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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	ExxonMobil Production
WELL	PCU-297-11B8
FIELD	PICEANCE CREEK
REGION	ROCKY MT
COORDINATES	LAT 39.885354000 LON 108.239363000
ELEVATION	GL = 7127' KB = 7154'
COUNTY, STATE	RIO BLANCO CO. CO
API INDEX	051031137100
SPUD DATE	4/21/2009
CONTRACTOR	HELMERICH_PAYNE
CO. REP.	RICKY T. OWENS
RIG/TYPE	FLEX 3
LOGGING UNIT	MLU051
GEOLOGISTS	GEORGE BAKER BRENDA MARSH
ADD. PERSONS	DEVIN CLAAR BILL JOHANNING
CO. GEOLOGIST	MICHAEL HOWELL

LOG INTERVAL

DEPTHS: 3,717' TO 12,715'
DATES: 11/23/2009 TO 12/04/2009
SCALE: 1" = 100'

CASING DATA

16.00" AT 130'
10.75" AT 3,717'
7.00" AT 8,622'

AT

HOLE SIZE

9.875" TO 8,641'
6.125" TO 12,715'
TO
TO
TO

MUD TYPES

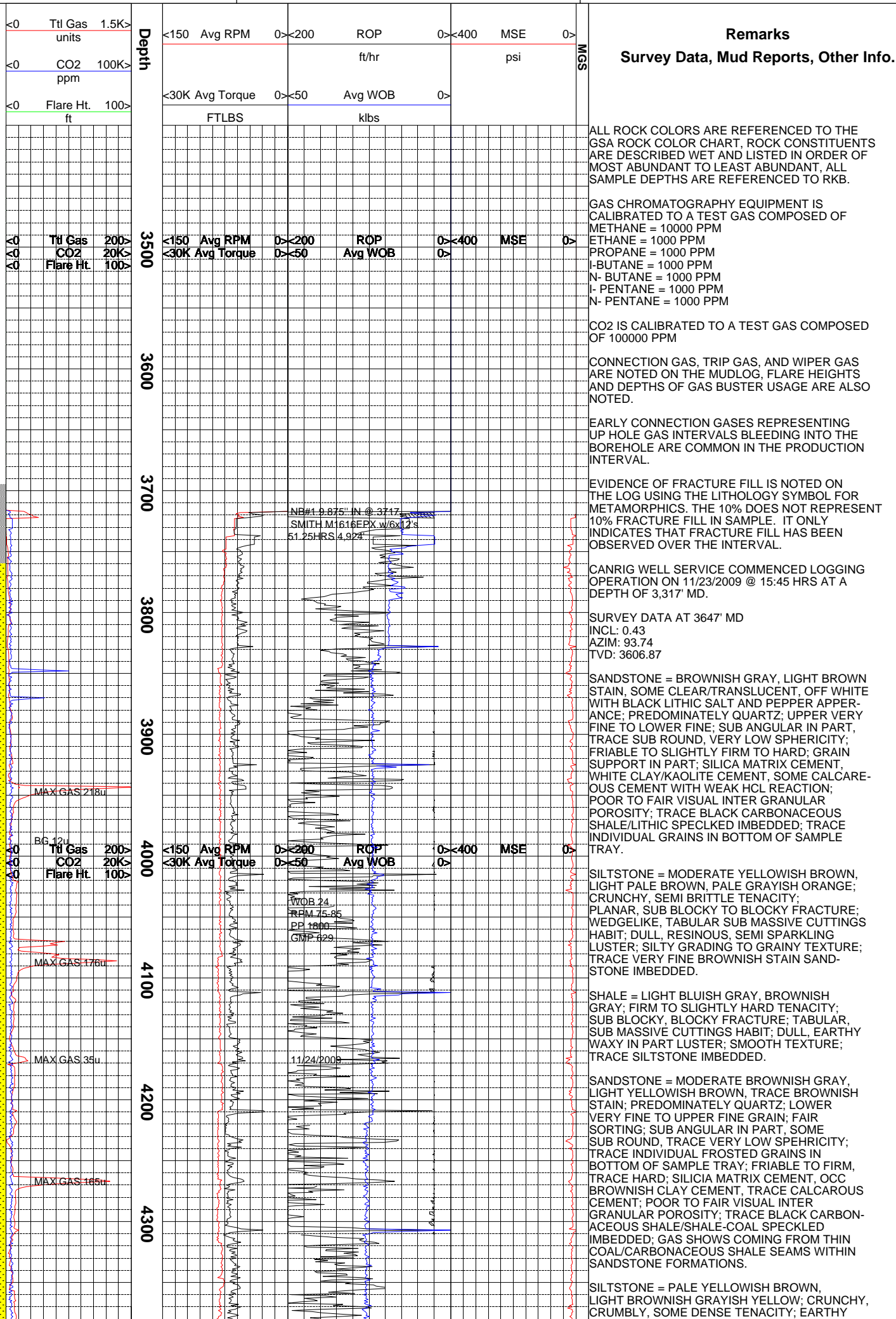
SPUD MUD TO 3,717'
LSND TO 12,175'
TO
TO

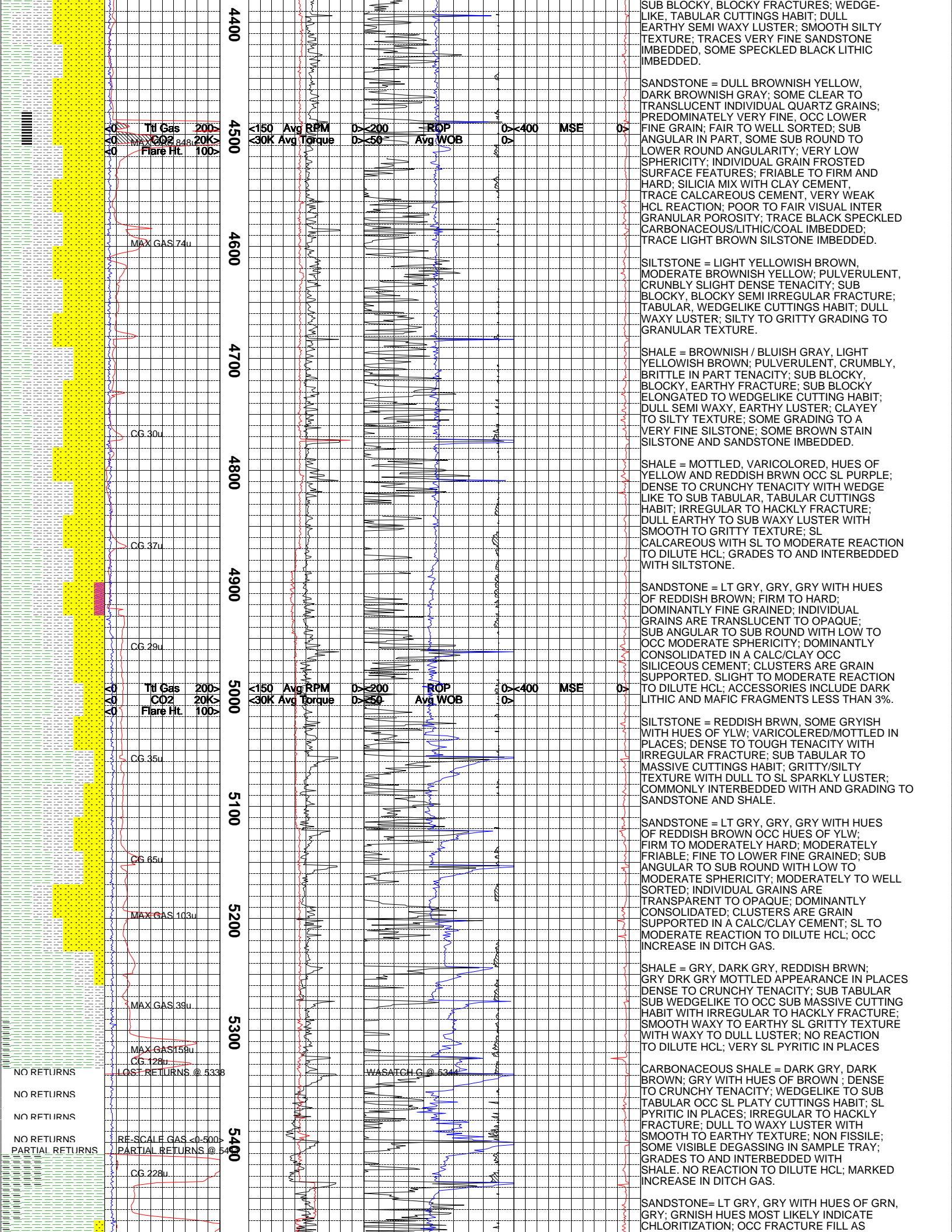
ABBREVIATIONS

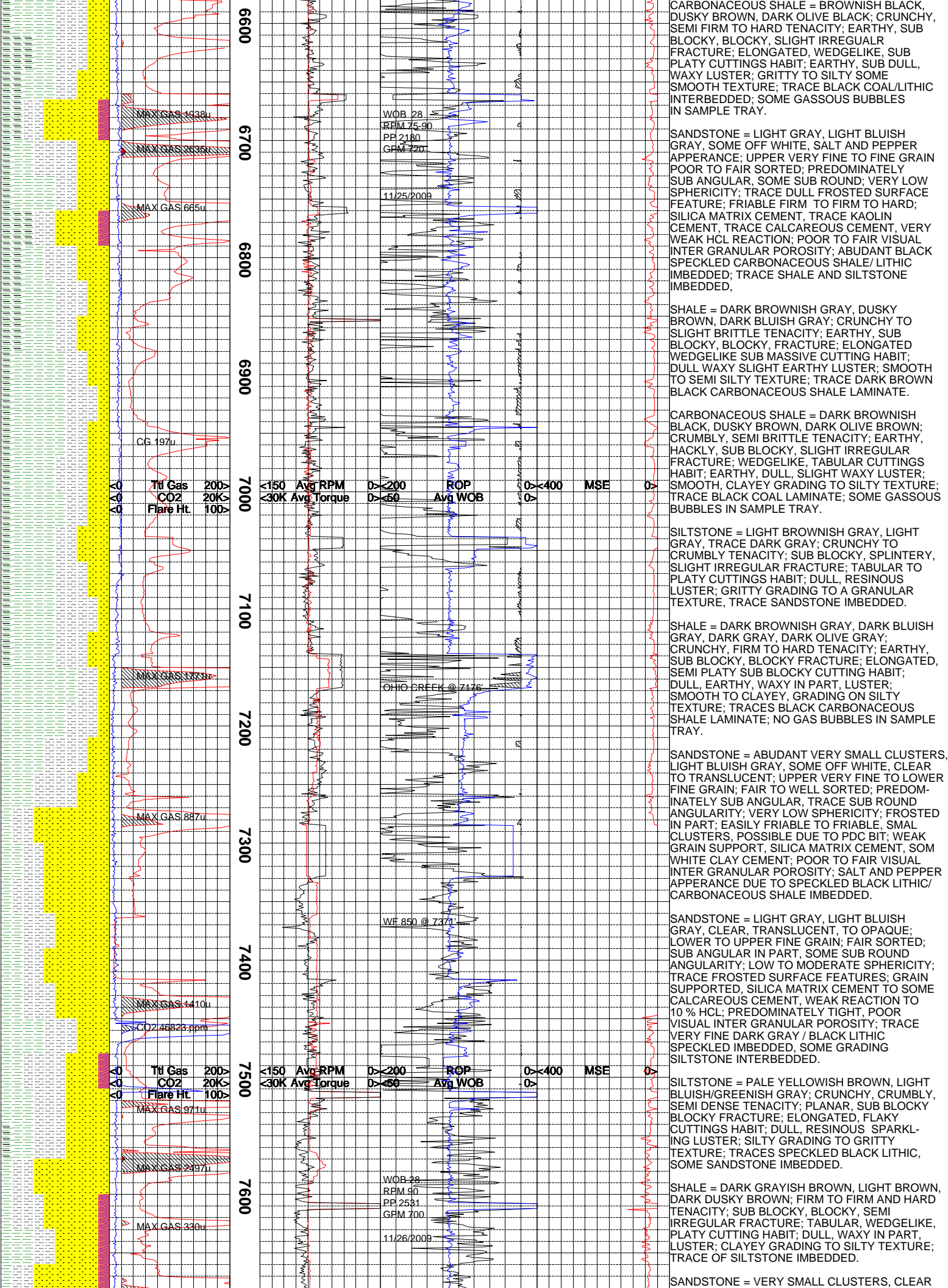
NB	NEWBIT	PV	PLASTIC VISCOSITY	LC	LOST CIRCULATION
RRB	RERUN BIT	YP	YIELD POINT	CO	CIRCULATE OUT
CB	CORE BIT	FL	FLUID LOSS	NR	NO RETURNS
WOB	WEIGHT ON BIT	CL	PPM CLORIDE ION	TG	TRIP GAS
RPM	ROTARY REV/MIN	Rm	MUD RESISTIVITY	SG	SURVEY GAS
PP	PUMP PRESSURE	Rmf	FILTRATE RESISTIVITY	WG	WIPER GAS
SPM	STROKES/MIN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

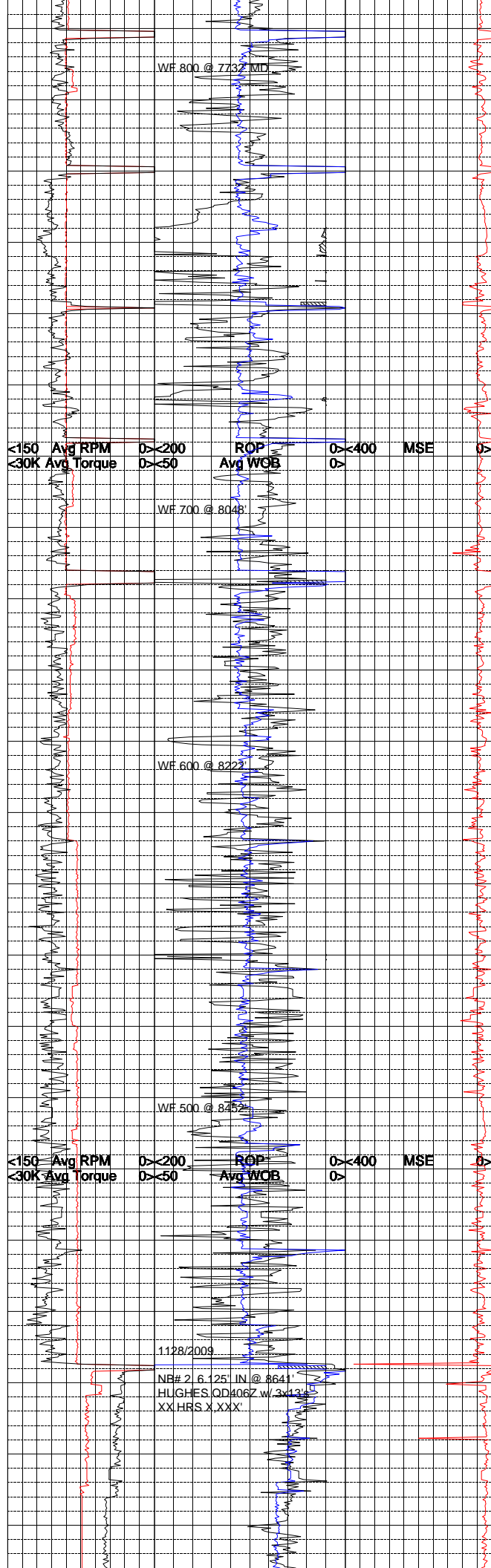
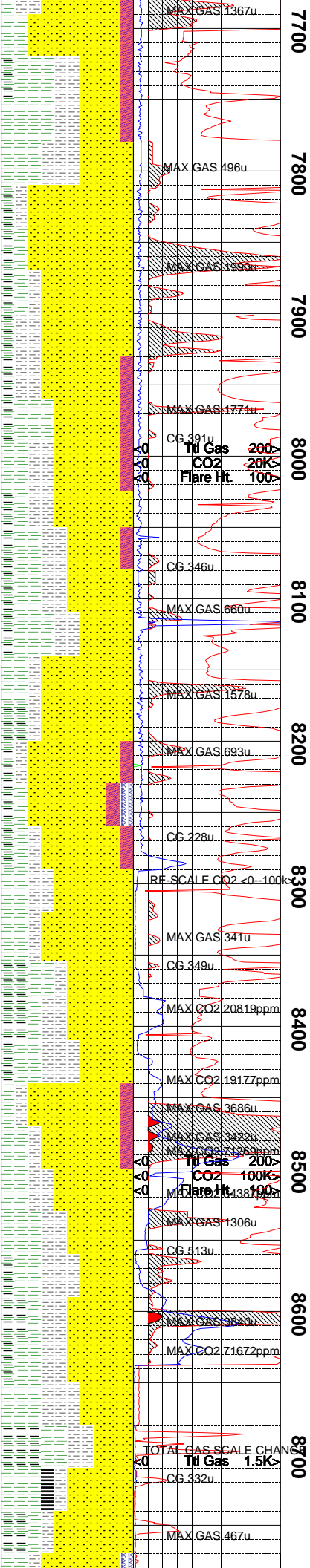
	ALTERED ZONE		CHERT - GLASSY		FELSIC SILIC DIKE		MARL - CALC		SANDSTONE
	ANDESITE		CHERT - PORCEL		FOSSIL		METAMORPHICS		SANDSTONE-TUFFACEOUS
	ANHYDRITE		CHERT - TIGER STRIPE		GABBRO		MUDSTONE		SERICITIZATION
	BASALT		CHERT - UNDIFF		GLASSY TUFF		OBSIDIAN		SERPENTINE
	BENTONITE		CLAY		GRANITE		PALEOSOL		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









TRANSLUCENT TO OPAQUE, LIGHT BLuish GRAY, SOME OFF WHITE; VERY FINE TO FINE GRAIN; FAIR SORTING; PREDOMINATELY SUB ANGULAR, SOME SUB ROUND; LOW SPHERICITY; EASILY FRIABLE TO FRIABLE; WEAK GRAIN SUPPORT, SILICIA CEMENT, SOME WEAK CALCAREOUS CEMENT; SMALL CLUSTER WITH SPECKLED BLACK LITHIC/CARBONACEOUS SHALE; FAIR TO GOOD INTER GRANULAR POROSITY, COARSE CALCITE CRYSTALS IN SAMPLE TRAY.

SANDSTONE = ABUDANT LOOSE GRAINS, VERY SMALL CLUSTERS, SALT AND PEPPER APPEAR; LIGHT BLuish GRAY; LOWER VERY FINE TO UPPER FINE GRAIN; WELL SORTED; PREDOMINATELY SUB ANGULAR, GRADING TO SUB ROUND; LOW TO MODERATELY LOW SPHERICITY; CLEAR TO FROSTED SURFACE FEATURES; VERY WEAK GRAIN SUPPORT, EASILY FRIABLE, TO FRIABLE; SILICIA MATRIX CEMENT, TRACE CALCAREOUS CEMENT, ABUDUNT BLACK LITHIC/CARBONACEOUS SHALE SPECKLED IMBEDDED.

SANDSTONE = ABUDANT SMALL CLUSTER AND INDIVIDUAL GRAINS, CLEAR TO TRANSLUCENT, SALT AND PEPPER APPERANCE, LIGHT GRAYISH BLUE; VERY FINE TO FINE GRAIN, WELL SORTED; SUB ANGULAR IN PART, SOME SEMI SUB ROUND, MODERATE LOW SPHERICITY; FROSTED IN PART SURFACE FEATURES; EASILY FRIABLE TO FRIABLE; WEAK GRAIN SUPPORT, SILICIA MATRIX CEMENT, TRACE CALCAREOUS CEMENT, ABUDANT BLACK SPECKLED LITHIC/CARBONACEOUS SHALE IMBEDDED, SILTSTONE GRADING TO SANDSTONE

CARBONACEOUS SHALE / LITHIC = BLACK, DARK BROWNISH BLACK, DARK OLIVE BLACK; CRUNCHY, BRITTLE TENACITY; SUB BLOCKY TO BLOCKY FRACTURES; FLAKY TO PLATY CUTTINGS HABIT; DULL EARTHY, WAXY IN PART LUSTER; SILTY GRADING TO GRITTY TEXTURE; TRACE BLACK LITHIC IMBEDDED IN SANDSTONE SMALL CLUSTERS.

SANDSTONE = LT GRY, GRY, GRY WITH GRNISH HUES; DOMINANTLY CONSOLIDATED; LOOSE GRAINS IN SMPL TRAY ASSOCIATED WITH BIT ACTION; CLUSTERS ARE GRAIN SUPPORTED IN A CALC/CLAY/ OCC SILICEOUS CEMENT; CLAY CONTENT OF MATRIX INCREASES IN PLACES; INDIVIDUAL GRAINS ARE TRANSPARENT TO OPAQUE; FINE TO UPPER FINE GRAINED; WELL SORTED WITH LOW TO MODERATE SPHERICITY; ACCESSORIES INCLUDE DARK LITHIC AND MAFIC FRAGMENTS 3-5%; SL TO NO REACTION TO DILUTE HCL WITH SLIGHT TO MARKED INCREASE IN DITCH GAS.

SILTSTONE = LIGHT GRY, GRY, GRY WITH SL GRN HUES, TRACE DARK GRAY; CRUNCHY TO DENSE TENACITY; SUB BLOCKY TO SUB TAB, IRREGULAR TO HACKLY FRACTURE, HARD; DULL TO SL RESINOUS LUSTER WITH GRITTY SILTY TEXTURE GRADES TO UPPER VERY FINE GRAINED SANDSTONE. OCC CARBONACEOUS MATERIAL WITHIN.

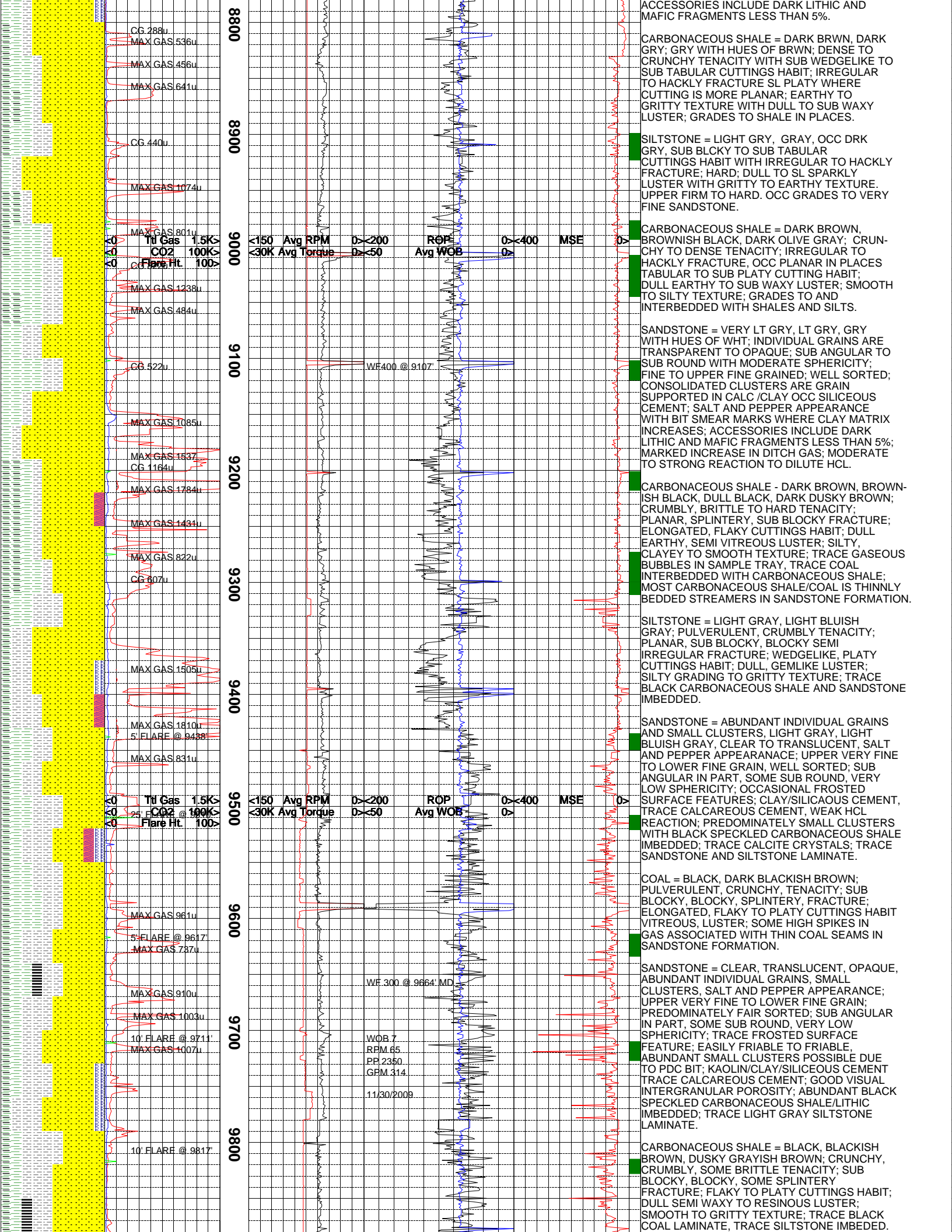
SANDSTONE = LT GRY, GRY, DRK GRY; GRY W/ GRNISH HUES; DOM CONSOLIDATED; LOOSE GRAINS IN SMPL TRAY ASSOCIATED WITH BIT ACTION; CLUSTERS ARE GRAIN SUPPORTED IN A CALC/CLAY/ OCC SILICEOUS CEMENT; CLAY CONTENT OF MATRIX INCREASES IN PLACES; INDIVIDUAL GRAINS ARE TRANSPARENT TO OPAQUE; FINE TO UPPER FINE GRAINED; WELL SORTED WITH LOW TO MODERATE SPHERICITY; ACCESSORIES INCLUDE DARK LITHIC AND MAFIC FRAGMENTS 3-5%; SL TO NO REACTION TO DILUTE HCL WITH SLIGHT TO MARKED INCREASE IN DITCH GAS. OCC CARBONACEOUS MATERIAL AND LAMINAE.

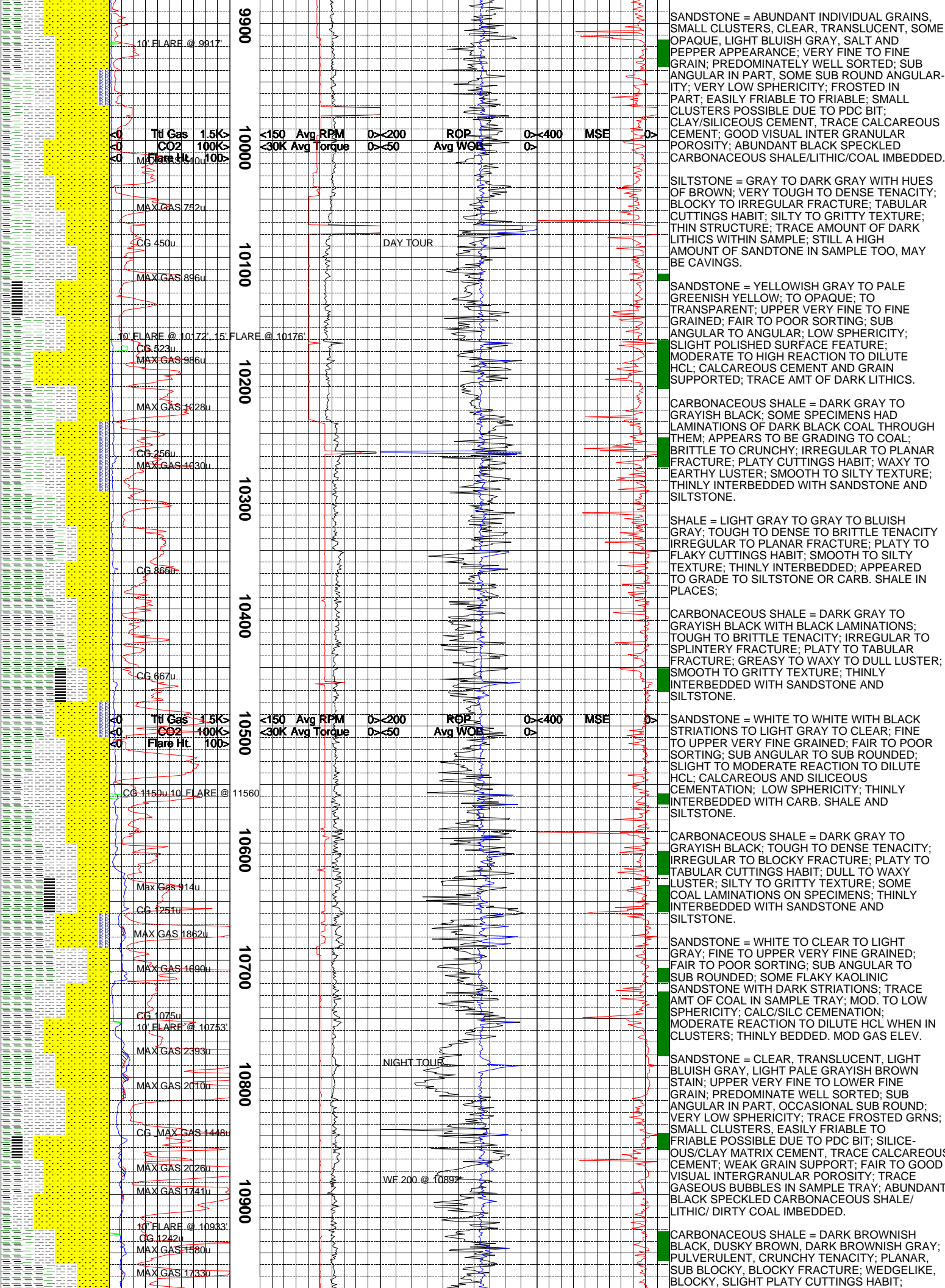
SANDSTONE = LT GRY, OFF WHT; DOMINANTLY UNCONSOLIDATED; INDIVIDUAL GRAINS ARE SUB ANGULAR TO SUB ROUND OCC ROUNDED; MODERATE SPHERICITY, WELL SORTED; CLEAN. LARGE QUANTITIES OF CALCITE CRYSTALS IN SAMPLE SOME MUD ADDITIVE SOME MOST LIKELY FRACTURE FILL. MARKED INCREASE IN DITCH GAS.

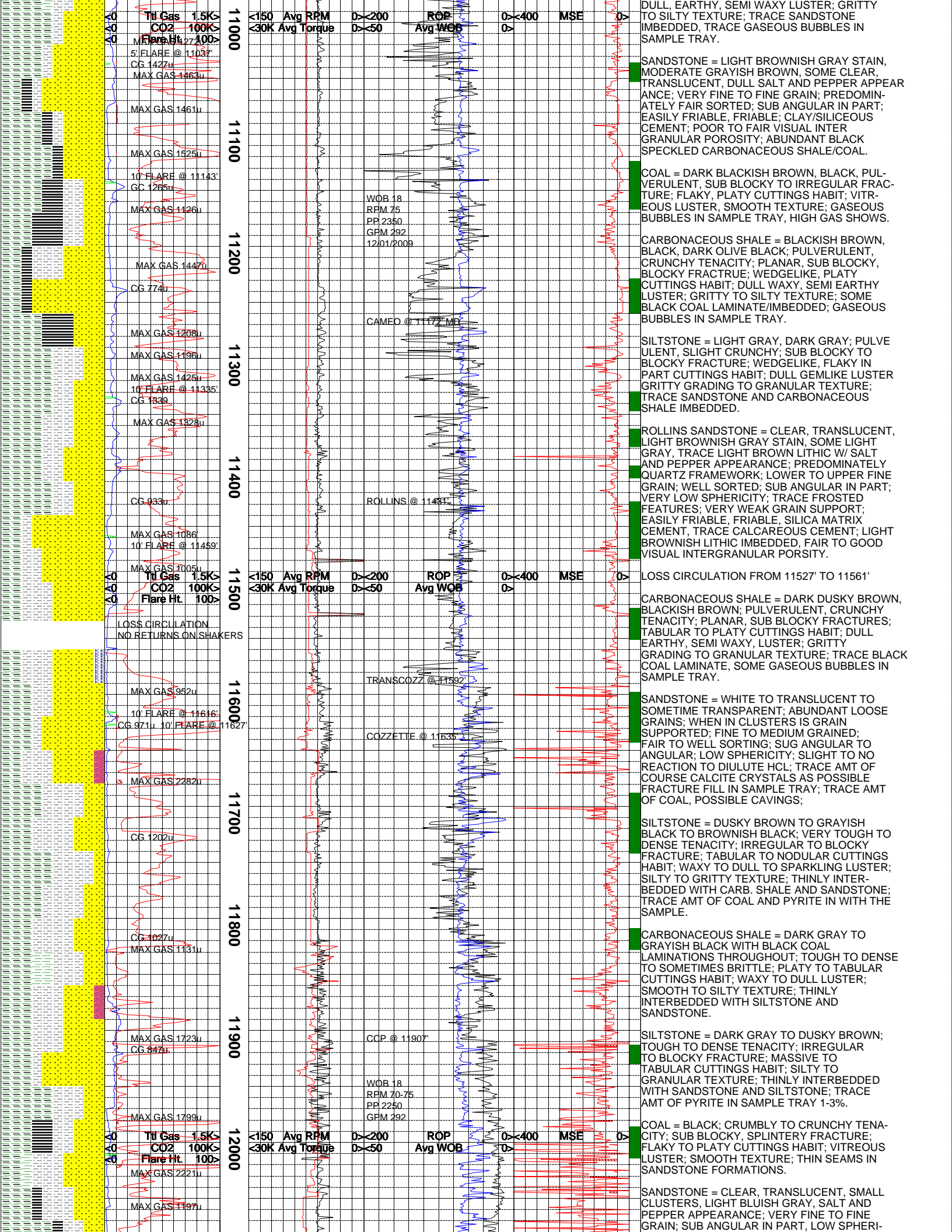
NOTE = TD FOR INTERMEDIATE CASING AT 8641' MD ON 11/26/2009 AT 11:25HRS.

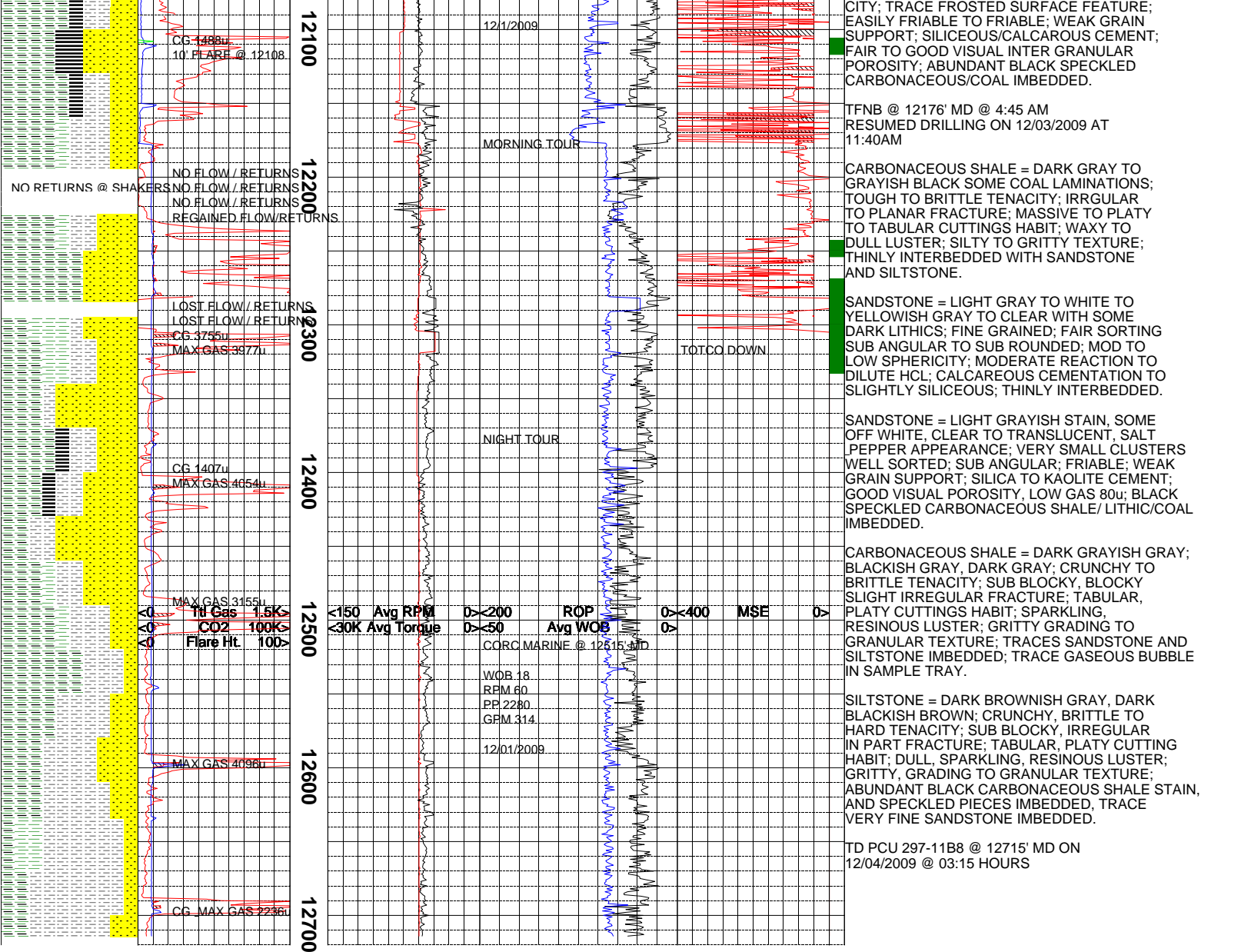
NOTE = RESUMED DRILLING PRODUCTION HOLE ON 11/29/2009 AT 06:14HRS.

SANDSTONE = LT GRY, GRY, GRY WITH HUES WHITE BIT SMEARS WHERE KAOLINITIC; FIRM TO SLGHTLY HARD; MODERATELY FRIABLE; FINE TO UPPER FINE GRAINED; SUB ANGULAR TO SUB ROUND WITH LOW TO MODERATE SPHERICITY; MODERATELY TO WELL SORTED; INDIVIDUAL GRAINS ARE TRANSPARENT TO OPAQUE; DOMINANTLY CONSOLIDATED; CLUSTERS ARE GRAIN SUPPORTED IN A CALC/CLAY CEMENT; STRONG TO MODERATE REACTION TO DILUTE HCL; MARKED INCREASE IN DITCH GAS;









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