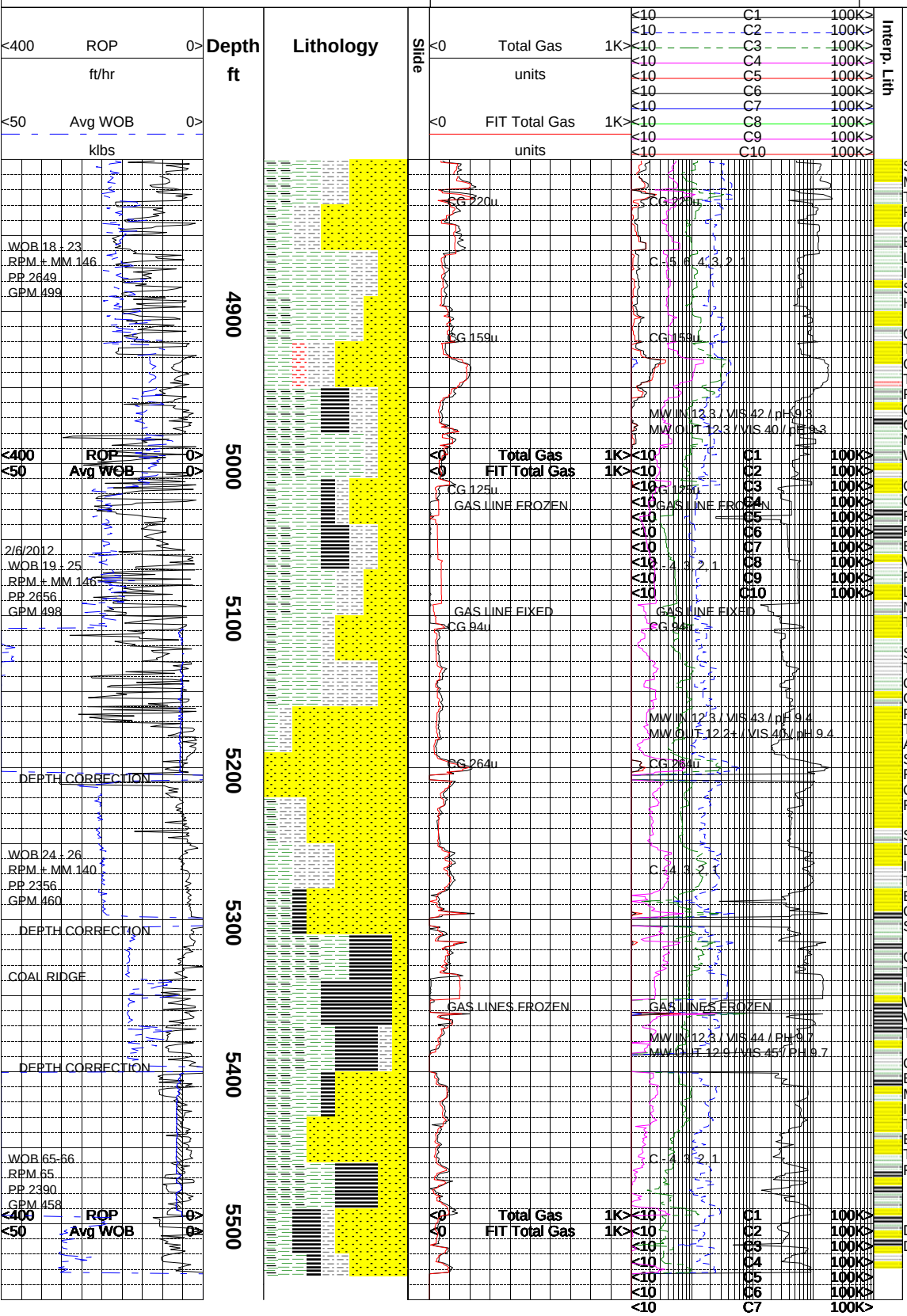

Remarks

Survey Data, Mud Reports, Other Info.

SHALE @ 4890' = LIGHT TO MEDIUM GRAY, MOSTLY WITH YELLOWISH BROWN HUES; FIRM TO SOMEWHAT BRITTLE TENACITY; BLOCKY TO PLANAR FRACTURE; PLATY TO FLAKY TO OCCASIONALLY WEDGE LIKE AND RARELY ELONGATED CUTTINGS; DULL TO EARTHY LUSTER; MATTE TO SILTY TEXTURE; INCREASINGLY WELL DEFINED LAMINAE STRUCTURE OBSERVED, OTHERWISE THIN; HIGHLY CALCAREOUS.

CARBONACEOUS SHALE @ 4980' = DUSKY BROWN TO BROWNISH BLACK TO DARK GRAY TO GRAYISH BLACK; SOMEWHAT BRITTLE TO DENSE TO PULVERULENT TENACITY; IRREGULAR TO PLANAR FRACTURE; PLATY TO BLOCKY CUTTINGS HABIT; EARTHY TO WAXY LUSTER; CLAYEY TO SILTY TEXTURE; THIN STRUCTURE; NO REACTION WITH DILUTE HCL; INTERBEDDED WITH SANDSTONE.

COAL @ 5070' = GRAYISH BLACK TO BLACK IN COLOR; SLIGHTLY STIFF TO VERY DENSE TO PULVERULENT TENACITY; BLOCKY TO PLANAR FRACTURE; NODULAR TO TABULAR TO NEARLY EQUANT HABIT; WAXY TO POLISHED TO NEARLY VITREOUS LUSTER; TEXTURE SMOOTH ON FACES, SILTY TO CLAYEY OFF; THIN TO LAMINAE STRUCTURE; MARKS LIGHT SURFACES; NO REACTION WITH HCL, BUT HAS A TENDENCY TO FLOAT; TRACE MICA FLAKES.

SANDSTONE @ 5130' = OVERALL LIGHT GRAY TO MEDIUM GRAY IN COLOR, WITH TRACE PALE ORANGE AND OFTEN WITH SPARSE DARK MAFIC CLASTS; APPROXIMATELY 50% QUARTZ, 10% FELDSPARS AND 40% CLAY MATRIX; VERY FINE TO MEDIUM GRAINS WITH FAIR SORTING; SUB ANGULAR TO SUB ROUNDED WITH MODERATE SPHERICITY; SLIGHTLY FIRM TO FIRM FRIABLE; ABUNDANT MICA AND TRACE CLEAR QUARTZ CRYSTALS; GENTLY TO VIGOROUSLY REACTIVE TO HCL; GRADING TO SILTSTONE.

SILTSTONE @ 5250' = MEDIUM DARK GRAY TO DUSKY BROWN; DENSE TO TOUGHT TENACITY; IRREGULAR TO BLOCKY FRACTURING; TABULAR TO WEDGELIKE TO NODULAR CUTTINGS HABIT; EARTHY WITH A SLIGHT SPARKLING LUSTER; GRITTY TO SILTY TEXTURE; THIN STRUCTURE; SLIGHT REACTION WITH DILUTE HCL.

COAL @ 5340' = BLACK; CRUMBLY TO BRITTLE TO PULVERULENT TENACITY; BLOCKY TO IRREGULAR FRACTURING; NODULAR TO WEDGELIKE CUTTINGS HABIT; EARTHY TO VITREOUS LUSTER; SMOOTH TEXTURE; THICK TO THIN STRUCTURE.

CARBONACEOUS SHALE @ 5400' = BROWNISH BLACK TO GRAYISH BLACK TO BLACK; FIRM TO MODERATE HARD WITH DENSE TENACITY; IRREGULAR TO BLOCKY FRACTURING; PLATY TO TABULAR TO WEDGELIKE CUTTINGS HABIT; EARTHY LUSTER; SMOOTH TO CLAYEY TEXTURE; THIN COAL LAYERS INTERBEDDED; SLIGHT REACTION WITH HCL.

DRILLED TWIN CREEK 12-5D1 TO TOTAL DEPTH OF 5532'MD @ 12:48 HRS ON 2/6/2012

The log data, interpretations and recommendation provided by Canrig are inferences and assumptions based on measurements of drilling fluids. Such inferences and assumptions are not infallible and reasonable professionals may differ. Canrig does not represent or warrant the accuracy, correctness or completeness of any log data, interpretations, recommendations or information provided by Canrig, its officers, agents or employees. Canrig does not and cannot guarantee the accuracy of any such interpretation of the log data, interpretations or recommendations and Company is fully responsible for all decisions and actions it takes based on such log data, interpretations and recommendations.