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Bakersfield, CA (661) 328-1595
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Anchorage, AK (907) 561-2465

Mudlog TVD

COMPANY EXXONMOBIL
WELL PCU 296-6B2
FIELD PICEANCE CREEK UNIT
REGION ROCKY MOUNTIANS
COORDINATES LAT 39.905269000
LON 108.205030000
ELEVATION GL 7363.9
KB 7390.9
COUNTY, STATE RIO BLANCO CO
API INDEX 051031154500
SPUD DATE 01-24-2011
CONTRACTOR HELMRICH AND PAYNE
CO. REP. SCOTT ARENBURG
RIG/TYPE 215 / FLEX 3
LOGGING UNIT MLU 51
GEOLOGISTS G.BAKER, D.CLAAR
B.MARSH, B.JOHANNING
ADD. PERSONS I.FAROOQUI
K.WALLANDER
CO. GEOLOGIST WILLIAM HOFFMAN

LOG INTERVAL

CASING DATA

DEPTHS: 145' TO 10,275'
DATES: 01-24-2011 TO 02-17-2011
SCALE: 1" = 100'

17" AT 145'
10.75" AT 4,627'
AT
AT

MUD TYPES

HOLE SIZE

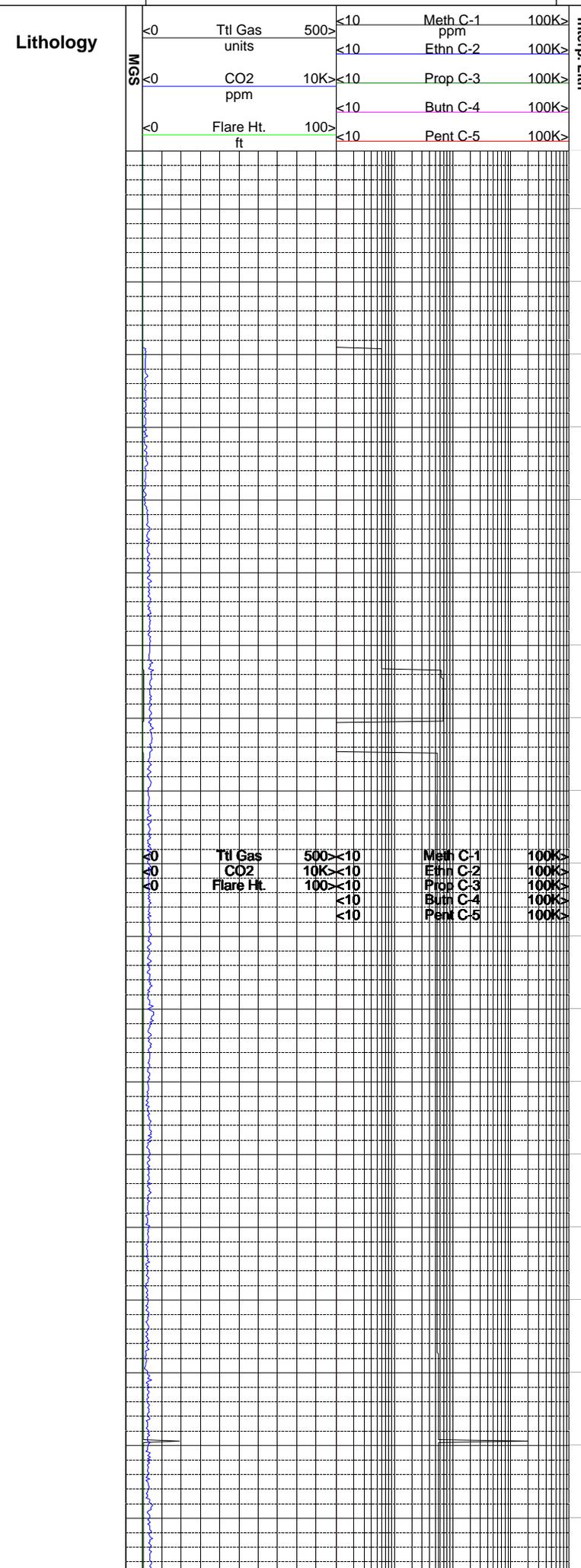
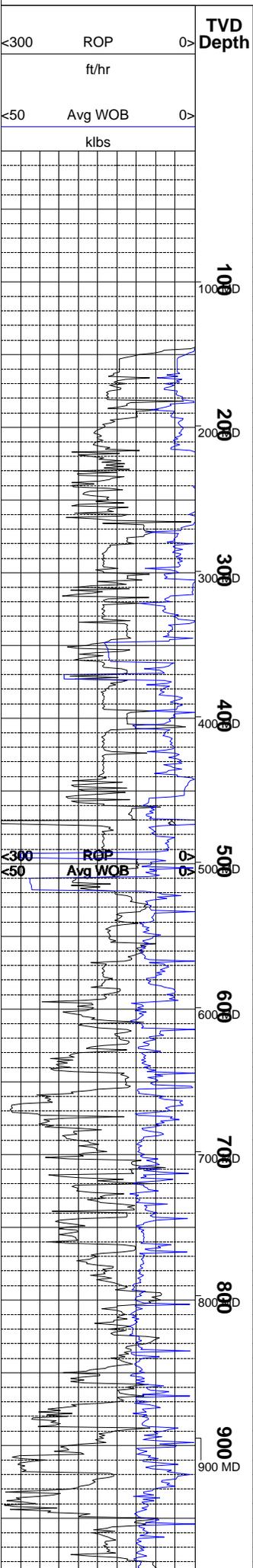
LSDN TO 10,275'
TO
TO
TO
TO

20" TO 145'
14.75" TO 4,627'
9.875" TO 10,275'
TO

ABBREVIATIONS

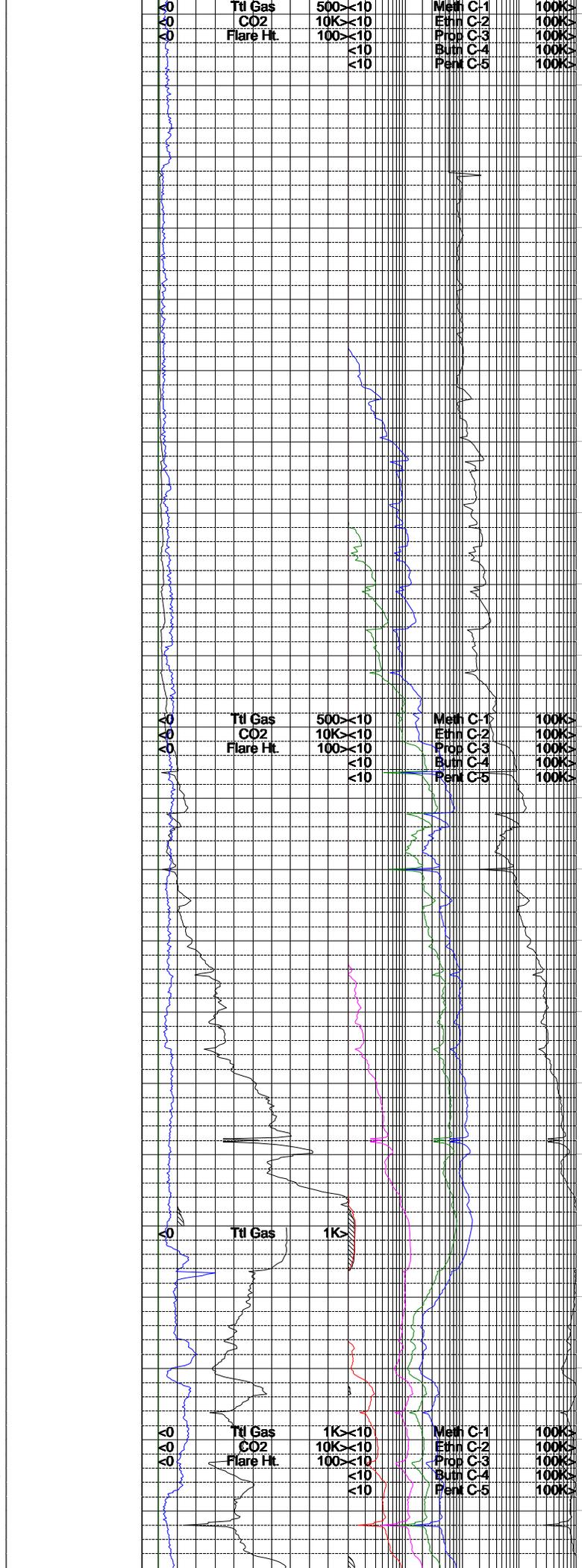
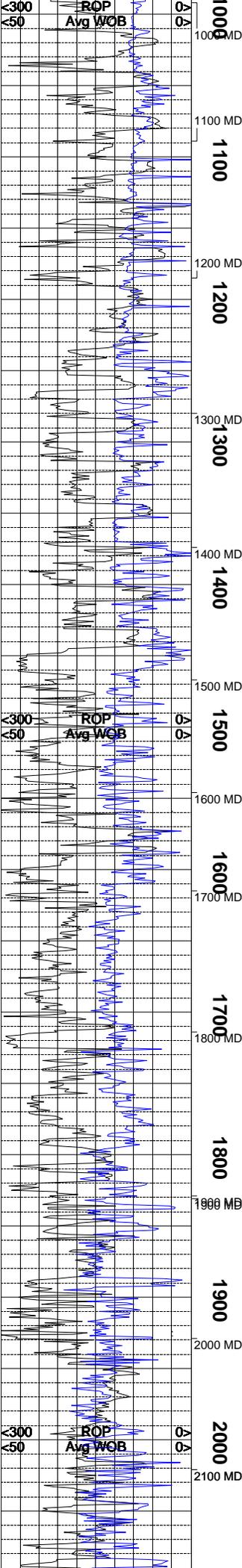
NB NEWBIT PV PLASTIC VISCOSITY LC LOST CIRCULATION
RRB RERUN BIT YP YIELD POINT CO CIRCULATE OUT
CB CORE BIT FL FLUID LOSS NR NO RETURNS
WOB WEIGHT ON BIT CL PPM CLORIDE ION TG TRIP GAS
RPM ROTARY REV/MIN Rm MUD RESISTIVITY SG SURVEY GAS
PP PUMP PRESSURE Rmf FILTRATE RESISTIVITY WG WIPER GAS
SPM STROKES/MIN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

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



Remarks
Survey Data, Mud Reports, Other Info.

CANRIG WELL SERVICE COMMENCED LOGGING OPERATION ON 1/26/2011 @ 2:49 HRS AT A DEPTH OF 145'.

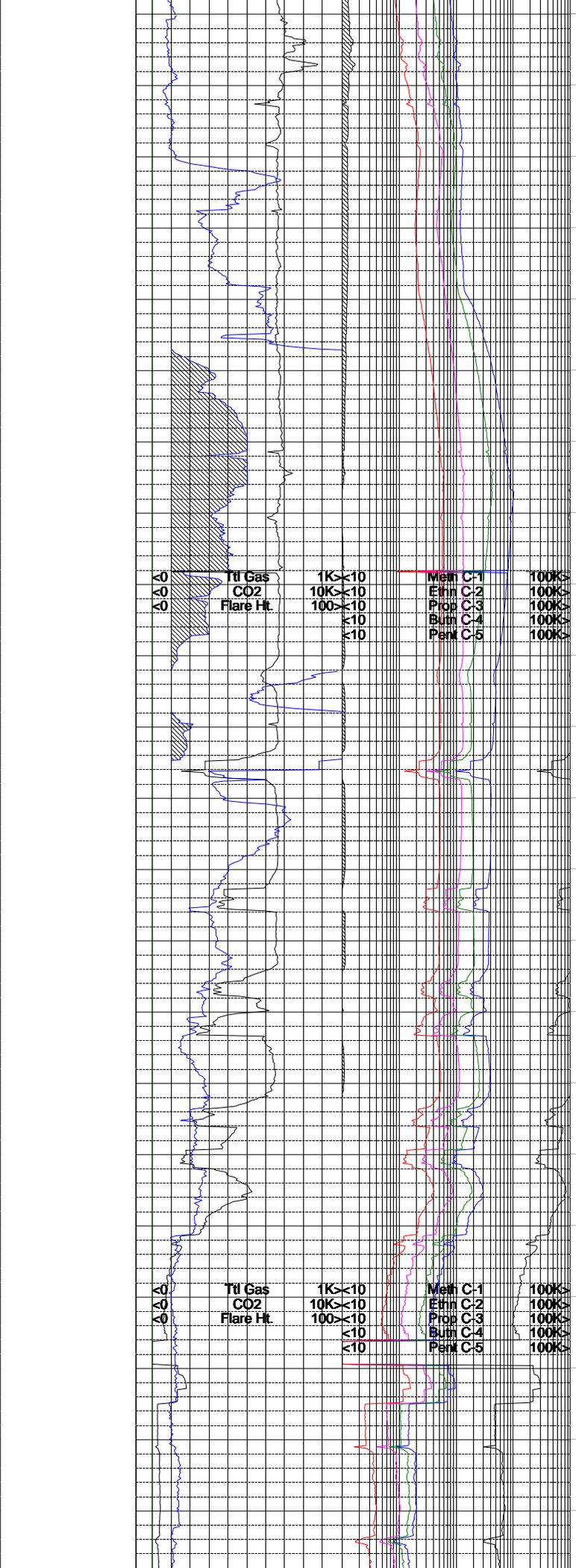
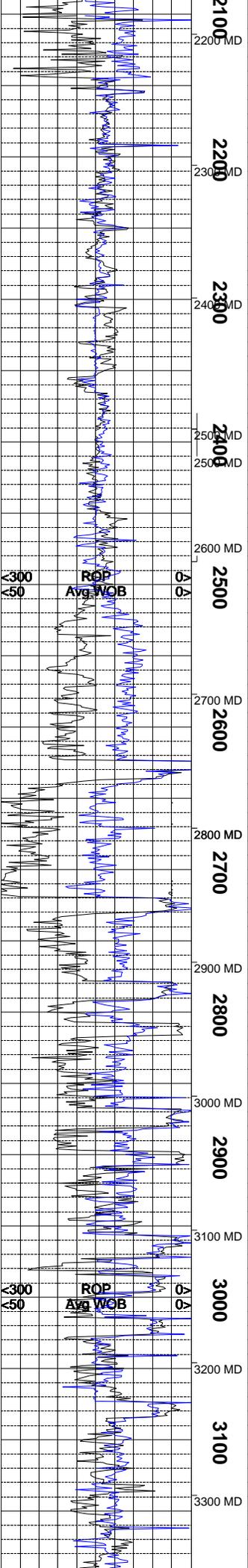


Ttl Gas 500x10
 CO2 10Kx10
 Flare Ht 100x10
 Meth C-1 100Kx
 Ethn C-2 100Kx
 Prop C-3 100Kx
 Butn C-4 100Kx
 Pent C-5 100Kx

Ttl Gas 500x10
 CO2 10Kx10
 Flare Ht 100x10
 Meth C-1 100Kx
 Ethn C-2 100Kx
 Prop C-3 100Kx
 Butn C-4 100Kx
 Pent C-5 100Kx

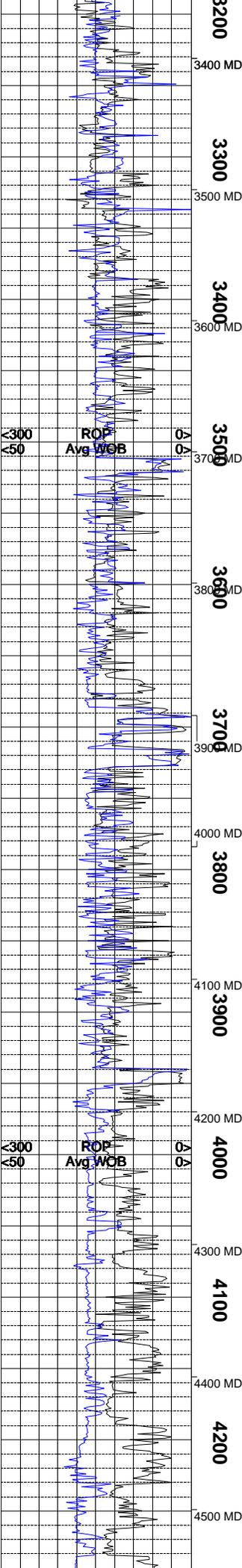
Ttl Gas 1Kx10
 CO2 10Kx10
 Flare Ht 100x10
 Meth C-1 100Kx
 Ethn C-2 100Kx
 Prop C-3 100Kx
 Butn C-4 100Kx
 Pent C-5 100Kx

Ttl Gas 1Kx
 (shaded area)



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

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



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

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

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
 N- BUTANE = 1000 PPM
 I- PENTANE = 1000 PPM
 N- PENTANE = 1000 PPM

CO2 IS CALIBRATED TO A TEST GAS COMPOSED OF 100000 PPM

CONNECTION GAS, TRIP GAS, AND WIPER GAS ARE NOTED ON THE MUDLOG, FLARE HEIGHTS AND DEPTHS OF GAS BUSTER USAGE ARE ALSO NOTED.

EARLY CONNECTION GASES REPRESENTING UP HOLE GAS INTERVALS BLEEDING INTO THE BOREHOLE ARE COMMON IN THE PRODUCTION INTERVAL.

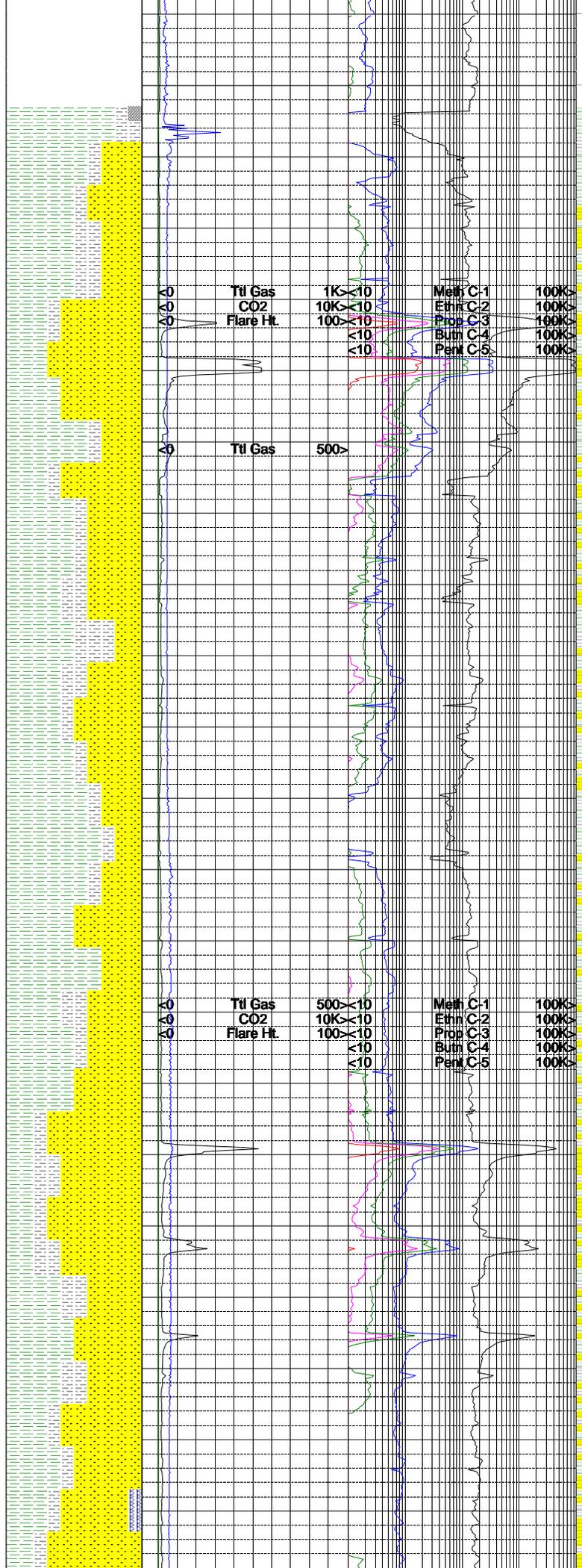
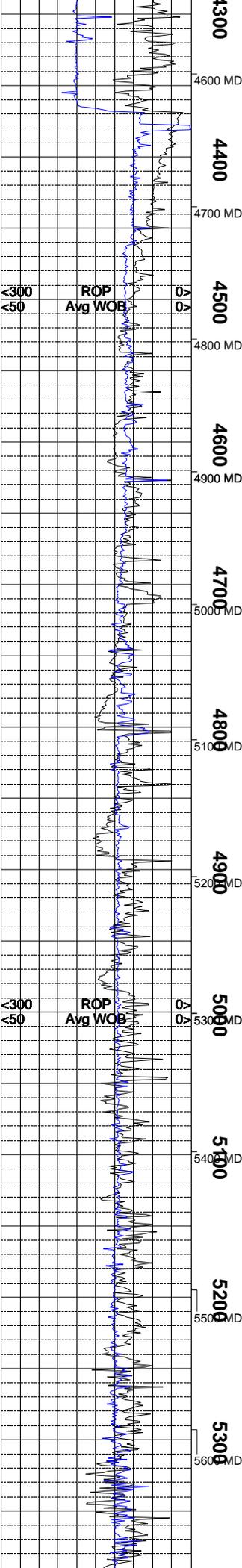
EVIDENCE OF FRACTURE FILL IS NOTED ON THE LOG USING THE LITHOLOGY SYMBOL FOR METAMORPHICS. THE 10% DOES NOT REPRESENT 10% FRACTURE FILL IN SAMPLE. IT ONLY INDICATES THAT FRACTURE FILL HAS BEEN OBSERVED OVER THE INTERVAL.

SURVEY DATA AT 6323' MD
 INCL: 0.04
 AZIM: 13.79
 TVD: 6013.15

NOTE: TD SURFACE SECTION @ 4627' ON 1-29-2011 AT 03:10 AM

DRILL OUT SHOE AND PERFORM FIT @ 4637' ON 02/03/2011

SHALE = VARICOLORED; MOTTLED IN PART; DOM TAN TO LIGHT GRAY; SME REDBROWN, PURPLE; FIRM TO SOFT; SLI PLATY; IRREG



FRACTURE; DULL EARTHLY LUSTER; ROUGH TO SILTY TEXTURE; SILTY IN PART; TRACE PURPLE SILTSTONE; CALCAREOUS; MINOR AMOUNTS OF LT GRAY TO TAN TO REDDISH BROWN SANDSTONE.

SANDSTONE = VARICOLORED; LT GRAY TO LT BROWN TO TAN; PURPLE; MOTTLED IN PART LOWER MEDIUM TO FINE GRAINED; ANGULAR TO SUBROUNDED; HARD PRESERVED SPECIMENS; DOM CALCITE CEMENT; SME LOOSE WHITE KAOL CLAY IN SAMPLES; MOD WELL SORTED; BCMG TAN @ 4800' WITH MICA, LITHIC FRAGS WITH 309 UNIT GAS SHOW @ 4788'.

SANDSTONE = LIGHT GRAY; LOWER MEDIUM GRAINED; ANGULAR TO SUBROUNDED; CALCITE CEMENT; CONGLOMERATIC IN PART W/ COARSE LITHIC FRAGMENTS AND MINERAL GRAINS; TR CHERT; MICA; SCATTERED CARBONACEOUS MAT; POORLY SORTED; SME REDDISH GRAINS; TR PYRITE; ASSOCIATED WITH 541 UNIT GAS SHOW.

SHALE = TAN; LT YELLOW BROWN TO YELLOW; MOTTLED IN PART; PLATY TO FLAKY CTGS; FIRM TO SOFT; IRREGULAR FRACTURE; DULL EARTHLY LUSTER; ROUGH TO SILTY TEXTURE; SL TO MOD CALCAREOUS; SME THIN SANDSTONE LAMINATIONS; SILTY TO SANDY IN PART; SOME THIN CARBONACEOUS LAMINATIONS; ISOLATED QUARTZ GRAINS TO VERY SANDY; GRADING TO SILTSTONE.

SANDSTONE = VERY DIRTY LOOKING CLUSTERS OF VARICOLORED GRAINS FROM LIGHT GRAY TO WHITE TO OFF WHITE; HAS DARK BLACK LITHICS THROUGHOUT; FINE TO VERY FINE GRAINED; FRIABLE TO CRUNCHY CLUSTERS; FAIR SORTING; SUB ROUND TO ROUND; HIGH SPHERICITY; SLIGHT ELEVATION IN GAS; HIGH REACTION TO DILUTE HCL; CALCAREOUS CEMENT.

SHALE = LIGHT BROWN TO YELLOW BROWN TO VERY LIGHT GRAY; BRITTLE TO CRUNCHY TENACITY; IRREGULAR TO MAINLY PLANAR FRACTURE; PLATY TO FLAKY CUTTINGS HABIT; DULL TO EARTHLY LUSTER; SMOOTH TO CLAYEY TEXTURE; THIN STRUCTURE.

SANDSTONE = ABUNDANT LOOSE GRAINS AND SMALL FRIABLE CLUSTERS TOGETHER; LIGHT YELLOW TO OFF WHITE TO TRANSPARENT GRAINS; FINE TO UPPER VERY FINE GRAINED; WELL SORTED; SUB ANGULAR TO ROUND; MODERATE SPHERICITY; MODERATE REACTION TO DILUTE HCL; CALCAREOUS CEMENT TO GRAIN SUPPORTED; TRACE AMT OF DARK LITHICS THROUGHOUT; THINLY BEDDED.

SHALE = LIGHT BROWN TO YELLOWISH BROWN WITH LIGHT ORANGE HUES; BRITTLE TO CRUNCHY TENACITY; IRREGULAR TO PLANAR FRACTURE; PLATY TO ELONGATED CUTTINGS HABIT; DULL TO EARTHLY LUSTER; SMOOTH TO CLAYEY TEXTURE; THIN ALTERNATING BEDS.

SILTSTONE = LIGHT BROWN TO BROWN; DENSE TENACITY; IRREGULAR TO BLOCKY FRACTURE; TABULAR TO MASSIVE CUTTINGS HABIT; DULL TO SLIGHTLY SPARKLING LUSTER SILTY TO GRITTY TEXTURE; VERY THINLY INTERBEDDED BETWEEN SHALE AND SANDSTONE.

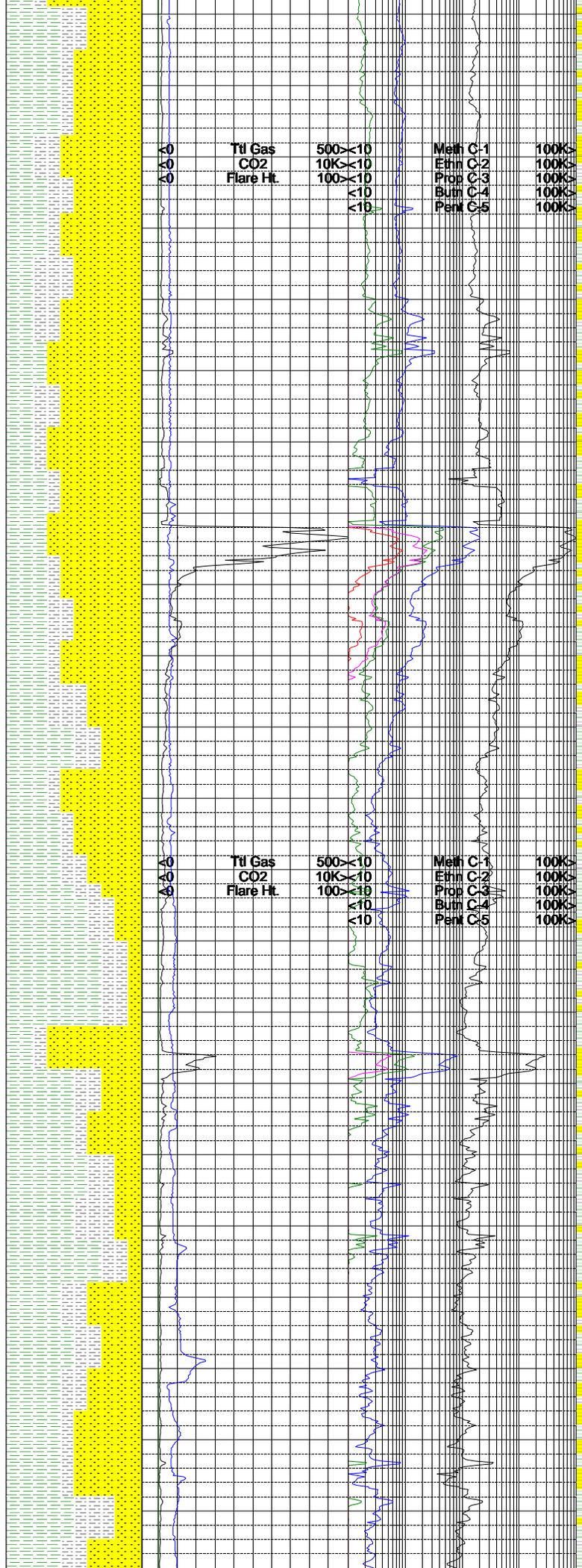
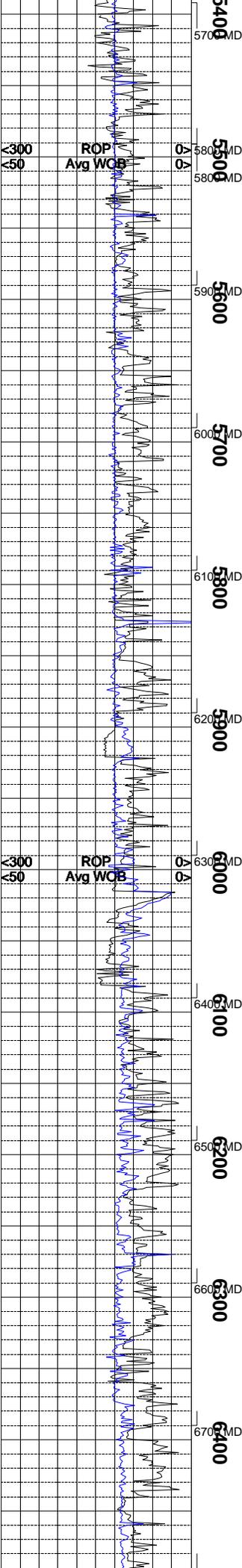
SANDSTONE = LIGHT GRAY TO WHITE WITH OCC CLEAR TO TRANSLUCENT GRAINS; MAINLY SMALL TIGHT CLUSTERS; OCC LOOSE GRAINS; FINE TO VERY FINE GRAINED; TRACE AMT OF DARK LITHICS THROUGHOUT; WELL SORTED; SUB ROUND TO ROUND; HIGH SPHERICITY; CALCAREOUS CEMENT; HIGHLY REACTIVE TO DILUTE HCL. MOD. ELEVATION IN BACKGROUND GAS.

SHALE = LIGHT GRAY TO LIGHT BROWN WITH HUES OF YELLOW; BRITTLE TO CRUMBLY; IRREGULAR TO PLANAR FRACTURE; PLATY TO FLAKY CUTTINGS HABIT; SMOOTH TEXTURE; DULL TO EARTHLY LUSTER; VERY THIN ALTERNATING BEDS WITH SANDSTONE AND OCC. SILTSTONE.

SANDSTONE = LIGHT GRAY TO WHITE WITH DARK LITHICS SCATTERED THROUGHOUT; FINE GRAINED; MOSTLY LOOSE GRAINS. SOME SMALL FRIABLE CLUSTERS; FAIR SORTING; SUB-ANGULAR TO SUB ROUND; LOW REACTION TO DILUTE HCL; GRAIN SUPPORTED; NO SHOWS.

SILTSTONE = REDDISH BROWN; GRAY; MOTTLED IN PART; SME YELLOWISH BROWN EXAMPLES; DENSE; MASSIVE TO SLI PLATY CUTTINGS; IRREGULAR FRACTURE; SLI SPARKLING LUSTER WHEN DRIED; SILTY TO GRITTY TEXTURE; MOD CALCAREOUS; GRADING TO SANDSTONE.

SANDSTONE = ABUNDANT LOOSE GRAINS; VARICOLORED SPECIMENS; LIGHT GRAY TO



WHITE; MOTTLED REDBROWN TO LT BROWN; FIRM TO HARD PRESERVED SPECIMENS; ANG TO SUB ROUNDED; LOWER MEDIUM TO FINE GRAINED; DOM CALCITE CEMENT; LOW SPHER; SME LOOSE WHITE CALC KAOLIN MATRIX MAT IN SAMPLES; TRACE GREEN GRAINS; OCC ASSOCIATED WITH MINOR GAS INCREASES.

SHALE = VARICOLORED; REDBROWN TO YELLOW TO LT TAN; MOTTLED; FIRM TO SLI HARD; SL PLATY TO MASSIVE CUTTINGS; IRREGULAR FRACTURE; SLI CALCAREOUS; VARIABLE AMTS OF SAND AND SILT; ISOLATED QUARTZ TO VERY SANDY SHALE; SMOOTH TO SILTY TEXT; ABUNDANT LOOSE QUARTZ GRAINS; NO VISIBLE STRUCTURE.

SANDSTONE = ABUNDANT LOOSE GRAINS; UPPER TO LOWER MEDIUM GRAINED; LIGHT GRAY TO LT TO MEDIUM BROWN PRESERVED SPECIMENS; ANGULAR TO SUBANGULAR; LOW SPHERICITY; ABUNDANT LOOSE WHITE CALCITE MATRIX MATERIAL IN SAMPLE TRAYS; DOM CALCITE CEMENT; SOME BROWN LITHIC FRAGMENTS RARE BLACK UNIDENTIFIED GRAINS; THINLY INTERBEDDED WITH SHALE.

SANDSTONE = LIGHT GRAY TO LIGHT BROWN PRESERVED SPECIMENS; ABUNDANT LOOSE GRAINS; LOWER TO UPPER MEDIUM GRAINED; ANGULAR TO SUBROUNDED; MOD SORTED; LOW SPERICITY; CALCITE CEMENT; MINOR WHITE KAOLIN FILL; ASSOCIATED WITH MODERATE GAS INCREASES.

SHALE = YELLOW TAN TO LIGHT BROWN; FIRM TO SOFT; MOTTLED IN PART; IRREGULAR FRACTURE; PLATY CUTTINGS; DULL EARTHY TO WAXY LUSTER; ROUGH TO SILTY TEXTURE IN SILTY EXAMPLES; VF MICA; NON TO VSL CALCAREOUS; SILTY TO SANDY EXAMPLES.

SHALE = LT BROWN; LT GRAY; MOTTLED IN PART; FIRM; PLATY TO MASSIVE CUTTINGS; IRREGULAR FRACTURE; DULL EARTHY LUSTER; ROUGH TO SLI SILTY TEXTURE; SLI CALC; VF MICA; DECREASE SILT CONTENT; NO VISIBLE STRUCTURE.

SANDSTONE = DOMINANTLY LOOSE GRAINS; LOWER MEDIUM TO FINE GRAINED; ANGULAR TO SUB ANGULAR; MOD SORTED; CALCITE CMT SME LOOSE WHITE CLEAN CALCITE; MINOR WHITE KAOLIN CLAY FILL; TR SLICEOUS CMT SME VARICOLORED EXAMPLES.

SHALE = DOM LIGHT GRAY; MOTTLED GRAY YELLOW; SME PURPLE TO ORANGE; FIRM; PLATY TO MASSIVE CUTTINGS; IRREGULAR FRACTURE; SLI TO MODERATELY CALCAREOUS; DULL TO SLI WAXY LUSTER; ROUGH TO SLI SILTY TEXTURE; ISOLATED SILT GRAINS; OCC ISOLATED CARBONACEOUS MATERIAL; TRACE AMOUNTS OF WHITE, CRYSTALLINE NAHCOLITE.

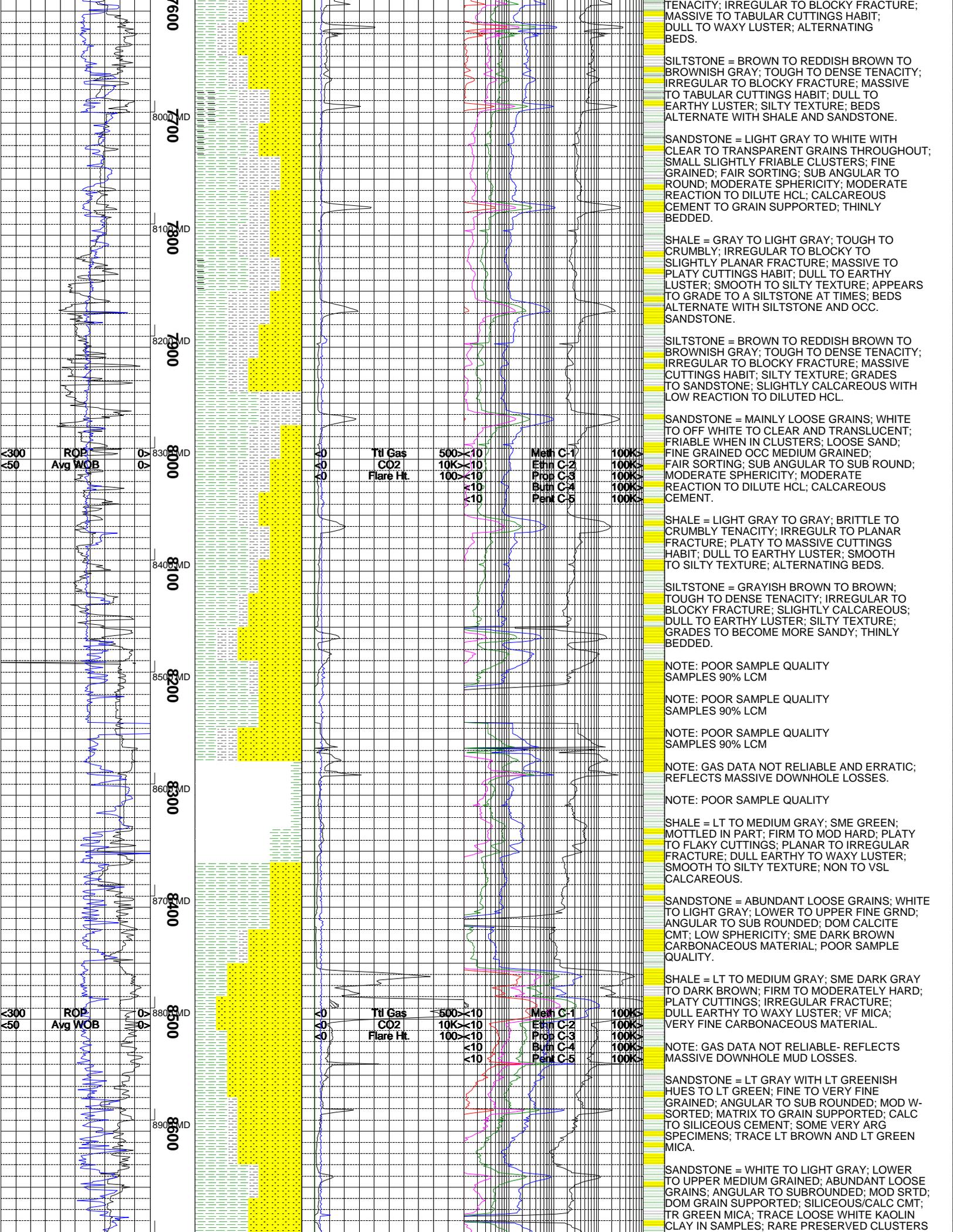
WASATCH G SANDSTONE @ 6436'MD = ABNT LOOSE GRAINS; V CLEAN; CLEAR TO LT GRAY CLUSTERS; LT GREEN SPECIMENS; LOWER MEDIUM TO UPPER FINE GRAINED; LOW SPHER; MOD SRTD; ANGULAR TO SUBANGULAR; DOM GRAIN SUPPORTED W/SME MATRIX SUPPORTED CALCITE/SILICEOUS CEMENT; SME WHITE KAOLIN CLAY FILL; TR CHLORITIC GRIANS; ASSOCIATED WITH MINOR GAS INCREASES.

SHALE = VARICOLORED; MOTTLED; LT GRAY; YELLOW; LT TAN; REDBROWN; PURPLE; FIRM TO MOD HARD; PLATY TO MASSIVE CTGS; IRREGULAR FRACTURE; SLI TO MOD CALC; V CALCAREOUS IN VERY SILTY SPECIMENS; DULL EARTHY TO WAXY LUSTER; DOM SILTY TEXTURE VERY SILTY; SME SCATTERED CARBONACEOUS MATERIAL.

SANDSTONE = LT GRAY TO WHITE; LT GREEN HUES; LT GREEN GRAINS; DOM FINE TO VERY FINE GRAINED; ANGULAR TO SUB ANGULAR; SOME MOTTLED REDBROWN SPECIMENS; MOD WELL SORTED; DOM GRAIN SUPPORTED; CALCITE CEMENT; SME VERY HARD SILICEOUS SPECIMENS; OCC SCATTERED CARBONACEOUS MATERIAL; NO GAS INCREASES.

SANDSTONE = LT GREEN; WHITE/GRAY; FINE TO VERY FINE GRAINED; WELL SORTED; DOM CALCITE CEMENT; ANGULAR TO SUB ANGULAR; GRAIN SUPPORTED; OCC MICRO PYRITE; OCC VF SCATTERED CARBONACEOUS MATERIAL; VERY TIGHT; NO GAS INCREASES.

SHALE = VARICOLORED; MOTTLED; LT GRAY; YELLOW; PURPLE; TAN; FIRM TO MOD HARD; PLATY TO FLAKY CUTTINGS; IRREGULAR FRAC; SL TO MOD CALCAREOUS IN SILTY SPECIMENS; DULL TO SLI SPARKLING LUSTER WHEN DRIED; ROUGH TO SILTY TEXTURE; VERY SILTY; GRADING TO SILTSTONE; OCC ISOLATED VF QUARTZ GRAINS; TRACE AMTS OF CRYSTALLINE NAHCOLITE.



800 MD
810 MD
820 MD
830 MD
840 MD
850 MD
860 MD
870 MD
880 MD
890 MD

ROP
Avg WOB

Ttl Gas	500 > 10	Meth C-1	100%
CO2	10K < 10	Ethn C-2	100%
Flare Ht	100 < 10	Prop C-3	100%
	< 10	Burn C-4	100%
	< 10	Perm C-5	100%

TENACITY; IRREGULAR TO BLOCKY FRACTURE; MASSIVE TO TABULAR CUTTINGS HABIT; DULL TO WAXY LUSTER; ALTERNATING BEDS.

SILTSTONE = BROWN TO REDDISH BROWN TO BROWNISH GRAY; TOUGH TO DENSE TENACITY; IRREGULAR TO BLOCKY FRACTURE; MASSIVE TO TABULAR CUTTINGS HABIT; DULL TO EARTHY LUSTER; SILTY TEXTURE; BEDS ALTERNATE WITH SHALE AND SANDSTONE.

SANDSTONE = LIGHT GRAY TO WHITE WITH CLEAR TO TRANSPARENT GRAINS THROUGHOUT; SMALL SLIGHTLY FRIABLE CLUSTERS; FINE GRAINED; FAIR SORTING; SUB ANGULAR TO ROUND; MODERATE SPHERICITY; MODERATE REACTION TO DILUTE HCL; CALCAREOUS CEMENT TO GRAIN SUPPORTED; THINLY BEDDED.

SHALE = GRAY TO LIGHT GRAY; TOUGH TO CRUMBLY; IRREGULAR TO BLOCKY TO SLIGHTLY PLANAR FRACTURE; MASSIVE TO PLATY CUTTINGS HABIT; DULL TO EARTHY LUSTER; SMOOTH TO SILTY TEXTURE; APPEARS TO GRADE TO A SILTSTONE AT TIMES; BEDS ALTERNATE WITH SILTSTONE AND OCC. SANDSTONE.

SILTSTONE = BROWN TO REDDISH BROWN TO BROWNISH GRAY; TOUGH TO DENSE TENACITY; IRREGULAR TO BLOCKY FRACTURE; MASSIVE CUTTINGS HABIT; SILTY TEXTURE; GRADES TO SANDSTONE; SLIGHTLY CALCAREOUS WITH LOW REACTION TO DILUTED HCL.

SANDSTONE = MAINLY LOOSE GRAINS; WHITE TO OFF WHITE TO CLEAR AND TRANSLUCENT; FRIABLE WHEN IN CLUSTERS; LOOSE SAND; FINE GRAINED OCC MEDIUM GRAINED; FAIR SORTING; SUB ANGULAR TO SUB ROUND; MODERATE SPHERICITY; MODERATE REACTION TO DILUTE HCL; CALCAREOUS CEMENT.

SHALE = LIGHT GRAY TO GRAY; BRITTLE TO CRUMBLY TENACITY; IRREGULAR TO PLANAR FRACTURE; PLATY TO MASSIVE CUTTINGS HABIT; DULL TO EARTHY LUSTER; SMOOTH TO SILTY TEXTURE; ALTERNATING BEDS.

SILTSTONE = GRAYISH BROWN TO BROWN; TOUGH TO DENSE TENACITY; IRREGULAR TO BLOCKY FRACTURE; SLIGHTLY CALCAREOUS; DULL TO EARTHY LUSTER; SILTY TEXTURE; GRADES TO BECOME MORE SANDY; THINLY BEDDED.

NOTE: POOR SAMPLE QUALITY SAMPLES 90% LCM

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NOTE: POOR SAMPLE QUALITY SAMPLES 90% LCM

NOTE: GAS DATA NOT RELIABLE AND ERRATIC; REFLECTS MASSIVE DOWNHOLE LOSSES.

NOTE: POOR SAMPLE QUALITY

SHALE = LT TO MEDIUM GRAY; SME GREEN; MOTTLED IN PART; FIRM TO MOD HARD; PLATY TO FLAKY CUTTINGS; PLANAR TO IRREGULAR FRACTURE; DULL EARTHY TO WAXY LUSTER; SMOOTH TO SILTY TEXTURE; NON TO VSL CALCAREOUS.

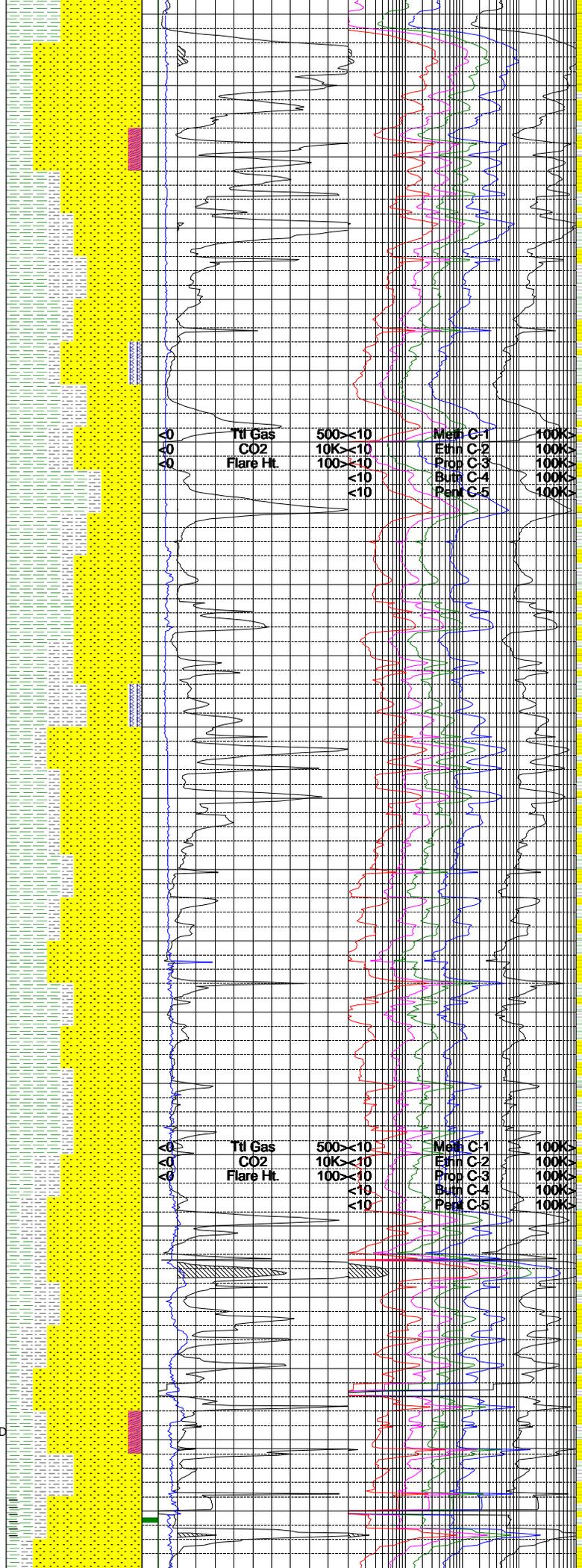
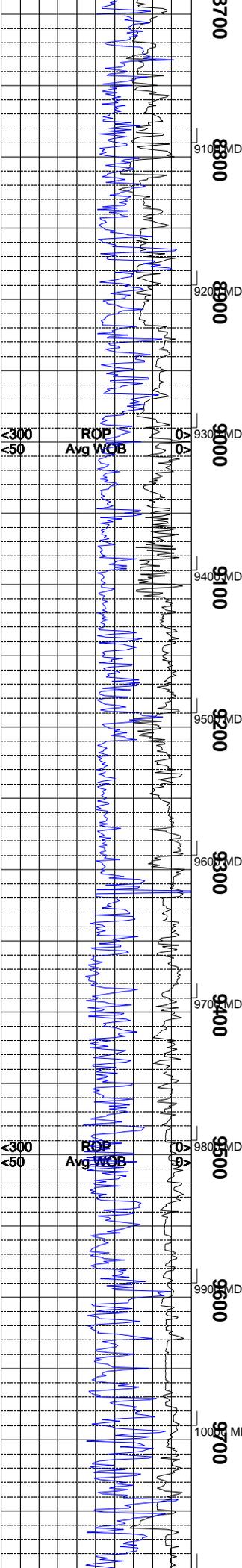
SANDSTONE = ABUNDANT LOOSE GRAINS; WHITE TO LIGHT GRAY; LOWER TO UPPER FINE GRND; ANGULAR TO SUB ROUNDED; DOM CALCITE CMT; LOW SPHERICITY; SME DARK BROWN CARBONACEOUS MATERIAL; POOR SAMPLE QUALITY.

SHALE = LT TO MEDIUM GRAY; SME DARK GRAY TO DARK BROWN; FIRM TO MODERATELY HARD; PLATY CUTTINGS; IRREGULAR FRACTURE; DULL EARTHY TO WAXY LUSTER; VF MICA; VERY FINE CARBONACEOUS MATERIAL.

NOTE: GAS DATA NOT RELIABLE - REFLECTS MASSIVE DOWNHOLE MUD LOSSES.

SANDSTONE = LT GRAY WITH LT GREENISH HUES TO LT GREEN; FINE TO VERY FINE GRAINED; ANGULAR TO SUB ROUNDED; MOD W-SORTED; MATRIX TO GRAIN SUPPORTED; CALC TO SILICEOUS CEMENT; SOME VERY ARG SPECIMENS; TRACE LT BROWN AND LT GREEN MICA.

SANDSTONE = WHITE TO LIGHT GRAY; LOWER TO UPPER MEDIUM GRAINED; ABUNDANT LOOSE GRAINS; ANGULAR TO SUB ROUNDED; MOD SRTD; DOM GRAIN SUPPORTED; SILICEOUS/CALC CMT; TR GREEN MICA; TRACE LOOSE WHITE KAOLIN CLAY IN SAMPLES; RARE PRESERVED CLUSTERS



TRACE LIGHT GREEN GRAINS; SCATTERED BLK CARBONACEOUS/MAFIC GRAIN; COARSE WHITE, FLAT CALCITE-FRACTURE FILL IN THE 9090'-9120' SAMPLE; ASSOCIATED WITH GAS SHOWS.

SILTSTONE = BROWN TO BROWNISH RED; TOUGH TO DENSE TENACITY; IRREGULAR TO BLOCKY FRACTURE; MASSIVE TO TABULAR CUTTINGS HABIT; DULL TO SLIGHTLY SPARKLING LUSTER; SILTY TO GRITTY TEXTURE; APPEARS TO GRADE TO SANDSTONE IN PLACES WHERE IT GETS GRITTIER.

SANDSTONE = WHITE TO LIGHT GRAY WITH CLEAR AND TRANSLUCENT GRAINS; TRACE AMOUNT OF DARK LITHICS GIVING A SLIGHT SALT PEPPER APPEARANCE; ABUNDANT LOOSE GRAINS; SUB ANGULAR TO SUB ROUNDED; FAIR SORTING; MODERATE SPHERICITY WHEN IN CLUSTERS; SLIGHT REACTIN TO DILUTE HCL; CALCAREOUS CEMENT WHEN IN CLUSTERS TO GRAIN SUPPORTED; MAINLY LOOSE GRAINS; ASSOCIATED WITH INCREASE GAS.

SHALE = GRAY TO LIGHT GRAY; BRITTLE TO CRUNCHY TENACITY; IRREGULAR TO BLOCKY TO SLIGHTLY PLANAR FRACTURE IN SOME SPECIMENS; MASSIVE TO PLATY CUTTINGS HABIT; DULL TO EARTHY LUSTER; SMOOTH TO SLIGHTLY SILTY TEXTURE; ALTERNATING BEDS.

SANDSTONE = LIGHT GRAY TO WHITE WITH TRANSLUCENT AND TRANSPARENT GRAINS; A TRACE AMT OF DARK LITHICS GIVING A SALT AND PEPPER APPEARANCE; MEDIUM TO FINE OCC VERY FINE GRAINS; WELL SORTED; SUB ANGULAR TO SUB ROUND; ABOUT 50/50 COMBINATION OF SMALL NON-FRIABLE CLUSTERS AND LOOSE GRAINS; WHEN IN CLUSTERS HAS CALCITE CEMENT AND MODERATE TO HIGH REACTION TO HCL; NO REACTION FROM LOOSE GRAINS; INCREASE IN GAS.

SHALE = LT TO MEDIUM GRAY; SME MEDIUM BROWN EXAMPLES; FIRM TO MOD HARD; PLATY TO FLAKY CUTTINGS; IRREGULAR TO PLANAR FRACTURE; VF MICA; SLI TO MOD CALCAREOUS IN SILTY EXAMPLES; ROUGH TO SILTY TEXTURE; SILTY IN PART; OCC MOD AMOUNTS OF CARBONACEOUS MATERIAL.

NOTE: VERY POOR SAMPLE QUALITY- ABUNDANT LCM MATERIAL.

SANDSTONE = LT GRAY WITH LT BROWN HUES; FINE TO VERY FINE GRAINED; ANGULAR TO SUBROUNDED; MOD SORTED; DOM CALCITE CMT; LOW TO MOD SPHERICITY; TRACE WHITE KAOL CLAY FILL; OCC SPECKLED WITH BLACK CARB MATERIAL.

SILTSTONE = BROWN TO BROWNISH GRAY; HARD TO TOUGH; PLATY TO TABULAR CUTTINGS IRREGULAR FRACTURE; SPARKLING LUSTER WHEN DRIED; GRITTY TEXTURE; SLI TO MOD CALCAREOUS; THINLY BEDDED WITH SHALE AND SILTSTONE.

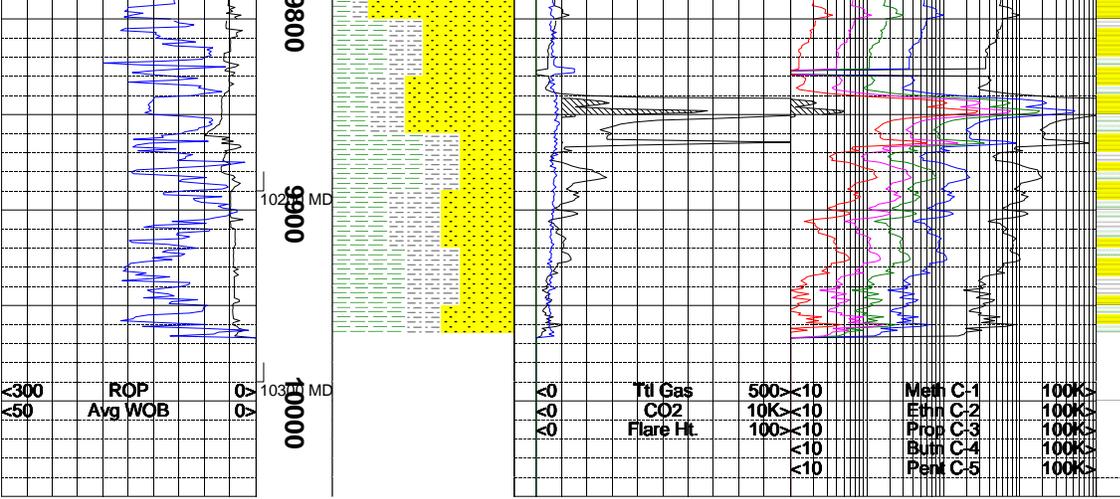
SANDSTONE = LIGHT GRAY TO WHITE; SME LT BROWN SPECIMENS; FINE GRAINED; HARD PRESERVED SPECIMENS; ANGULAR TO SBANG; MOD W SORTED; DOM CALC CEMENT; TRACE WH KAOLIN CLAY FILL; SME SCATTERED CARBON MATERIAL TO A SALT AND PEPPER APPEARANCE ASSOCIATED WITH GAS SHOW.

SILTSTONE = BROWNISH GRAY TO DARK GRAY; TOUGH TO DENSE TENACITY; IRREGULAR TO BLOCKY FRACTURE; MASSIVE TO TABULAR CUTTINGS HABIT; DULL TO SLIGHTLY SPARKLING LUSTER; SLIGHTLY CALCAREOUS; GRADES INTO A VERY FINE GRAINED SANDSTONE; THIN BEDS INBETWEEN SANDSTONE LAYERS.

SHALE = GRAY TO LIGHT GRAY; TOUGH TO DENSE TENACITY; IRREGULAR TO BLOCKY FRACTURE; MASSIVE TO PLATY CUTTINGS HABIT; DULL TO EARTHY LUSTER; THINLY BEDDED; HAD TRACE AMOUNT OF FRACTURE FILL MATERIAL SOME ATTACHED TO SHALE PIECES.

SANDSTONE = LIGHT GRAY TO WHITE TO OFF WHITE WITH DARK LITHICS THROUGHOUT; MODERATELY FRIABLE TO NON-FRIABLE CLUSTERS; FINE GRAINED; MODERATE REACTION TO DILUTE HCL; CALCAREOUS CEMENTATION; SUB ANGULAR TO SUB ROUND; MODERATE TO LOW SPHERICITY; ASSOCIATED WITH GAS SHOWS.

SHALE = MEDIUM TO DARK GRAY; SME DARK BROWN; MOD HARD; MASSIVE TO PLATY CTGS; IRREGULAR TO BLOCKY FRACTURE; NON CALCAREOUS; DULL EARTHY TO WAXY LUSTER; VERY THIN CARBONACEOUS STRKS



AND LAMINATIONS; ROUGH TO SLTY TEXTURE; SOME VERY SILTY EXAMPLES.

SILTSTONE = MEDIUM TO DARK GRAY; HARD MASSIVE TO SLI PLATY CTGS; IRREGULAR FRACTURE; SLI TO MOD CALCAREOUS; DULL EARTHY TO SPARKLING LUSTER; SILTY TEXT; SPECKLED WITH CARBONACEOUS MATERIAL.

REACHED CSG TD OF 10275' ON 02/09/2010.

NOTE: DUE TO POOR DOWN HOLE CONDITIONS COULD NOT GET INTERMEDIATE CASING STRING TO BOTTOM; LOST BIT, AND FLOAT COLLAR; CEMENT PLUG PROCEDURES INITIATED AT 8648 HOLE CEMENTED BACK TO SURFACE CASING ON 02-17-2011.
PREP TO SKID TO PCU 296-6B3.

<300	ROP	0
<50	Avg WOB	0

<0	Ttl Gas	500	<10	Meth C-1	100K
<0	CO2	10K	<10	Ethn C-2	100K
<0	Flare Ht	100	<10	Prop C-3	100K
			<10	Butn C-4	100K
			<10	Pent C-5	100K

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