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

Drilling Dynamics MD

COMPANY	Exxon Mobil
WELL	FRU197-33B9
FIELD	Piceance Creek
REGION	Rockies
COORDINATES	39.921322000 -108.282561000
ELEVATION	GL: 6459.3' RKB: 30.2'
COUNTY, STATE	RIO BLANCO, CO
API INDEX	051031142200
SPUD DATE	04/08/2010
CONTRACTOR	HE
CO. REP.	C. CURTIS
RIG/TYPE	HP321
LOGGING UNIT	MLU#31
GEOLOGISTS	B.DELANEY; C.RECORD M.FRANCO
ADD. PERSONS	M.PIPER; K.WALLANDER
CO. GEOLOGIST	C.ALBA / N. ROOSMAWATI

LOG INTERVAL

DEPTHS: 3950' TO 12300'
DATES: 07/21/2010 TO 08/02/2010
SCALE: 1"=100'

CASING DATA

16.00" AT 150'
10.75" AT 3940'
4.5" AT 12285'
AT

MUD TYPES

WATER-BASED TO 3950'
LSND TO 12300'
TO
TO

HOLE SIZE

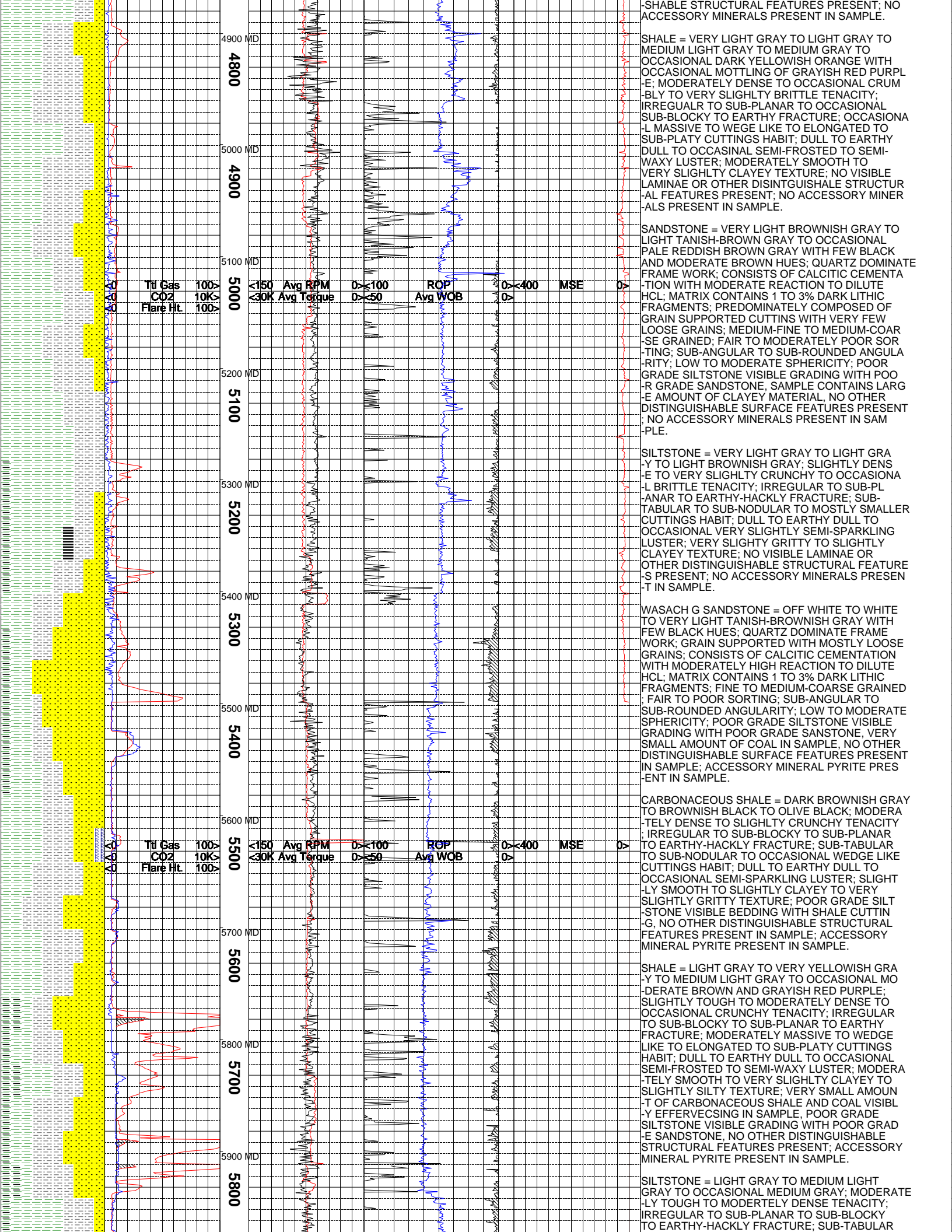
14.75" TO 3950'
8.75" TO 12300'
TO
TO

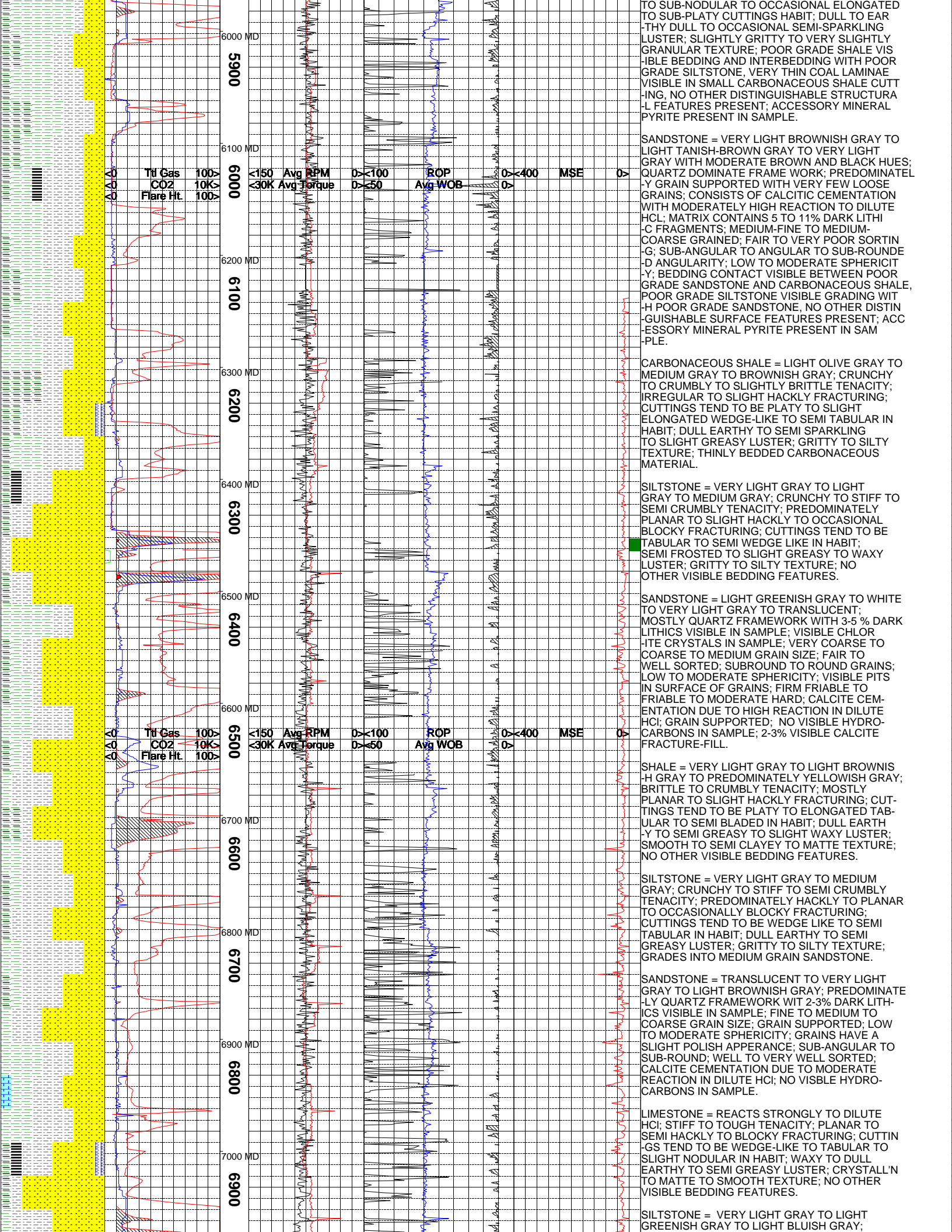
ABBREVIATIONS

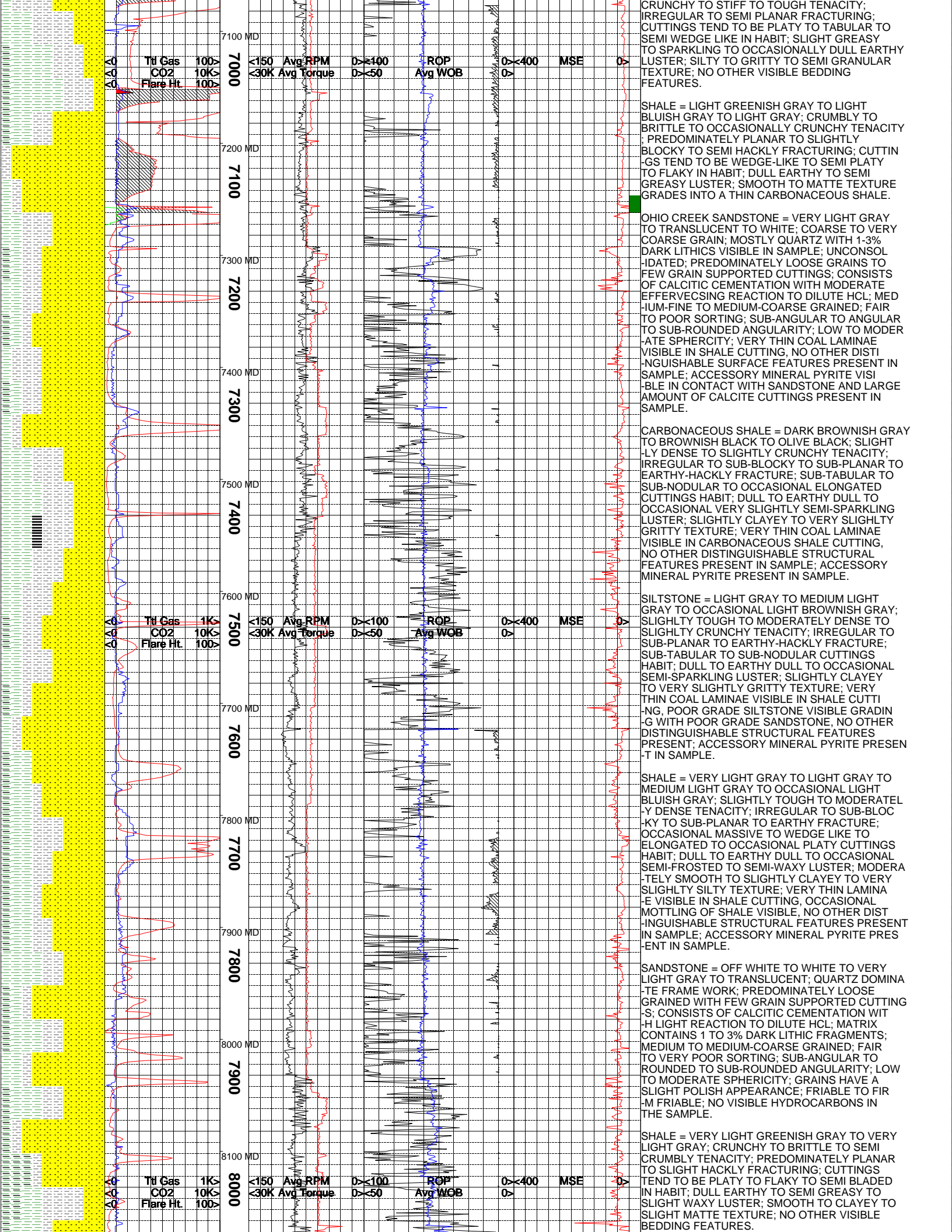
NB	NEWBIT	PV	PLASTIC VISCOSITY	LC	LOST CIRCULATION
RRB	RERUN BIT	YP	YIELD POINT	CO	CIRCULATE OUT
CB	CORE BIT	FL	FLUID LOSS	NR	NO RETURNS
WOB	WEIGHT ON BIT	CL	PPM CLORIDE ION	TG	TRIP GAS
RPM	ROTARY REV/MIN	Rm	MUD RESISTIVITY	SG	SURVEY GAS
PP	PUMP PRESSURE	Rmf	FILTRATE RESISTIVITY	WG	WIPER GAS
SPM	STROKES/MIN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

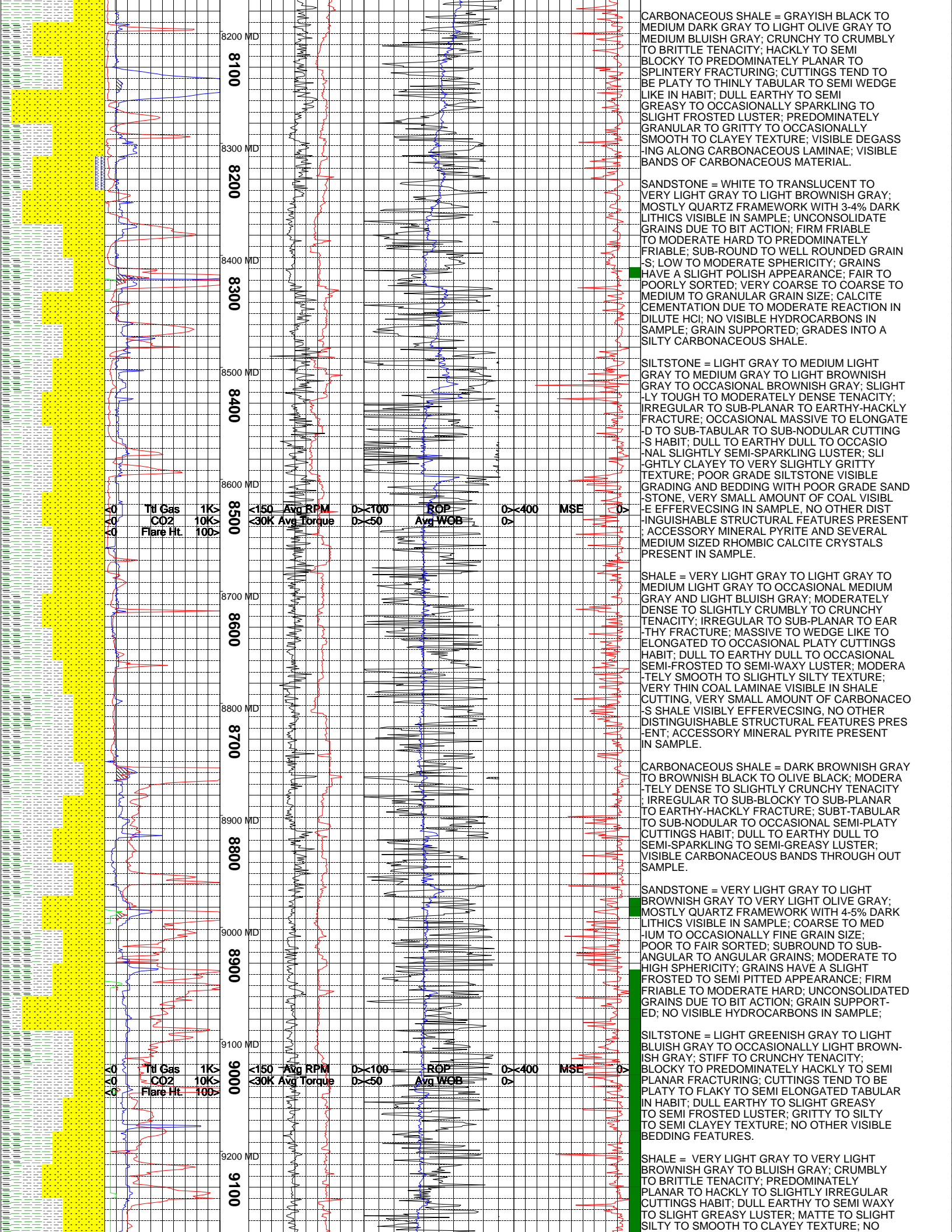
ALTERED ZONE	CHERT - GLASSY	FELSIC SILIC DIKE	MARL - CALC	SANDSTONE
ANDESITE	CHERT - PORCEL	FOSSIL	METAMORPHICS	SANDSTONE-TUFFACEOUS
ANHYDRITE	CHERT - TIGER STRIPE	GABBRO	MUDSTONE	SERICITIZATION
BASALT	CHERT - UNDIFF	GLASSY TUFF	OBSIDIAN	SERPENTINE
BENTONITE	CLAY	GRANITE	PALEOSOL	SHALE
BIOTITIZATION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

Lithology	Ttl Gas units CO2 ppm Flare Ht. ft	Depth TD MD	Avg RPM Avg Torque FTLBS	ROP ft/hr Avg WOB klbs	MSE psi	Remarks
		3806 MD				EPOCH WELL SERVICES COMMENCED LOGGING ON 7/21/2010 @ 3950'.
		3906 MD				SHALE = VERY LIGHT GRAY TO LIGHT GRAY TO OCCASIONAL MEDIUM LIGHT GRAY; VERY SLIGHTLY DENSE TO MOSTLY BRITTLE TO CRUMBLY TENACITY; IRREGULAR TO SUB-BLOCKY TO SUB-PLANAR TO EARTHY HACKLY 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 CLAYEY TO SLIGHTLY SILTY TEXTURE; NO VISIBLE LAMINAE OR OTHER DISTINGUISHABLE STRUCTURAL FEATURES PRESENT; NO ACCESSORY MINERALS PRESENT IN SAMPLE.
		4000 MD				SANDSTONE = OFF WHITE TO VERY LIGHT BROWNISH GRAY TO YELLOWISH GRAY WITH MODERATE BROWN AND BLACK HUES; QUARTZ DOMINANT FRAME WORK; MOSTLY 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; MEDIUM FINE TO MEDIUM-COARSE GRAINED; FAIR TO POOR SORTING; SUB-ANGULAR TO SUB-ROUND ANGULARITY; LOW TO MODERATE SPHERICITY; POOR GRADE SILTSTONE VISIBLE GRADING WITH POOR GRADE SANDSTONE, NO OTHER DISTINGUISHABLE SURFACE FEATURES PRESENT; NO ACCESSORY MINERALS PRESENT IN SAMPLE.
		4100 MD				
		4200 MD				
		4300 MD				SILTSTONE = VERY LIGHT GRAY TO LIGHT GRAY TO LIGHT BROWNISH GRAY; SLIGHTLY DENSE TO MODERATELY BRITTLE TO SLIGHTLY CRUNCHY TENACITY; IRREGULAR TO SUB-PLANAR TO EARTHY HACKLY FRACTURE; SUB-TABULAR TO SUB-NODULAR TO OCCASIONAL PLATY CUTTINGS HABIT; DULL TO EARTHY DULL TO OCCASIONAL SEMI-SPARKLING LUSTER; VERY SLIGHTLY GRITTY TO VERY SLIGHTLY GRANULAR TEXTURE; POOR GRADE SILTSTONE VISIBLE GRADING WITH POOR GRADE SANDSTONE; CUTTINGS IN SAMPLE ARE SLIGHTLY CLAYEY; NO OTHER DISTINGUISHABLE STRUCTURAL FEATURES PRESENT IN SAMPLE; NO ACCESSORY MINERALS PRESENT IN SAMPLE.
		4400 MD				
		4500 MD				SHALE = VERY LIGHT GRAY TO LIGHT GRAY TO MEDIUM LIGHT GRAY; MOSTLY BRITTLE TO CRUMBLY TO VERY SLIGHTLY DENSE TENACITY; IRREGULAR TO SUB-BLOCKY TO SUB-PLANAR TO EARTHY FRACTURE; OCCASIONAL MASSIVE TO WEDGE LIKE TO ELONGATED TO OCCASIONAL CURVED CUTTINGS HABIT; DULL TO EARTHY DULL TO OCCASIONAL SEMI-FROSTED TO SEMI-WAXY LUSTER; MODERATELY SMOOTH TO SLIGHTLY CLAYEY TO VERY SLIGHTLY SILTY TEXTURE; NO VISIBLE LAMINAE OR OTHER DISTINGUISHABLE STRUCTURAL FEATURES PRESENT; NO ACCESSORY MINERALS PRESENT IN SAMPLE.
		4600 MD				SANDSTONE = OFF WHITE TO VERY LIGHT BROWNISH GRAY WITH BLACK AND MODERATE BROWN HUES; QUARTZ DOMINANT FRAME WORK; PREDOMINANTLY GRAIN SUPPORTED WITH VERY FEW LOOSE GRAINS; CONSISTS OF CALCITIC CEMENTATION WITH MODERATE REACTION TO DILUTE HCL; MARTIX CONTAINS 2 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; POOR GRADE SILTSTONE VISIBLE GRADING WITH POOR GRADE SANDSTONE, NO OTHER DISTINGUISHABLE SURFACE FEATURES PRESENT IN SAMPLE.
		4700 MD				
		4800 MD				SILTSTONE = LIGHT GRAY TO VERY LIGHT BROWNISH GRAY TO OCCASIONAL MODERATE DUSKY RED; VERY SLIGHTLY DENSE TO SLIGHTLY CRUNCHY TO MODERATELY BRITTLE TENACITY; IRREGULAR TO SUB-PLANAR TO EARTHY-HACKLY FRACTURE; SUB-TABULAR TO SUB-NODULAR TO OCCASIONAL SEMI-WEDGE LIKE CUTTINGS HABIT; DULL TO EARTHY DULL TO OCCASIONAL SEMI-SPARKLING LUSTER; SLIGHTLY GRITTY TO VERY SLIGHTLY GRANULAR TEXTURE; POOR GRADE SILTSTONE VISIBLE BEDDING WITH POOR GRADE SANDSTONE, NO OTHER DISTINGUISHABLE SURFACE FEATURES PRESENT IN SAMPLE.









CARBONACEOUS SHALE = GRAYISH BLACK TO MEDIUM DARK GRAY TO LIGHT OLIVE GRAY TO MEDIUM BLuish GRAY; CRUNCHY TO CRUMBLY TO BRITTLE TENACITY; HACKLY TO SEMI BLOCKY TO PREDOMINATELY PLANAR TO SPLINTERY FRACTURING; CUTTINGS TEND TO BE PLATY TO THINLY TABULAR TO SEMI WEDGE LIKE IN HABIT; DULL EARTHY TO SEMI GREASY TO OCCASIONALLY SPARKLING TO SLIGHT FROSTED LUSTER; PREDOMINATELY GRANULAR TO GRITTY TO OCCASIONALLY SMOOTH TO CLAYEY TEXTURE; VISIBLE DEGASSING ALONG CARBONACEOUS LAMINAE; VISIBLE BANDS OF CARBONACEOUS MATERIAL.

SANDSTONE = WHITE TO TRANSLUCENT TO VERY LIGHT GRAY TO LIGHT BROWNISH GRAY; MOSTLY QUARTZ FRAMEWORK WITH 3-4% DARK LITHICS VISIBLE IN SAMPLE; UNCONSOLIDATE GRAINS DUE TO BIT ACTION; FIRM FRIABLE TO MODERATE HARD TO PREDOMINATELY FRIABLE; SUB-ROUND TO WELL ROUNDED GRAIN -S; LOW TO MODERATE SPHERICITY; GRAINS HAVE A SLIGHT POLISH APPEARANCE; FAIR TO POORLY SORTED; VERY COARSE TO COARSE TO MEDIUM TO GRANULAR GRAIN SIZE; CALCITE CEMENTATION DUE TO MODERATE REACTION IN DILUTE HCl; NO VISIBLE HYDROCARBONS IN SAMPLE; GRAIN SUPPORTED; GRADES INTO A SILTY CARBONACEOUS SHALE.

SILTSTONE = LIGHT GRAY TO MEDIUM LIGHT GRAY TO MEDIUM GRAY TO LIGHT BROWNISH GRAY TO OCCASIONAL BROWNISH GRAY; SLIGHTLY TOUGH TO MODERATELY DENSE TENACITY; IRREGULAR TO SUB-PLANAR TO EARTHY-HACKLY FRACTURE; OCCASIONAL MASSIVE TO ELONGATE -D TO SUB-TABULAR TO SUB-NODULAR CUTTING -S HABIT; DULL TO EARTHY DULL TO OCCASIONAL SLIGHTLY SEMI-SPARKLING LUSTER; SLIGHTLY CLAYEY TO VERY SLIGHTLY GRITTY TEXTURE; POOR GRADE SILTSTONE VISIBLE GRADING AND BEDDING WITH POOR GRADE SAND -STONE, VERY SMALL AMOUNT OF COAL VISIBLE EFFERVECSING IN SAMPLE, NO OTHER DISTINGUISHABLE STRUCTURAL FEATURES PRESENT; ACCESSORY MINERAL PYRITE AND SEVERAL MEDIUM SIZED RHOMBIC CALCITE CRYSTALS PRESENT IN SAMPLE.

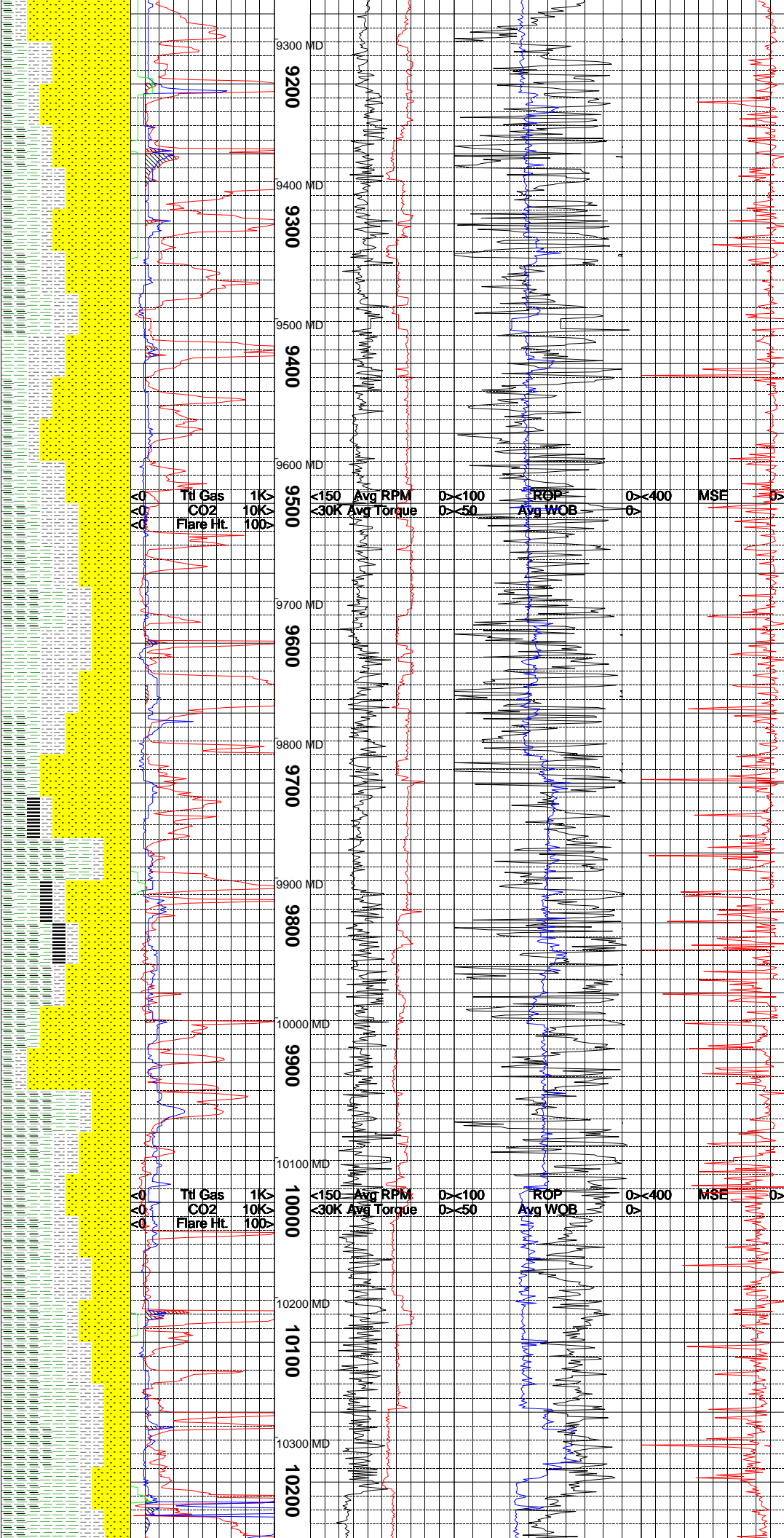
SHALE = VERY LIGHT GRAY TO LIGHT GRAY TO MEDIUM LIGHT GRAY TO OCCASIONAL MEDIUM GRAY AND LIGHT BLuish GRAY; MODERATELY DENSE TO SLIGHTLY CRUMBLY TO CRUNCHY TENACITY; IRREGULAR TO SUB-PLANAR TO EARTHY FRACTURE; MASSIVE TO WEDGE LIKE TO ELONGATED TO OCCASIONAL PLATY CUTTINGS HABIT; DULL TO EARTHY DULL TO OCCASIONAL SEMI-FROSTED TO SEMI-WAXY LUSTER; MODERATELY SMOOTH TO SLIGHTLY SILTY TEXTURE; VERY THIN COAL LAMINAE VISIBLE IN SHALE CUTTING; VERY SMALL AMOUNT OF CARBONACEOUS SHALE VISIBLE EFFERVECSING, NO OTHER DISTINGUISHABLE STRUCTURAL FEATURES PRESENT; ACCESSORY MINERAL PYRITE PRESENT IN SAMPLE.

CARBONACEOUS SHALE = DARK BROWNISH GRAY TO BROWNISH BLACK TO OLIVE BLACK; MODERATELY DENSE TO SLIGHTLY CRUNCHY TENACITY; IRREGULAR TO SUB-BLOCKY TO SUB-PLANAR TO EARTHY-HACKLY FRACTURE; SUB-TABULAR TO SUB-NODULAR TO OCCASIONAL SEMI-PLATY CUTTINGS HABIT; DULL TO EARTHY DULL TO SEMI-SPARKLING TO SEMI-GREASY LUSTER; VISIBLE CARBONACEOUS BANDS THROUGH OUT SAMPLE.

SANDSTONE = VERY LIGHT GRAY TO LIGHT BROWNISH GRAY TO VERY LIGHT OLIVE GRAY; MOSTLY QUARTZ FRAMEWORK WITH 4-5% DARK LITHICS VISIBLE IN SAMPLE; COARSE TO MEDIUM TO OCCASIONALLY FINE GRAIN SIZE; POOR TO FAIR SORTED; SUBROUND TO SUB-ANGULAR TO ANGULAR GRAINS; MODERATE TO HIGH SPHERICITY; GRAINS HAVE A SLIGHT FROSTED TO SEMI PITTED APPEARANCE; FIRM FRIABLE TO MODERATE HARD; UNCONSOLIDATED GRAINS DUE TO BIT ACTION; GRAIN SUPPORTED; NO VISIBLE HYDROCARBONS IN SAMPLE;

SILTSTONE = LIGHT GREENISH GRAY TO LIGHT BLuish GRAY TO OCCASIONALLY LIGHT BROWNISH GRAY; STIFF TO CRUNCHY TENACITY; BLOCKY TO PREDOMINATELY HACKLY TO SEMI PLANAR FRACTURING; CUTTINGS TEND TO BE PLATY TO FLAKY TO SEMI ELONGATED TABULAR IN HABIT; DULL EARTHY TO SLIGHT GREASY TO SEMI FROSTED LUSTER; GRITTY TO SILTY TO SEMI CLAYEY TEXTURE; NO OTHER VISIBLE BEDDING FEATURES.

SHALE = VERY LIGHT GRAY TO VERY LIGHT BROWNISH GRAY TO BLuish GRAY; CRUMBLY TO BRITTLE TENACITY; PREDOMINATELY PLANAR TO HACKLY TO SLIGHTLY IRREGULAR CUTTINGS HABIT; DULL EARTHY TO SEMI WAXY TO SLIGHT GREASY LUSTER; MATTE TO SLIGHT SILTY TO SMOOTH TO CLAYEY TEXTURE; NO



OTHER VISIBLE ACCESSORY MINERALS IN SAMPLE.

SANDSTONE = WHITE TO TRANSLUCENT TO VERY LIGHT GRAY; MOSTLY QUARTZ FRAMEWORK WITH 4-5% DARK LITHICS VISIBLE IN SAMPLE; PREDOMINATELY GRAIN SUPPORTED WITH FAIR AMOUNT OF LOOSE GRAINS PRESENT; MEDIUM-FINE TO MEDIUM-COARSE GRAINED; FAIR TO MODERATELY WELL SORTING; SUB-ANGULAR TO ANGULAR TO SUB-ROUNDED ANGULARITY; LOW TO MODERATE SPHERICITY; POOR GRADE SILT-TONE VISIBLE GRADING AND BEDDING WITH POOR GRADE SANDSTONE, VERY SMALL AMOUNT OF CARBONACEOUS SHALE VISIBLE EFFERVESCING IN SAMPLE, NO OTHER BEDDING OR OTHER DISTINGUISHABLE SURFACE FEATURES PRESENT; NO ACCESSORY MINERALS PRESENT IN SAMPLE.

CARBONACEOUS SHALE = DARK BROWNISH GRAY TO BROWNISH BLACK TO OCCASIONAL OLIVE BLACK; SLIGHTLY TOUGH TO MODERATELY DENSE TENACITY; IRREGULAR TO SUB-BLOCKY TO SUB-PLANAR TO EARTHY-HACKLY FRACTURE; SUB-TABULAR TO OCCASIONAL SUB-NODULAR TO OCCASIONAL ELONGATED CUTTINGS HABIT; DULL TO EARTHY DULL TO SEMI-GREASY TO OCCASIONAL SEMI-SPARKLING LUSTER; SUB-CLAYEY TO VERY SLIGHTLY GRITTY TEXTURE; VERY THIN COAL LAMINAE VISIBLE IN SHALE CUTTINGS, NO OTHER DISTINGUISHABLE STRUCTURAL FEATURES PRESENT IN SAMPLE; ACCESSORY MINERAL PYRITE PRESENT IN CONTACT WITH CARBONACEOUS SHALE CUTTING, PRESENT IN SAMPLE.

SILTSTONE = LIGHT GRAY TO MEDIUM LIGHT GRAY TO OCCASIONAL MEDIUM GRAY; SLIGHTLY DENSE TO SLIGHTLY TOUGH TENACITY; IRREGULAR TO SUB-PLANAR TO EARTHY HACKLY FRACTURE; SUB-TABULAR TO SUB-NODULAR TO OCCASIONAL SUB-PLATY 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, NO OTHER DISTINGUISHABLE STRUCTURAL FEATURES PRESENT; NO ACCESSORY MINERALS PRESENT IN SAMPLE.

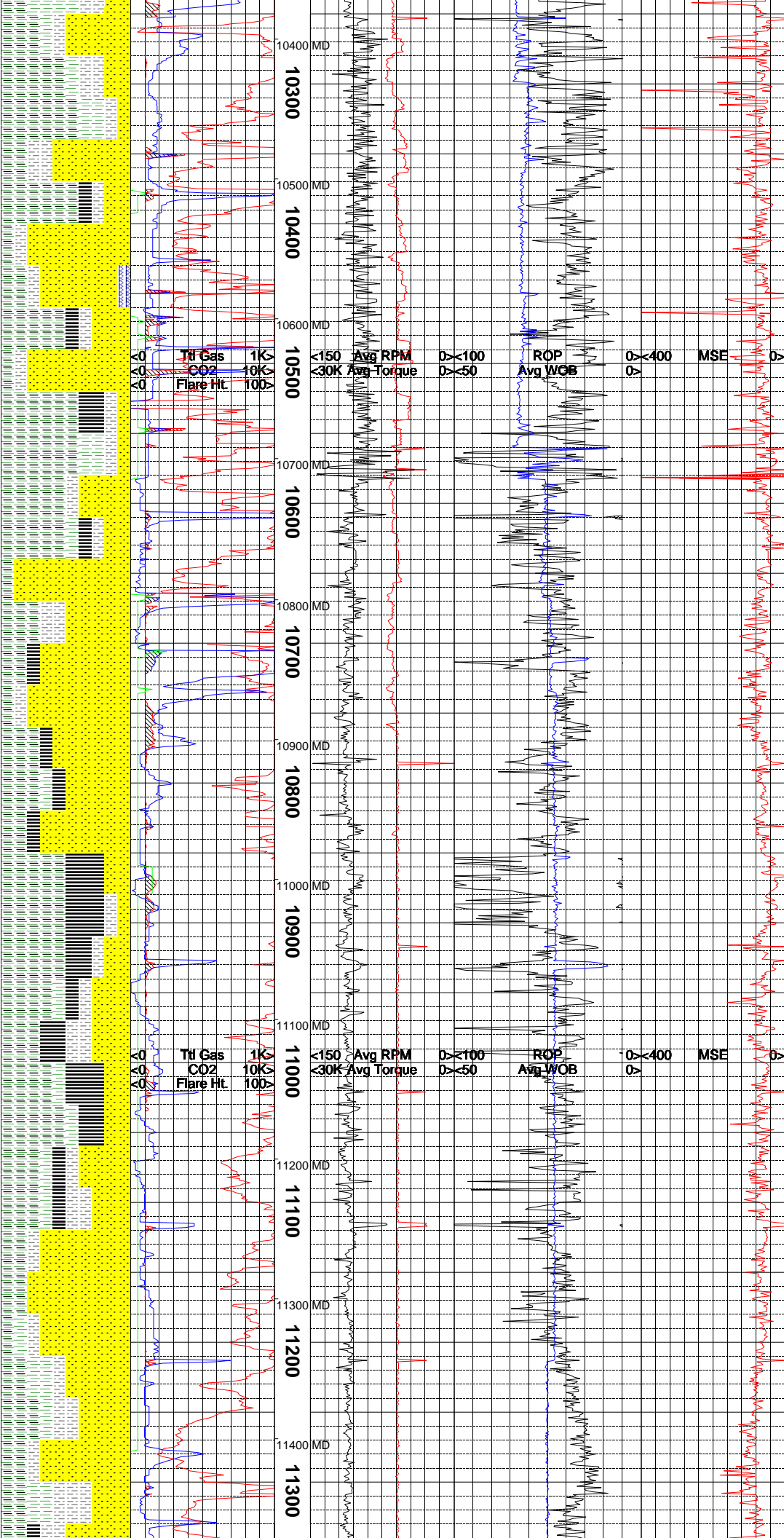
SHALE = VERY LIGHT GREENISH GRAY TO VERY LIGHT BLuish GRAY TO OLIVE GRAY; IRREGULAR TO PREDOMINATELY PLANAR TO SEMI HACKLY FRACTURING; CRUMBLY TO CRUNCHY TO BRITTLE TENACITY; CUTTINGS TEND TO BE PLATY TO FLAKY TO SEMI ELONGATED TABULAR IN HABIT; DULL EARTHY TO SEMI GREASY TO SLIGHT WAXY LUSTER; SMOOTH TO CLAYEY TO SEMI MATTE TEXTURE; NO OTHER VISIBLE BEDDING FEATURES; A FEW NACHOLITE CRYSTALS VISIBLE DUE TO CAVINGS.

COAL = BLACK TO MEDIUM GRAYISH BLACK TO OLIVE BLACK TO PREDOMINATELY BROWNISH GRAY TO BROWNISH BLACK; CRUNCHY TO CRUMBLY TO BRITTLE TENACITY; IRREGULAR TO BLOCKY TO PREDOMINATELY CONCHOIDAL FRACTURING; CUTTINGS TEND TO BE NODULAR TO WEDGE LIKE TO SEMI BLADED IN HABIT; DULL TO FROSTED TO SPARKLING TO SEMI GREASY TO WAXY LUSTER; SMOOTH TO MATTE TO SLIGHT GRITTY TO CLAYEY TEXTURE; VISIBLE DEGASSING THROUGH OUT THE SAMPLE; VISIBLE PYRITE BANDS.

CARBONACEOUS SHALE = OLIVE GRAY TO LIGHT BROWNISH GRAY TO BROWNISH GRAY; BRITTLE TO CRUMBLY TO CRUNCHY TENACITY; HACKLY TO PLANAR FRACTURING; CUTTINGS TEND TO BE WEDGE LIKE TO SEMI TABULAR IN HABIT; DULL TO FROSTED TO SEMI SPARKLING LUSTER; GRITTY TO SILTY TEXTURE; VISIBLE BEDS OF CARBONACEOUS MATERIAL IN SAMPLE.

SANDSTONE = LIGHT GRAY TO LIGHT BROWNISH GRAY TO OCCASIONAL BROWNISH GRAY WITH BLACK AND MODERATE BROWN HUES; QUARTZ DOMINATE FRAME WORK; PREDOMINATELY GRAIN SUPPORTED WITH FEW LOOSE GRAINS; CONSISTS OF CALCITIC CEMENTATION WITH MODERATELY HIGH REACTION TO DILUTE HCL; MATRIX CONTAINS 8 TO 11% DARK LITHIC FRAGMENTS; MEDIUM-COARSE TO COARSE GRAINED; FAIR TO POOR SORTING; SUB-ANGULAR TO ANGULAR TO SUB-ROUNDED ANGULARITY; LOW TO MODERATE SPHERICITY; POOR GRADE SILTSTONE VISIBLE GRADING WITH POOR GRADE SANDSTONE, NO OTHER DISTINGUISHABLE SURFACE FEATURES PRESENT; NO ACCESSORY MINERALS PRESENT IN SAMPLE.

SILTSTONE = VERY LIGHT GRAY TO LIGHT GRAY TO OCCASIONAL MEDIUM LIGHT GRAY TO YELLOWISH GRAY TO VERY LIGHT BROWNISH GRAY; MODERATELY TOUGH TO MODERATELY DENSE TENACITY; IRREGULAR TO SUB-PLANAR TO EARTHY-HACKLY FRACTURE; SUB-TABULAR TO SUB-NODULAR TO OCCASIONAL MASSIVE CUTTINGS HABIT; DULL TO EARTHY DULL TO SEMI



-I-SPARKLING LUSTER; SLIGHTLY GRITTY TO VERY SLIGHTLY GRANULAR TEXTURE; POOR GRADE SILTSTONE VISIBLE BEDDING AND GRADIN-G WITH POOR GRADE SANDSTONE, NO OTHER

CARBONACEOUS SHALE = OLIVE GRAY TO GRAY-ISH BLACK TO MEDIUM GRAY; BRITTLE TO CRUMBLY TO CRUNCHY TENACITY; HACKLY TO IRREGULAR TO SLIGHT BLOCKY FRACTURING; CUTTINGS TEND TO BE PLATY TO SLIGHT NOD-ULAR TO SEMI WEDGE LIKE TO SLIGHT TABULA-R IN HABIT; PREDOMINATELY FROSTED TO SPARKLING TO SEMI GREASY TO OCCASIONALLY DULL EARTHY LUSTER; GRITTY TO SEMI GRAN-ULAR TO SILTY TEXTURE; THIN LAMINAE OF CARBONACEOUS MATERIAL; VISIBLE DEGASSING FROM MOST OF SAMPLE.

SANDSTONE = LIGHT BROWNISH GRAY TO LIGHT GRAY TO WHITE TO OCCASIONALLY TRANSLUCEN-T; MOSTLY QUARTZ FRAMEWORK WITH 7-8% DARK LITHICS VISIBLE IN SAMPLE; VISIBLE BANDS OF CARBONACEOUS MATERIAL; VERY COARSE TO COARSE TO MEDIUM GRAIN SIZE; POOR TO FAIR TO OCCASIONALLY VERY POORLY SORTED; ANGULAR TO SUB-ANGULAR GRAINS; MODERATE TO HIGH SPHERICITY; GRAINS HAVE A SLIGHT FROSTED APPEARANCE; FIRM FRIABL-E TO MODERATE HARD; UNCONSOLIDATED GRAINS DUE TO BIT ACTION; GRAIN SUPPORT -D; CALCITE CEMENTATION DUE TO HIGH REACTION IN DILUTE HCl; NO VISIBLE HYDR HYDROCARBONS IN SAMPLE.

TRIP OUT OF THE HOLE FOR A NEW BIT @10,713' ON 07/28/2010.

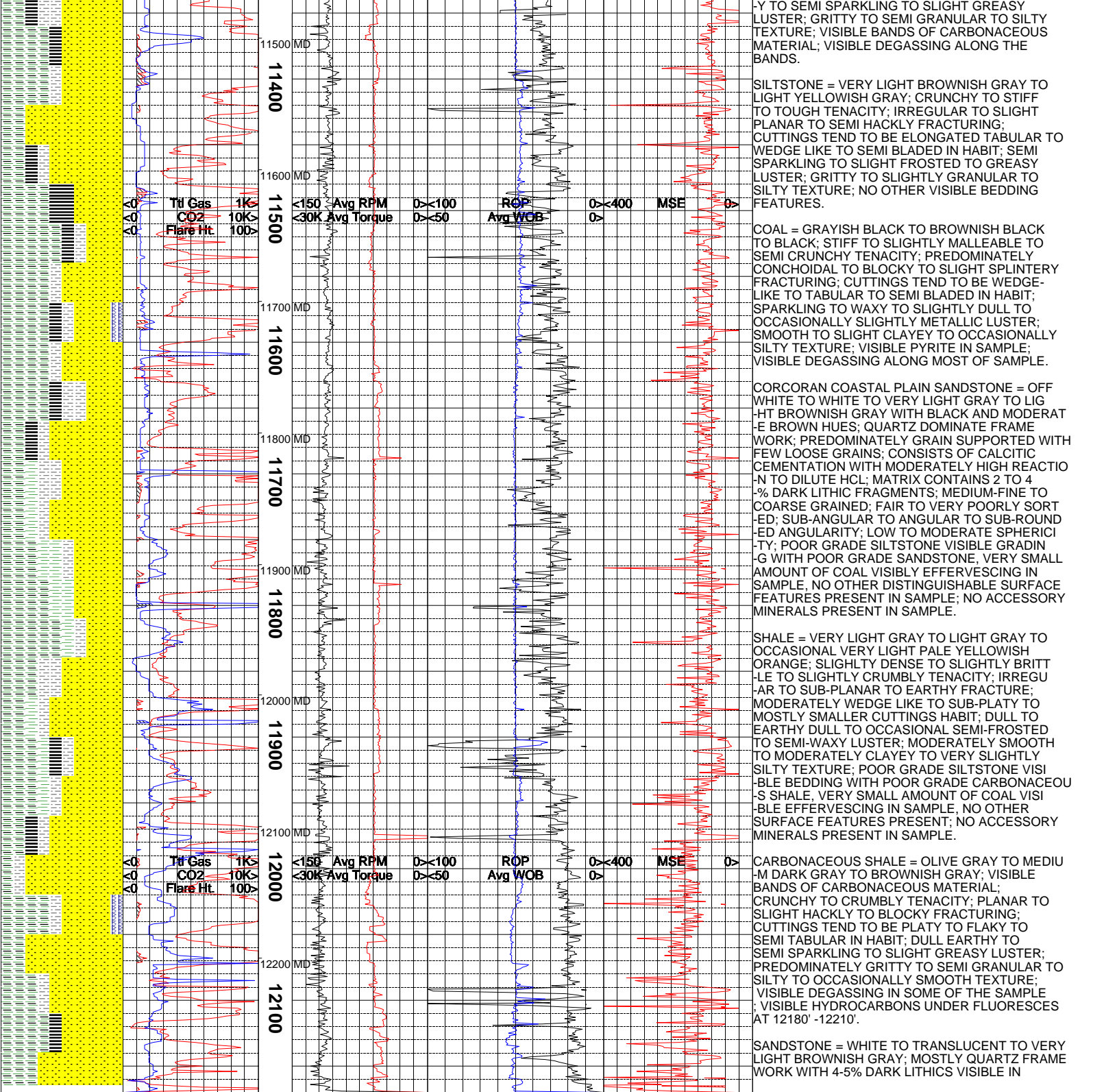
SILTSTONE = MOTTLED GRAYISH TO LIGHT YELLOWISH TO LIGHT BLUISH GRAY; CRUNCHY TO STIFF TO TOUGH TENACITY; BLOCKY TO PREDOMINATELY PLANAR TO HACKLY FRACTURIN-G; CUTTINGS TEND TO BE PLATY TO FLAKY TO SLIGHT ELONGATED TABULAR IN HABIT; SEMI SPARKLING TO SLIGHT FROSTED TO SEMI GREASY LUSTER; SILTY TO SEMI GRANULAR TO GRITTY TEXTURE; GRADES INTO A FINE GRAIN SANDSTONE; NO OTHER VISIBLE BEDDING FEATURES.

COAL = GRAYISH BLACK TO BROWNISH BLACK TO OLIVE BLACK TO BLACK; STIFF TO SLIGHT MALLEABLE TO SEMI CRUNCHY TENACITY; IRREGULAR TO BLOCKY TO SEMI CONCHOIDAL FRACTURING; CUTTINGS TEND TO BE WEDGE-LIKE TO ELONGATED TABULAR TO SLIGHT BLADED IN HABIT; DULL WAXY TO SEMI GREASY TO SLIGHT SPARKLING LUSTER; OCCASIONAL SMOOTH TO SEMI-SILTY TO SEMI-ABRASIVE TEXTURE; COAL CUTTINGS OBSERVED TO BE EFFERVESCING MODERATELY HIGH; POOR GRADE SILTSTONE VISIBLE BEDDING WITH POO-R GRADE CARBONACEOUS SHALE CUTTINGS, NO OTHER DISTINGUISHABLE LAMINAE OR OTHE-R DISTINGUISHABLE STRUCTURAL FEATURES PRESENT; NO ACCESSORY MINERAL PRESENT IN SAMPLE.

CARBONACEOUS SHALE = DARK BROWNISH GRAY TO BROWNISH BLACK TO OLIVE BLACK; SLIGHT-LY TOUGH TO MODERATELY DENSE TO SEMI-CRUNCHY TENACITY; IRREGULAR TO SUB-BLOCK-Y TO SUB-PLANAR TO EARTHY FRACTURE; SUB-TABULAR TO SUB-NODULAR TO OCCASIONAL VERY SLIGHTLY SEMI-PLATY CUTTINGS HABIT; DULL TO EARTHY DULL TO OCCASIONAL SEMI-SPARKLING TO SEMI-GREASY LUSTER; SLIGHTL-Y CLAYEY TO VERY SLIGHTLY GRITTY TEXTUR-E; POOR GRADE CARBONACEOUS SHALE VISIBL-E BEDDING WITH POOR GRADE SANDSTONE, FAIR AMOUNT OF COAL VISIBLE EFFERVESCING IN SAMPLE, NO OTHER LAMINAE OR OTHER DIS-TINGUISHABLE STRUCTURAL FEATURES PRESEN-T; NO ACCESSORY MINERALS PRESENT IN SAM-PL-E.

ROLLINS SANDSTONE = WHITE TO OFF WHITE TO TRANSLUCENT WITH FEW BLACK HUES; QUAR-TZ DOMINATE FRAME WORK; PREDOMINATELY LOOSE GRAINS WITH VERY FEW GRAIN SUPPORT-ED CUTTINGS; CONSISTS OF SILICA CEMENTA-TION WITH LITTLE TO NO REACTION TO DILU-TE HCL; MATRIX CONTAINS 1 TO 3% DARK LI-THIC FRAGMENTS; MEDIUM TO MEDIUM-COARSE GRAINED; FAIR TO POOR SORTING; SUB-ANGUL-AR TO ANGULAR TO SUB-ROUNDED ANGULARITY ; LOW TO MODERATE SPHERICITY; POOR GRADE SILTSTONE VISIBLE BEDDING WITH POOR GRAD-E SANDSTONE, VERY SMALL AMOUNT OF COAL VISIBLE EFFERVESCING IN SAMPLE, NO OTHER VISIBLE BEDDING OR OTHER DISTINGUISHABLE SURFACE FEATURES PRESENT; NO ACCESSORY MINERALS PRESENT IN SAMPLE.

CARBONACEOUS SHALE = GRAYISH BLACK TO OLIVE GRAY TO BROWNISH GRAY; CRUNCHY TO CRUMBLY TO OCCASIONALLY STIFF TENACITY; PREDOMINATELY HACKLY TO PLANAR TO SEMI BLOCKY FRACTURING; CUTTINGS TEND TO BE PLATY TO FLAKY TO SEMI WEDGE LIKE TO OCCASIONALLY BLADED IN HABIT; DULL EARTH



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