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Custom Log

COMPANY Shell Oil Company
WELL Dawson Creek 1-25
FIELD Hyden
REGION Rocky Mountains
COORDINATES 40.450486 -107.213367
ELEVATION 6658.2
COUNTY, STATE Routt, Colorado
API INDEX 05-107-06242-0000
SPUD DATE 10/07/2012
CONTRACTOR Savanna
CO. REP. Jason Morris
RIG/TYPE 650
LOGGING UNIT 033
GEOLOGISTS Layne Good Devin Claar
ADD. PERSONS George Baker
CO. GEOLOGIST Jerome Hall

LOG INTERVAL

CASING DATA

DEPTHS: 104' TO 9263'
DATES: 10/07/2012 TO 10/27/2012
SCALE: 1"=100'

10.75" AT 1618'
7.625" AT 6169'
5.5" AT 9263'

AT

MUD TYPES

HOLE SIZE

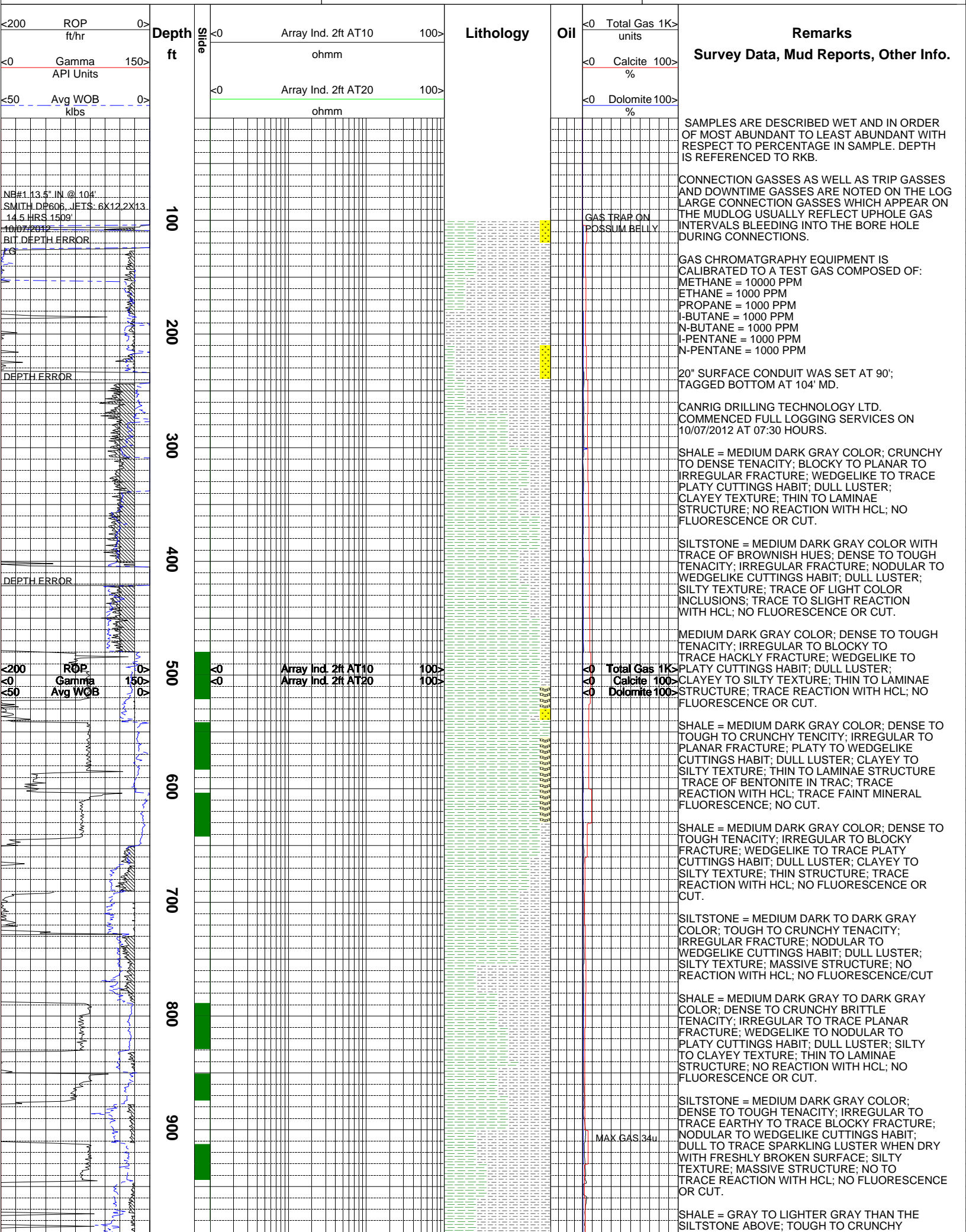
GYP Water TO 9263'
TO
TO
TO

13.5" TO 1618'
9.875" TO 6180'
6.75" TO 9263'
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 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 KAOLINITIC 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 SALT 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.
 SAMPLES ARE DESCRIBED WET AND IN ORDER OF MOST ABUNDANT TO LEAST ABUNDANT WITH RESPECT TO PERCENTAGE IN SAMPLE. DEPTH IS REFERENCED TO RKB.

CONNECTION GASSES AS WELL AS TRIP GASSES AND DOWNTIME GASSES ARE NOTED ON THE LOG. LARGE CONNECTION GASSES WHICH APPEAR ON THE MUDLOG USUALLY REFLECT UPHOLE GAS INTERVALS BLEEDING INTO THE BORE HOLE DURING CONNECTIONS.

GAS CHROMATGRAPHY 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

20" SURFACE CONDUIT WAS SET AT 90'; TAGGED BOTTOM AT 104' MD.

CANRIG DRILLING TECHNOLOGY LTD. COMMENCED FULL LOGGING SERVICES ON 10/07/2012 AT 07:30 HOURS.

SHALE = MEDIUM DARK GRAY COLOR; CRUNCHY TO DENSE TENACITY; BLOCKY TO PLANAR TO IRREGULAR FRACTURE; WEDGELIKE TO TRACE PLATY CUTTINGS HABIT; DULL LUSTER; CLAYEY TEXTURE; THIN TO LAMINAE STRUCTURE; NO REACTION WITH HCL; NO FLUORESCENCE OR CUT.

SILTSTONE = MEDIUM DARK GRAY COLOR WITH TRACE OF BROWNISH HUES; DENSE TO TOUGH TENACITY; IRREGULAR FRACTURE; NODULAR TO WEDGELIKE CUTTINGS HABIT; DULL LUSTER; SILTY TEXTURE; TRACE OF LIGHT COLOR INCLUSIONS; TRACE TO SLIGHT REACTION WITH HCL; NO FLUORESCENCE OR CUT.

MEDIUM DARK GRAY COLOR; DENSE TO TOUGH TENACITY; IRREGULAR TO BLOCKY TO TRACE HACKLY FRACTURE; WEDGELIKE TO PLATY CUTTINGS HABIT; DULL LUSTER; CLAYEY TO SILTY TEXTURE; THIN TO LAMINAE STRUCTURE; TRACE REACTION WITH HCL; NO FLUORESCENCE OR CUT.

SHALE = MEDIUM DARK GRAY COLOR; DENSE TO TOUGH TENACITY; IRREGULAR TO PLANAR FRACTURE; PLATY TO WEDGELIKE CUTTINGS HABIT; DULL LUSTER; CLAYEY TO SILTY TEXTURE; THIN TO LAMINAE STRUCTURE; TRACE OF BENTONITE IN TRAC; TRACE REACTION WITH HCL; TRACE FAINT MINERAL FLUORESCENCE; NO CUT.

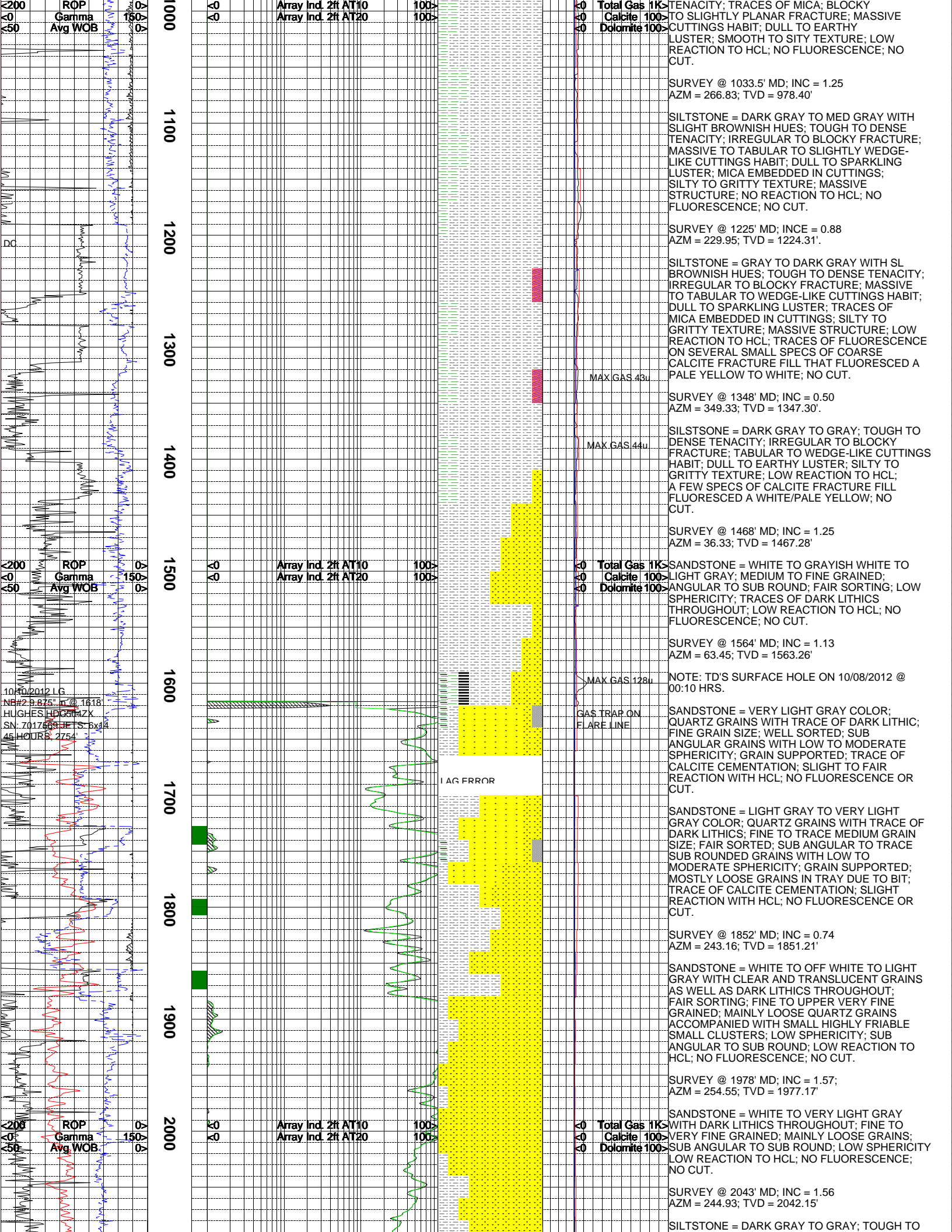
SHALE = MEDIUM DARK GRAY COLOR; DENSE TO TOUGH TENACITY; IRREGULAR TO BLOCKY FRACTURE; WEDGELIKE TO TRACE PLATY CUTTINGS HABIT; DULL LUSTER; CLAYEY TO SILTY TEXTURE; THIN STRUCTURE; TRACE REACTION WITH HCL; NO FLUORESCENCE OR CUT.

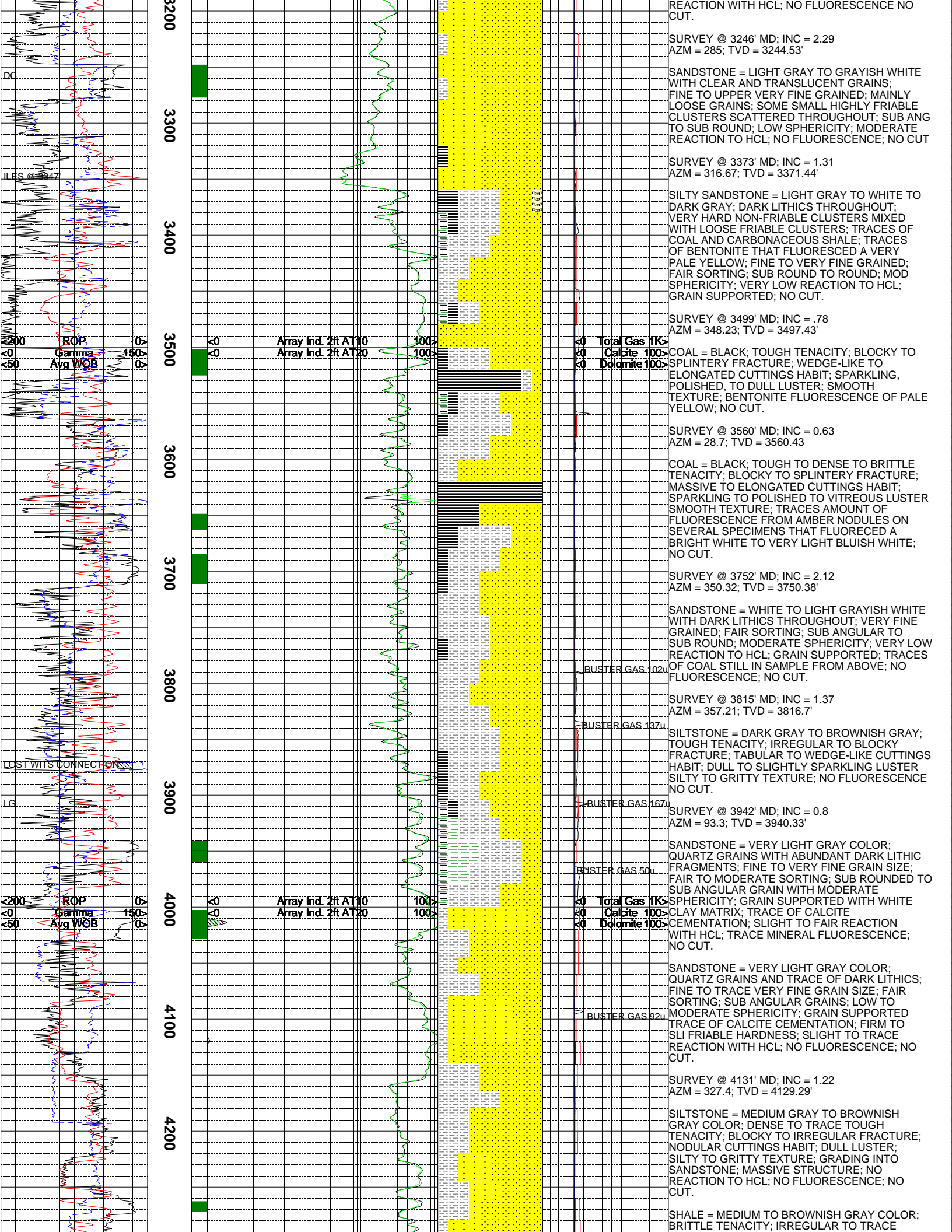
SILTSTONE = MEDIUM DARK TO DARK GRAY COLOR; TOUGH TO CRUNCHY TENACITY; IRREGULAR FRACTURE; NODULAR TO WEDGELIKE CUTTINGS HABIT; DULL LUSTER; SILTY TEXTURE; MASSIVE STRUCTURE; NO REACTION WITH HCL; NO FLUORESCENCE/CUT

SHALE = MEDIUM DARK GRAY TO DARK GRAY COLOR; DENSE TO CRUNCHY BRITTLE TENACITY; IRREGULAR TO TRACE PLANAR FRACTURE; WEDGELIKE TO NODULAR TO PLATY CUTTINGS HABIT; DULL LUSTER; SILTY TO CLAYEY TEXTURE; THIN TO LAMINAE STRUCTURE; NO REACTION WITH HCL; NO FLUORESCENCE OR CUT.

SILTSTONE = MEDIUM DARK GRAY COLOR; DENSE TO TOUGH TENACITY; IRREGULAR TO TRACE EARTHY TO TRACE BLOCKY FRACTURE; NODULAR TO WEDGELIKE CUTTINGS HABIT; DULL TO TRACE SPARKLING LUSTER WHEN DRY WITH FRESHLY BROKEN SURFACE; SILTY TEXTURE; MASSIVE STRUCTURE; NO TO TRACE REACTION WITH HCL; NO FLUORESCENCE OR CUT.

SHALE = GRAY TO LIGHTER GRAY THAN THE SILTSTONE ABOVE; TOUGH TO CRUNCHY





REACTION WITH HCL; NO FLUORESCENCE; NO CUT.

SURVEY @ 3246' MD; INC = 2.29
AZM = 285; TVD = 3244.53'

SANDSTONE = LIGHT GRAY TO GRAYISH WHITE WITH CLEAR AND TRANSLUCENT GRAINS; FINE TO UPPER VERY FINE GRAINED; MAINLY LOOSE GRAINS; SOME SMALL HIGHLY FRIABLE CLUSTERS SCATTERED THROUGHOUT; SUB ANG TO SUB ROUND; LOW SPHERICITY; MODERATE REACTION TO HCL; NO FLUORESCENCE; NO CUT

SURVEY @ 3373' MD; INC = 1.31
AZM = 316.67; TVD = 3371.44'

SILTY SANDSTONE = LIGHT GRAY TO WHITE TO DARK GRAY; DARK LITHICS THROUGHOUT; VERY HARD NON-FRIABLE CLUSTERS MIXED WITH LOOSE FRIABLE CLUSTERS; TRACES OF COAL AND CARBONACEOUS SHALE; TRACES OF BENTONITE THAT FLUORESCED A VERY PALE YELLOW; FINE TO VERY FINE GRAINED; FAIR SORTING; SUB ROUND TO ROUND; MOD SPHERICITY; VERY LOW REACTION TO HCL; GRAIN SUPPORTED; NO CUT.

SURVEY @ 3499' MD; INC = .78
AZM = 348.23; TVD = 3497.43'

COAL = BLACK; TOUGH TENACITY; BLOCKY TO SPLINTERY FRACTURE; WEDGE-LIKE TO ELONGATED CUTTINGS HABIT; SPARKLING, POLISHED, TO DULL LUSTER; SMOOTH TEXTURE; BENTONITE FLUORESCENCE OF PALE YELLOW; NO CUT.

SURVEY @ 3560' MD; INC = 0.63
AZM = 28.7; TVD = 3560.43

COAL = BLACK; TOUGH TO DENSE TO BRITTLE TENACITY; BLOCKY TO SPLINTERY FRACTURE; MASSIVE TO ELONGATED CUTTINGS HABIT; SPARKLING TO POLISHED TO VITREOUS LUSTER SMOOTH TEXTURE; TRACES AMOUNT OF FLUORESCENCE FROM AMBER NODULES ON SEVERAL SPECIMENS THAT FLUORECED A BRIGHT WHITE TO VERY LIGHT BLUISH WHITE; NO CUT.

SURVEY @ 3752' MD; INC = 2.12
AZM = 350.32; TVD = 3750.38'

SANDSTONE = WHITE TO LIGHT GRAYISH WHITE WITH DARK LITHICS THROUGHOUT; VERY FINE GRAINED; FAIR SORTING; SUB ANGULAR TO SUB ROUND; MODERATE SPHERICITY; VERY LOW REACTION TO HCL; GRAIN SUPPORTED; TRACES OF COAL STILL IN SAMPLE FROM ABOVE; NO FLUORESCENCE; NO CUT.

BUSTER GAS 102u

SURVEY @ 3815' MD; INC = 1.37
AZM = 357.21; TVD = 3816.7'

BUSTER GAS 137u

SILTSTONE = DARK GRAY TO BROWNISH GRAY; TOUGH TENACITY; IRREGULAR TO BLOCKY FRACTURE; TABULAR TO WEDGE-LIKE CUTTINGS HABIT; DULL TO SLIGHTLY SPARKLING LUSTER SILTY TO GRITTY TEXTURE; NO FLUORESCENCE NO CUT.

BUSTER GAS 167u

SURVEY @ 3942' MD; INC = 0.8
AZM = 93.3; TVD = 3940.33'

BUSTER GAS 50u

SANDSTONE = VERY LIGHT GRAY COLOR; QUARTZ GRAINS WITH ABUNDANT DARK LITHIC FRAGMENTS; FINE TO VERY FINE GRAIN SIZE; FAIR TO MODERATE SORTING; SUB ROUNDED TO SUB ANGULAR GRAIN WITH MODERATE SPHERICITY; GRAIN SUPPORTED WITH WHITE CLAY MATRIX; TRACE OF CALCITE CEMENTATION; SLIGHT TO FAIR REACTION WITH HCL; TRACE MINERAL FLUORESCENCE; NO CUT.

BUSTER GAS 50u

SANDSTONE = VERY LIGHT GRAY COLOR; QUARTZ GRAINS AND TRACE OF DARK LITHICS; FINE TO TRACE VERY FINE GRAIN SIZE; FAIR SORTING; SUB ANGULAR GRAINS; LOW TO MODERATE SPHERICITY; GRAIN SUPPORTED TRACE OF CALCITE CEMENTATION; FIRM TO SLI FRIABLE HARDNESS; SLIGHT TO TRACE REACTION WITH HCL; NO FLUORESCENCE; NO CUT.

BUSTER GAS 92u

SURVEY @ 4131' MD; INC = 1.22
AZM = 327.4; TVD = 4129.29'

SILTSTONE = MEDIUM GRAY TO BROWNISH GRAY COLOR; DENSE TO TRACE TOUGH TENACITY; BLOCKY TO IRREGULAR FRACTURE; NODULAR CUTTINGS HABIT; DULL LUSTER; SILTY TO GRITTY TEXTURE; GRADING INTO SANDSTONE; MASSIVE STRUCTURE; NO REACTION TO HCL; NO FLUORESCENCE; NO CUT.

SHALE = MEDIUM TO BROWNISH GRAY COLOR; BRITTLE TENACITY; IRREGULAR TO TRACE

