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Drilling Dynamics MD

| | |
|---------------|--|
| COMPANY | EXXONMOBIL |
| WELL | PCU 296-6B2 ST1 |
| FIELD | PICEANCE CREEK UNIT |
| REGION | ROCKY MOUNTAIN |
| COORDINATES | LAT 39.905269000 LON 108.205030000 |
| ELEVATION | GL = 7363.8' KB = 7390.8' |
| COUNTY, STATE | RIO BLANCO, CO |
| API INDEX | 051031154501 |
| SPUD DATE | 04/25/2011 |
| CONTRACTOR | HELMRICH AND PAYNE |
| CO. REP. | SCOTT ARENBURG |
| RIG/TYPE | 215/FLEX 3 |
| LOGGING UNIT | ML051 |
| GEOLOGISTS | B.MARSH, B.JOHANNING G.BAKER, D.CLAAR |
| ADD. PERSONS | K.WALLANDER I. FAROOQUI |
| CO. GEOLOGIST | CHRIS ALBA, WILL HOFFMAN |

LOG INTERVAL

DEPTHS: 4,622' TO 10,280'

DATES: 04/25/2011 TO 05/12/2011

SCALE: 1" = 100'

CASING DATA

16" AT 145'

10.75" AT 4,622'

7.00" AT 8,665'

AT

HOLE SIZE

20.0" TO 145'

14.75" TO 4,622'

9.875" TO 10,280'

TO

MUD TYPES

LSND TO 10,280'

TO

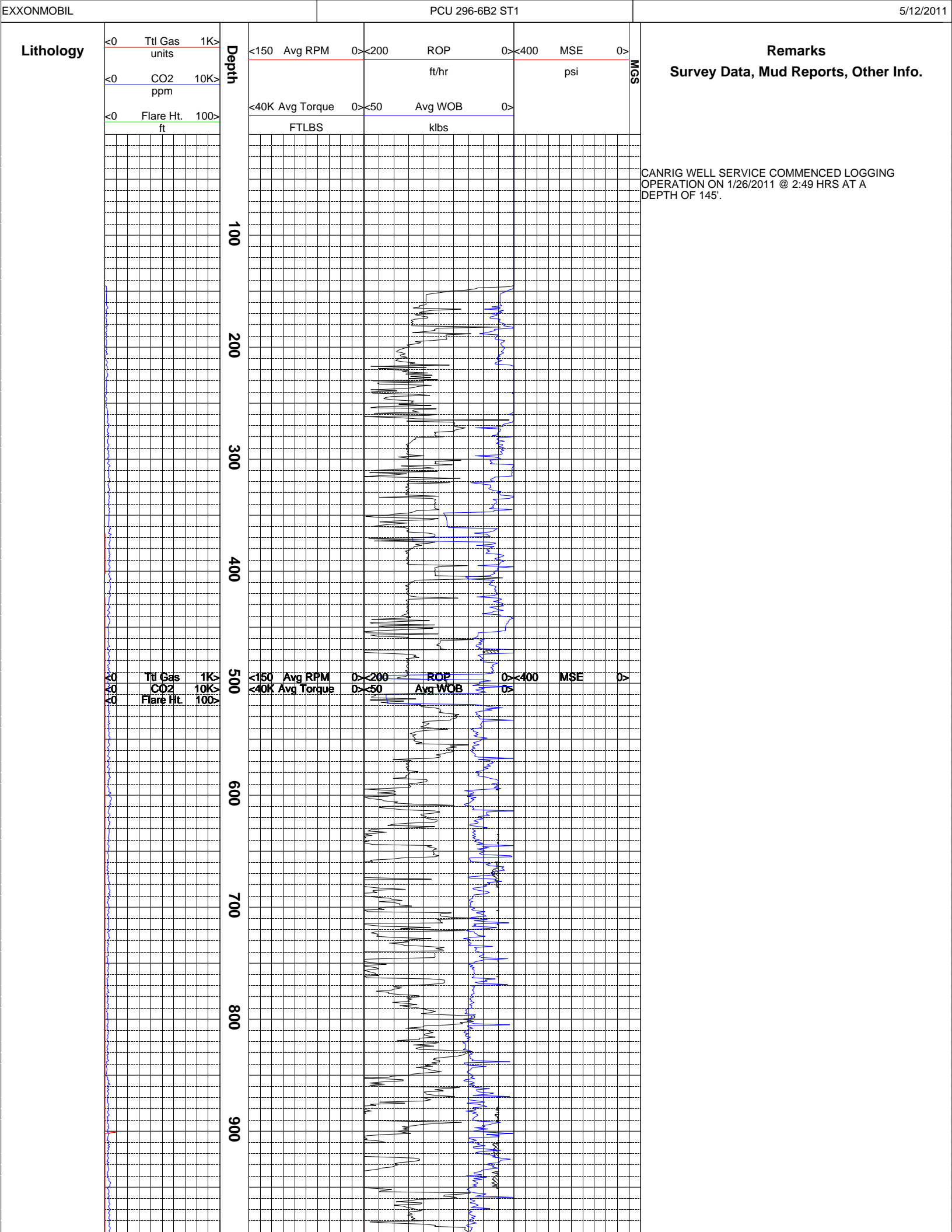
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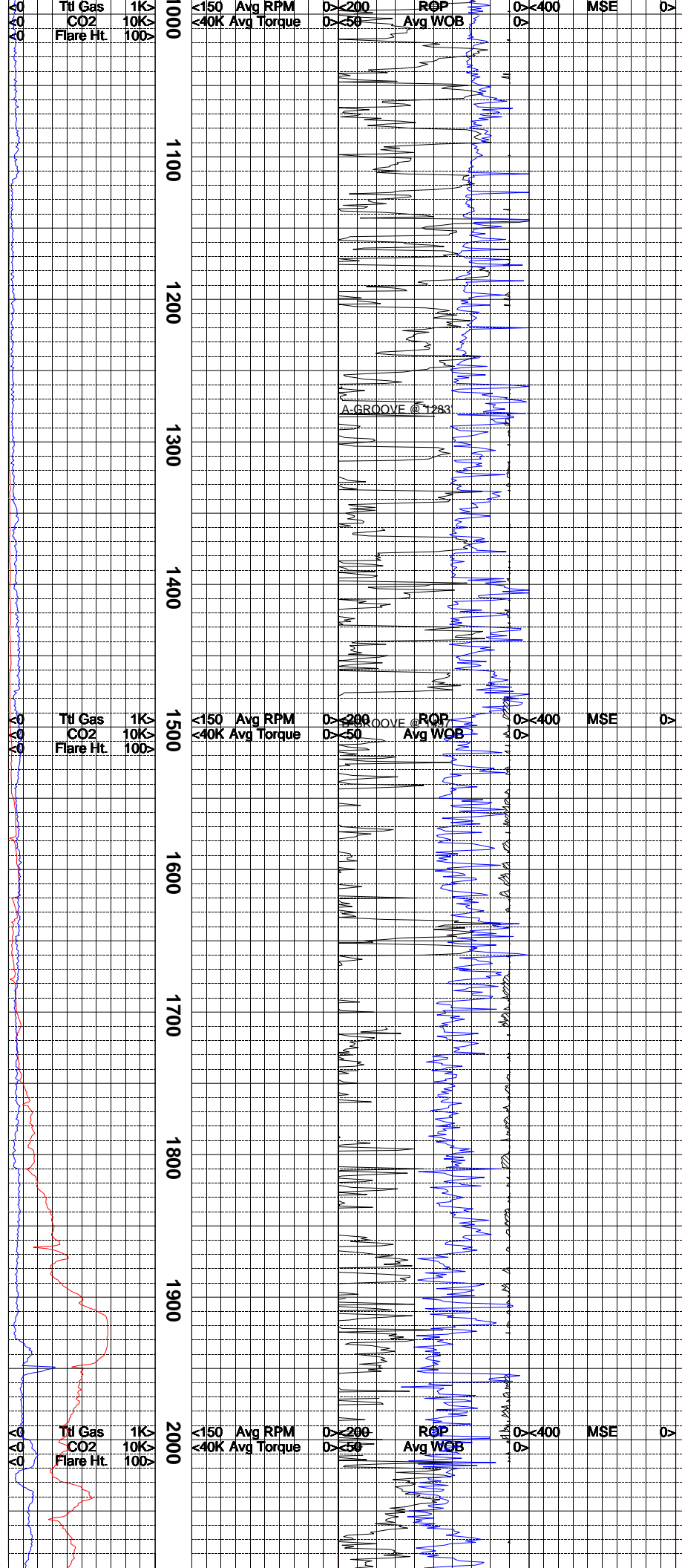
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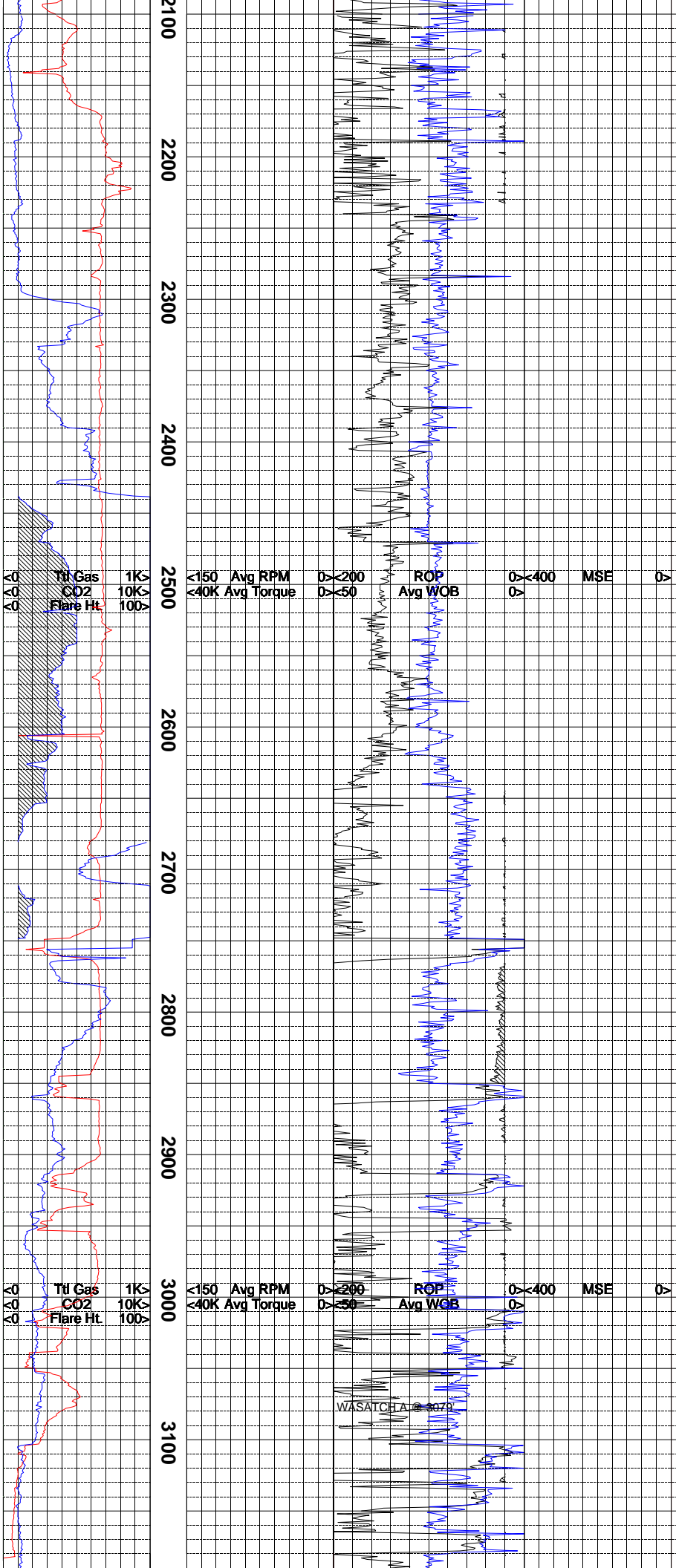
ABBREVIATIONS

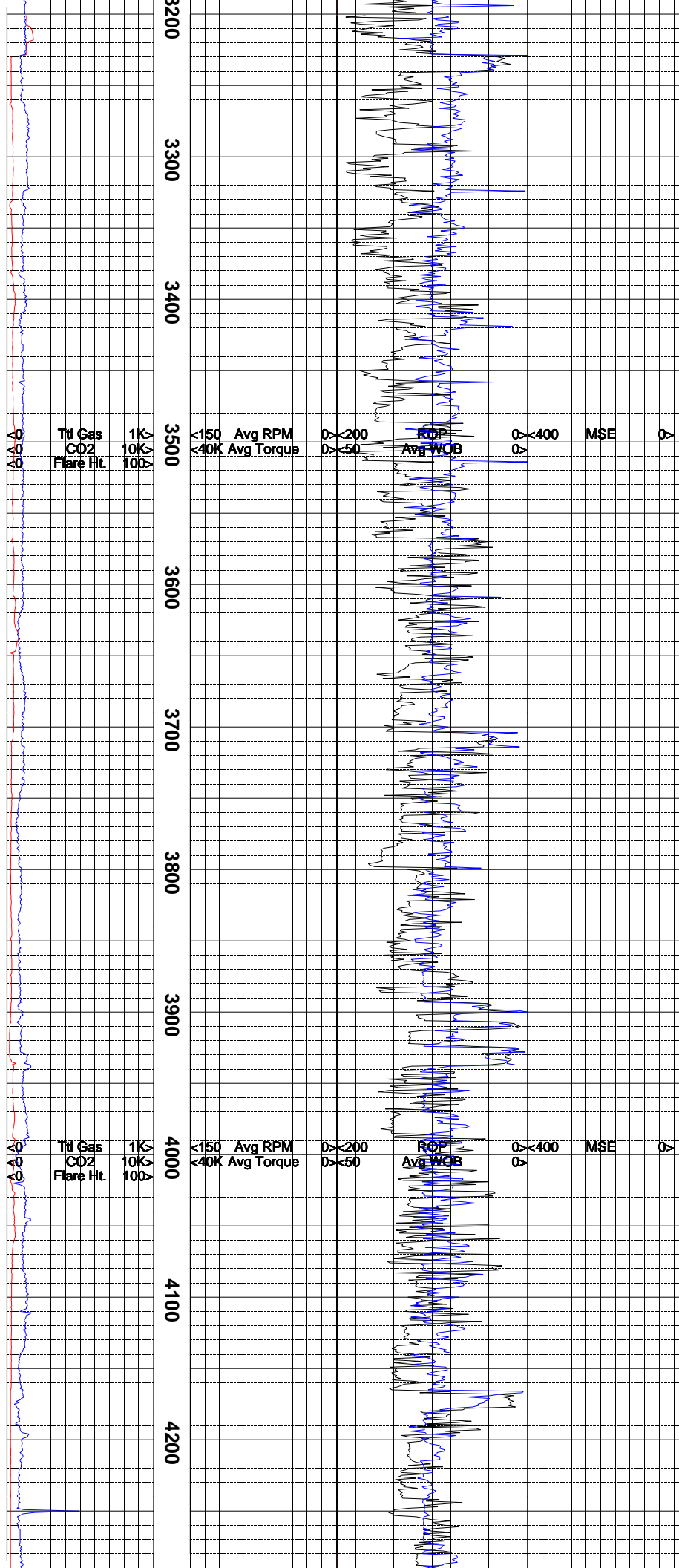
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|-----|------------------|-----|----------------------|----|------------------|
| NB | NEWBIT | PV | PLASTIC VISCOSITY | LC | LOST CIRCULATION |
| RRB | RERUN BIT | YP | YIELD POINT | CO | CIRCULATE OUT |
| CB | CORE BIT | FL | FLUID LOSS | NR | NO 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 | | |



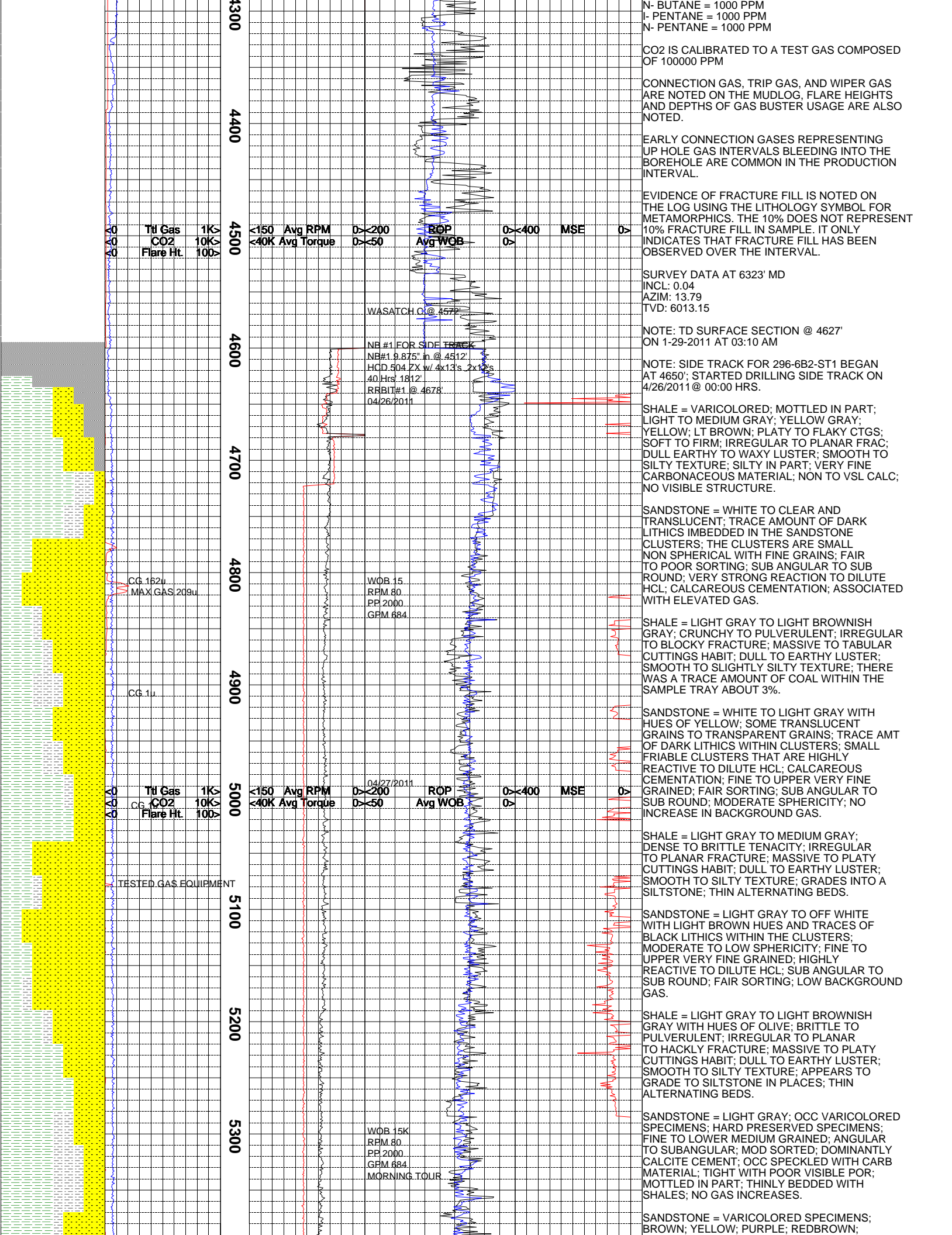


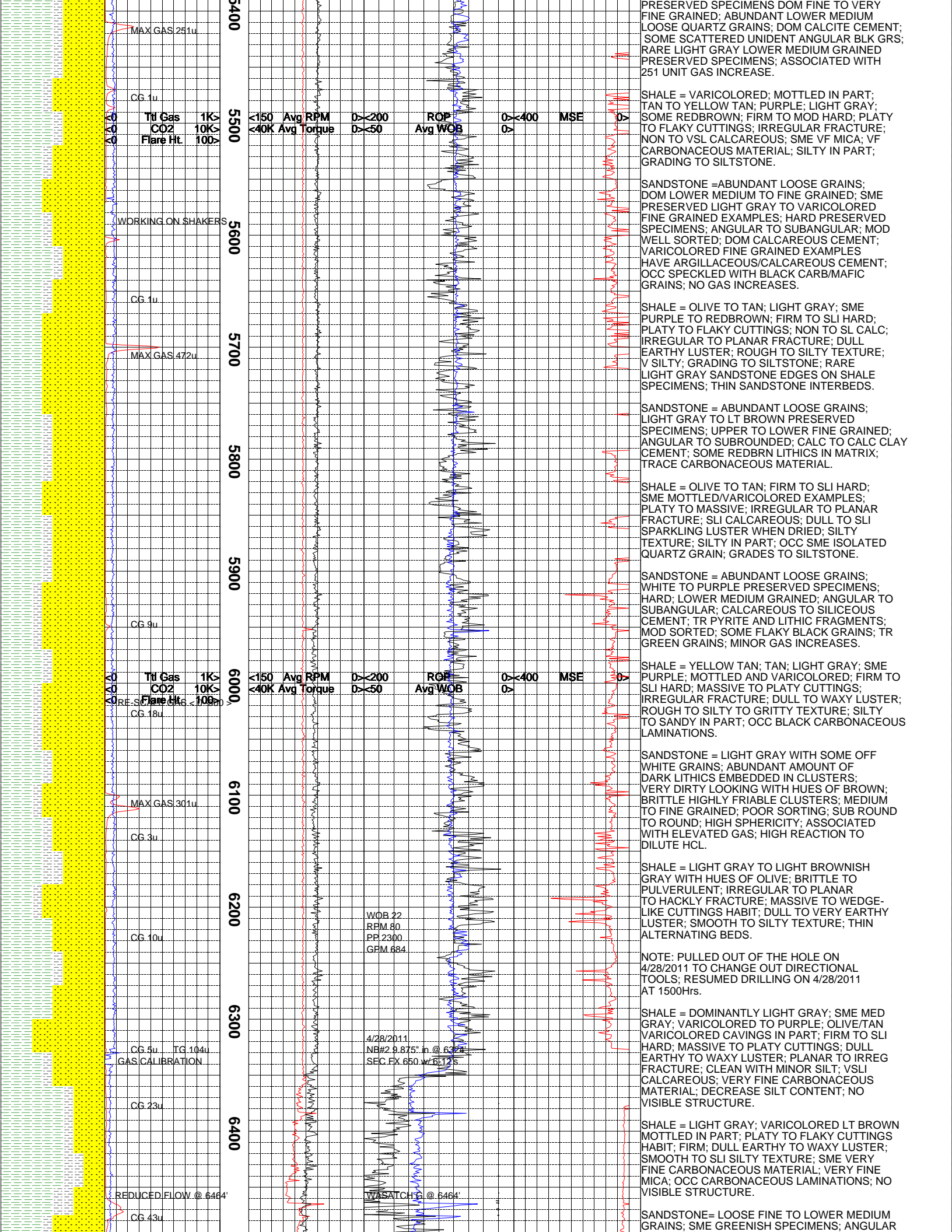


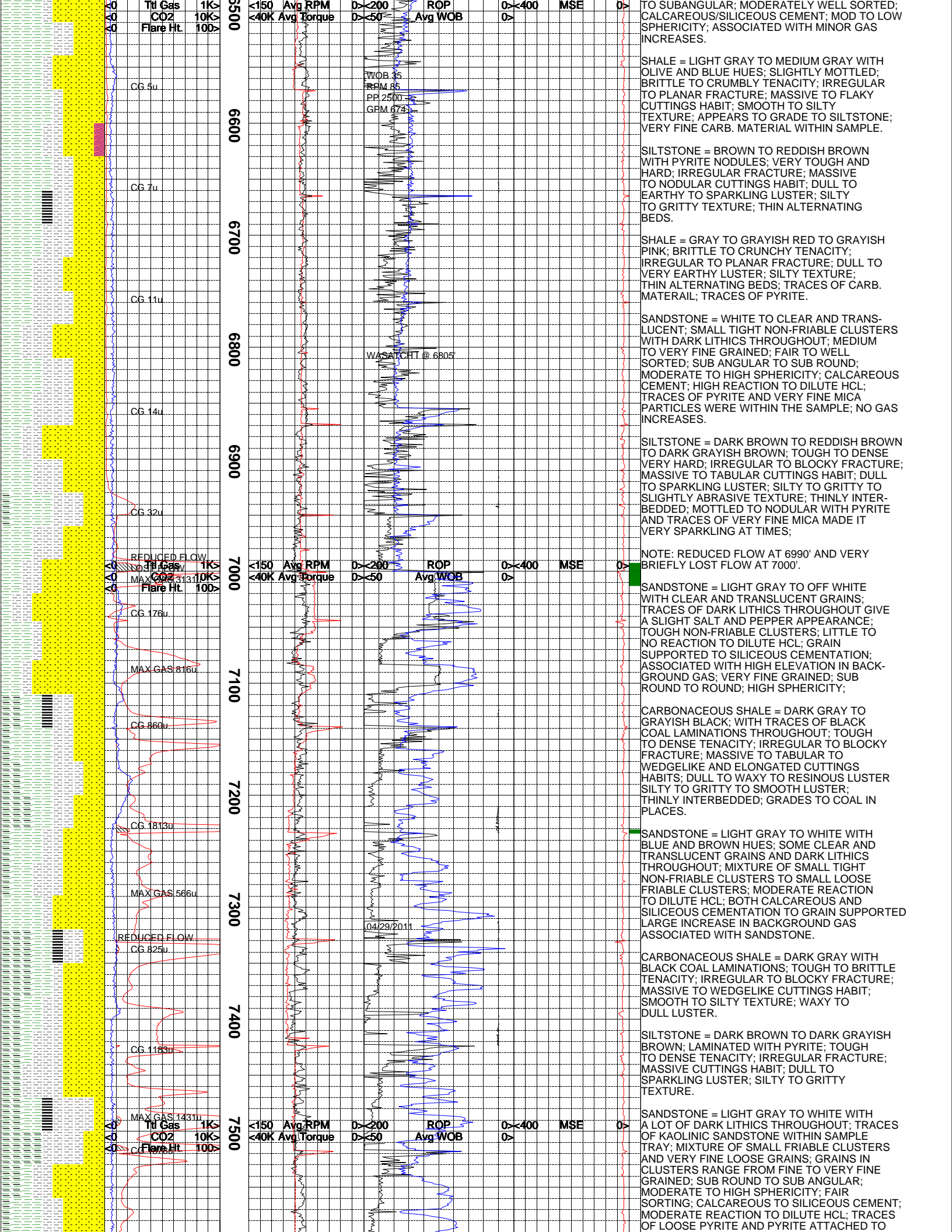


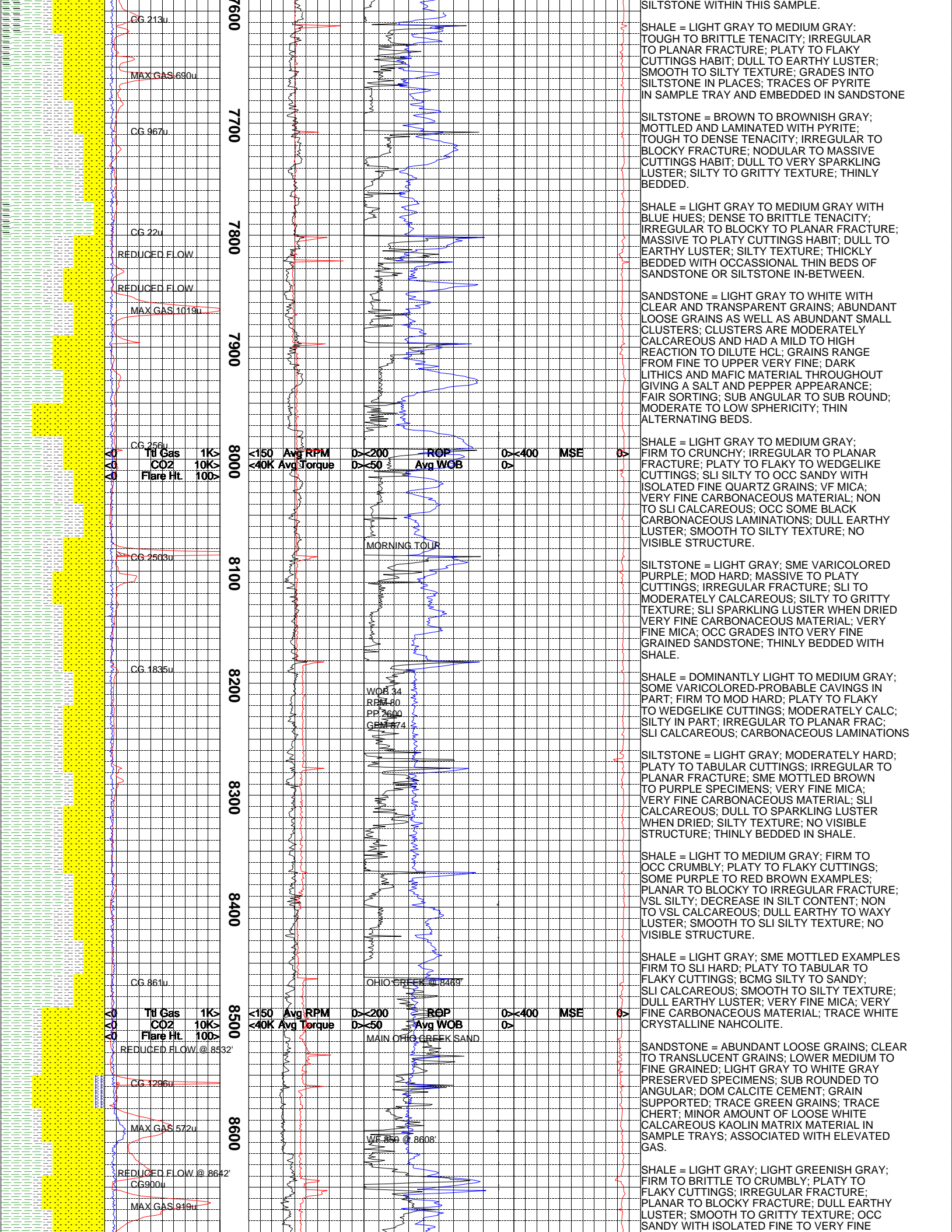
ALL ROCK COLORS ARE REFERENCED TO THE
GSA ROCK COLOR CHART, ROCK CONSTITUENTS
ARE DESCRIBED WET AND LISTED IN ORDER OF
MOST ABUNDANT TO LEAST ABUNDANT, ALL
SAMPLE DEPTHS ARE REFERENCED TO RKB.

GAS CHROMATOGRAPHY EQUIPMENT IS
CALIBRATED TO A TEST GAS COMPOSED OF
METHANE = 10000 PPM
ETHANE = 1000 PPM
PROPANE = 1000 PPM
I-BUTANE = 1000 PPM









SILTSTONE WITHIN THIS SAMPLE.

SHALE = LIGHT GRAY TO MEDIUM GRAY; TOUGH TO BRITTLE TENACITY; IRREGULAR TO PLANAR FRACTURE; PLATY TO FLAKY CUTTINGS HABIT; DULL TO EARTHY LUSTER; SMOOTH TO SILTY TEXTURE; GRADES INTO SILTSTONE IN PLACES; TRACES OF PYRITE IN SAMPLE TRAY AND EMBEDDED IN SANDSTONE

SILTSTONE = BROWN TO BROWNISH GRAY; MOTTLED AND LAMINATED WITH PYRITE; TOUGH TO DENSE TENACITY; IRREGULAR TO BLOCKY FRACTURE; NODULAR TO MASSIVE CUTTINGS HABIT; DULL TO VERY SPARKLING LUSTER; SILTY TO GRITTY TEXTURE; THINLY BEDDED.

SHALE = LIGHT GRAY TO MEDIUM GRAY WITH BLUE HUES; DENSE TO BRITTLE TENACITY; IRREGULAR TO BLOCKY TO PLANAR FRACTURE; MASSIVE TO PLATY CUTTINGS HABIT; DULL TO EARTHY LUSTER; SILTY TEXTURE; THICKLY BEDDED WITH OCCASSIONAL THIN BEDS OF SANDSTONE OR SILTSTONE IN-BETWEEN.

SANDSTONE = LIGHT GRAY TO WHITE WITH CLEAR AND TRANSPARENT GRAINS; ABUNDANT LOOSE GRAINS AS WELL AS ABUNDANT SMALL CLUSTERS; CLUSTERS ARE MODERATELY CALCAREOUS AND HAD A MILD TO HIGH REACTION TO DILUTE HCL; GRAINS RANGE FROM FINE TO UPPER VERY FINE; DARK LITHICS AND MAFIC MATERIAL THROUGHOUT GIVING A SALT AND PEPPER APPEARANCE; FAIR SORTING; SUB ANGULAR TO SUB ROUND; MODERATE TO LOW SPHERICITY; THIN ALTERNATING BEDS.

SHALE = LIGHT GRAY TO MEDIUM GRAY; FIRM TO CRUNCHY; IRREGULAR TO PLANAR FRACTURE; PLATY TO FLAKY TO WEDGELIKE CUTTINGS; SLI SILTY TO OCC SANDY WITH ISOLATED FINE QUARTZ GRAINS; VF MICA; VERY FINE CARBONACEOUS MATERIAL; NON TO SLI CALCAREOUS; OCC SOME BLACK CARBONACEOUS LAMINATIONS; DULL EARTHY LUSTER; SMOOTH TO SILTY TEXTURE; NO VISIBLE STRUCTURE.

SILTSTONE = LIGHT GRAY; SME VARICOLORED PURPLE; MOD HARD; MASSIVE TO PLATY CUTTINGS; IRREGULAR FRACTURE; SLI TO MODERATELY CALCAREOUS; SILTY TO GRITTY TEXTURE; SLI SPARKLING LUSTER WHEN DRIED VERY FINE CARBONACEOUS MATERIAL; VERY FINE MICA; OCC GRADES INTO VERY FINE GRAINED SANDSTONE; THINLY BEDDED WITH SHALE.

SHALE = DOMINANTLY LIGHT TO MEDIUM GRAY; SOME VARICOLORED-PROBABLE CAVINGS IN PART; FIRM TO MOD HARD; PLATY TO FLAKY TO WEDGELIKE CUTTINGS; MODERATELY CALC; SILTY IN PART; IRREGULAR TO PLANAR FRAC; SLI CALCAREOUS; CARBONACEOUS LAMINATIONS

SILTSTONE = LIGHT GRAY; MODERATELY HARD; PLATY TO TABULAR CUTTINGS; IRREGULAR TO PLANAR FRACTURE; SME MOTTLED BROWN TO PURPLE SPECIMENS; VERY FINE MICA; VERY FINE CARBONACEOUS MATERIAL; SLI CALCAREOUS; DULL TO SPARKLING LUSTER WHEN DRIED; SILTY TEXTURE; NO VISIBLE STRUCTURE; THINLY BEDDED IN SHALE.

SHALE = LIGHT TO MEDIUM GRAY; FIRM TO OCC CRUMBLY; PLATY TO FLAKY CUTTINGS; SOME PURPLE TO RED BROWN EXAMPLES; PLANAR TO BLOCKY TO IRREGULAR FRACTURE; VSL SILTY; DECREASE IN SILT CONTENT; NON TO VSL CALCAREOUS; DULL EARTHY TO WAXY LUSTER; SMOOTH TO SLI SILTY TEXTURE; NO VISIBLE STRUCTURE.

SHALE = LIGHT GRAY; SME MOTTLED EXAMPLES FIRM TO SLI HARD; PLATY TO TABULAR TO FLAKY CUTTINGS; BCMG SILTY TO SANDY; SLI CALCAREOUS; SMOOTH TO SILTY TEXTURE; DULL EARTHY LUSTER; VERY FINE MICA; VERY FINE CARBONACEOUS MATERIAL; TRACE WHITE CRYSTALLINE NAHCOLITE.

SANDSTONE = ABUNDANT LOOSE GRAINS; CLEAR TO TRANSLUCENT GRAINS; LOWER MEDIUM TO FINE GRAINED; LIGHT GRAY TO WHITE GRAY PRESERVED SPECIMENS; SUB ROUNDED TO ANGULAR; DOM CALCITE CEMENT; GRAIN SUPPORTED; TRACE GREEN GRAINS; TRACE CHERT; MINOR AMOUNT OF LOOSE WHITE CALCAREOUS KAOLIN MATRIX MATERIAL IN SAMPLE TRAYS; ASSOCIATED WITH ELEVATED GAS.

SHALE = LIGHT GRAY; LIGHT GREENISH GRAY; FIRM TO BRITTLE TO CRUMBLY; PLATY TO FLAKY CUTTINGS; IRREGULAR FRACTURE; PLANAR TO BLOCKY FRACTURE; DULL EARTHY LUSTER; SMOOTH TO GRITTY TEXTURE; OCC SANDY WITH ISOLATED FINE TO VERY FINE

