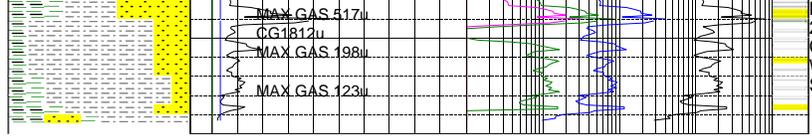
SANDSTONE = TRANSLUCENT TO WHITE TO VERY LIGHT BROWNISH GRAY; VERY COARSE TO COARSE TO PREDOMINATELY MEDIUM GRAIN SIZE; MOSTLY QUARTZ FRAMEWORK WITH 4-6% DARK LITHICS VISIBLE IN THE SAMPLE; SLIGHT REACTION IN DILUTE HCl INDICATING CALCITIC DOLMITE CEMENTATION; GRAIN SUPPORTED; FIRM FRIABLE TO MODERATE HARD TO HARD; SUBANGULAR TO ANGULAR TO SUBROUND GRAINS; MODERATE TO LOW TO OCCASIONAL HIGH SPHERICITY; GRAINS HAVE A SLIGHT FROSTED APPEARANCE; BANDS OF KAOLINIC SANDS VISIBLE IN SAMPLE, NO OTHER DISTINGUISHABLE SURFACE FEATURES PRESENT; NO ACCESSORY MINERALS PRESENT IN SAMPLE.

SILTSTONE = LIGHT GRAY TO MEDIUM LIGHT GRAY TO VERY LIGHT BROWNISH GRAY; SLIGHTLY DENSE TO MODERATELY TOUGH TENACITY; IRREGULAR TO SUB-PLANAR TO EARTHY-HACKLY FRACTURE; SUB-TABULAR TO SUB-NODULAR CUTTINGS HABIT; DULL TO EARTHY DULL TO OCCASIONAL SEMI-SPARKLING LUSTER; VERY SLIGHTLY GRITTY TO VERY SLIGHTLY GRANULAR TEXTURE; POOR GRADE SANDSTONE VISIBLE GRADING WITH POOR GRADE SILTSTONE, POOR GRADE SANDSTONE VISIBLE BEDDING WITH POOR GRADE CARBONACEOUS SHALE, NO OTHER SURFACE FEATURES PRESENT IN SAMPLE; NO ACCESSORY MINERALS PRESENT IN SAMPLE.

SANDSTONE = TRANSLUCENT TO WHITE TO VERY

DAY TOUR
CORCORAN MARINE © 12345
WOB 24-26
RPM 48-50
PP 2600-2700
GFM 540

12400



LIGHT GRAY; MOSTLY QUARTZ FRAMEWORK WITH
2-3% DARK LITHICS VISIBLE IN SAMPLE;
COARSE TO MEDIUM TO FINE GRAIN; FAIR TO
WELL TO VERY WELL SORTED; SUBANGULAR TO
SUBROUND TO PREDOMINATELY ROUND GRAINS.
TD FRU197-33B5 @ 12445' ON 05/13/2010.

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