



Empirica

Scale: 5" / 100'
Measured Depth Log

Well Name Windsor_LV_F_14-H_Horizontal

State Colorado

County Weld

Country USA

Rig Number H&P 319

API Number 05-123-38175-0C

AFE # 14-757

Region DJ Basin

Field Wattenburg

Spud Date 11/16/2014

Logged Interval 5000

Type of Drilling Fluid WBM

Operator

Company Extraction Oil & Gas, LLC

Geologist

Name Justin Perry & Geoff Sterling

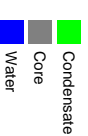
Company ALS Empirica

Address 600 17th Street, Suite 725S
Denver, CO 80202

Other

Logging Start Date 11/18/2014

Zone Color Coding



Rock Types

UNKNOWN	CHERT	SILTSTONE	IGNEOUS
ANHYDRITE	COAL	SANDSTONE	METAMORPHIC
GYPSUM	MARLSTONE	CONGLOMERATE	CEMENT
SALT	CHALK	BRECCIA	SILTY SH
SIDERITE or LIMONITE	SHALE	TILL	SHY SS
LIMESTONE	SHALE GRAY	BENTONITE	
DOLOMITE	SHALE COLORED	TUFF	

Accessories

Fossils	F FOSSIL	ARGILLACEOUS	GLAUCONITE
GASTROPOD	ARGILLITE GRAIN	GYPSIFEROUS	
OOLITE	BENTONITE	HEAVY MINERAL	
OSTRACOD	BITUMENOUS SUBSTANCE	KAOLIN	ANHYDRITE STRINGER
PELECYPOD	BRECCIA FRAGMENTS	MARLSTONE	BENTONITE STRINGER
PELLET	CALCAREOUS	MINERAL CRYSTALS	COAL STRINGER
PISOLITE	CARBONACEOUS FLAKES	NODULES	DOLOMITE STRINGER
PLANT REMAINS	CHTDK	PHOSPHATE PELLETS	GYPSUM STRINGER
CEPHALOPOD	CHTLT	PYRITE	LIMESTONE STRINGER
CORAL	COAL - THIN BEDS	SALT CAST	MARLSTONE (CALC) STRG
CRINOID	DOLOMITIC	SANDY	MARLSTONE (DOL) STRG
ECHINOID	FELDSPAR	SILTY	SANDSTONE STRINGER
FISH	FERRUGINOUS PELLET	SILTY	SHALE STRINGER
FORAMINIFERA	ANHYDRITIC	TUFFACEOUS	SILTSTONE STRINGER

Other Sy

ORGANIC	FAULT
PINPOINT	FORM
DEAD	VUGGY
EVEN	GAS SHOW
QUESTIONABLE	Engineering
SPOTTED STAINING	BIT
CASING	OIL SHOW
OVERTURN	NORMAL FAULT
CONNECTION (LEFT)	MIN DEPTH
REVERSE FAULT	
SIDEWALL CONNECTION	
FENESTRAL	CONNECTION GAS
FRACTURE	SLIDE
INTERCRYSTALLINE	CORE - LOST
INTERCRYSTALLINE	SURVEY
INTERCRYSTALLINE	TRIP GAS
MOLDIC	DST INTERVAL
	WIRELINE TOOL

mbols

WIRELINE TESTED - RT **FX** FINELYXLN



MN DEPTH

ES GRAINSTONE

L LITHOGRAPHIC

MX MICROXLN

Rounding

ALT **A** ANGULAR

MS MUDSTONE

R ROUNDED

PS PACKSTONE

SD STRATA

WS WACKESTONE

ULT **F** SUBRND

Sorting

ORE (LEFT)

ORE (RIGHT)

Textures

M MODERATE

BS BOUNDSTONE

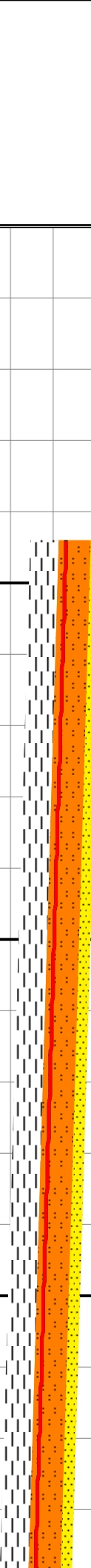
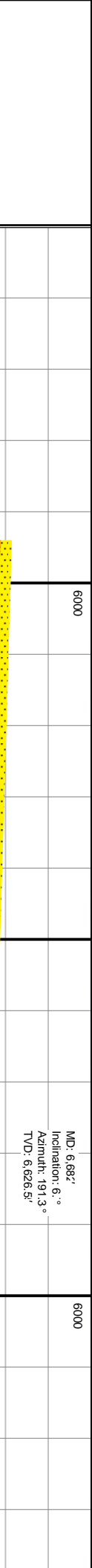
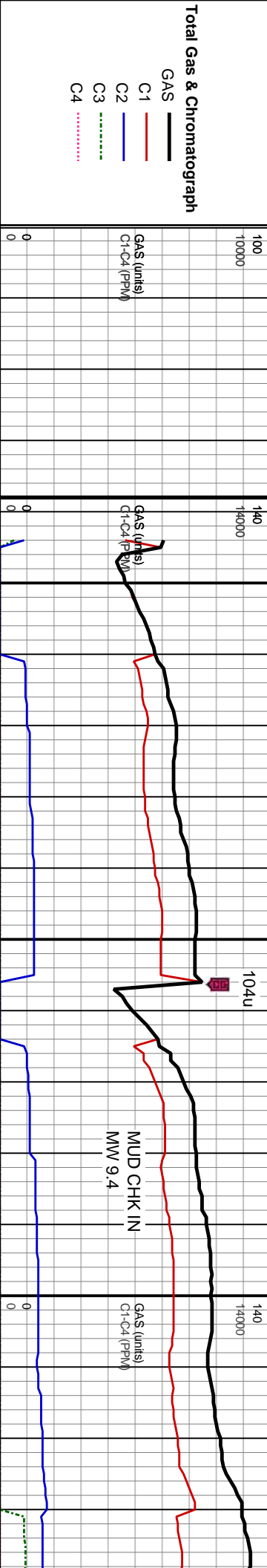
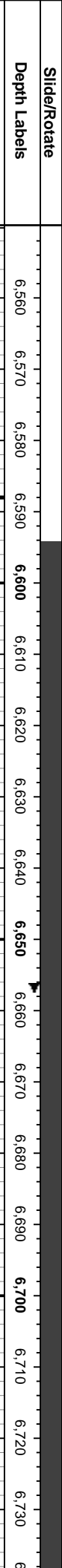
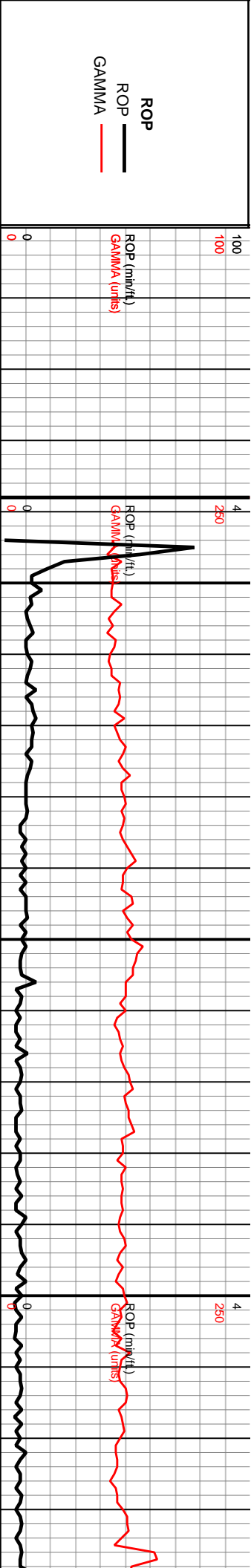
P POOR

C CHALKY

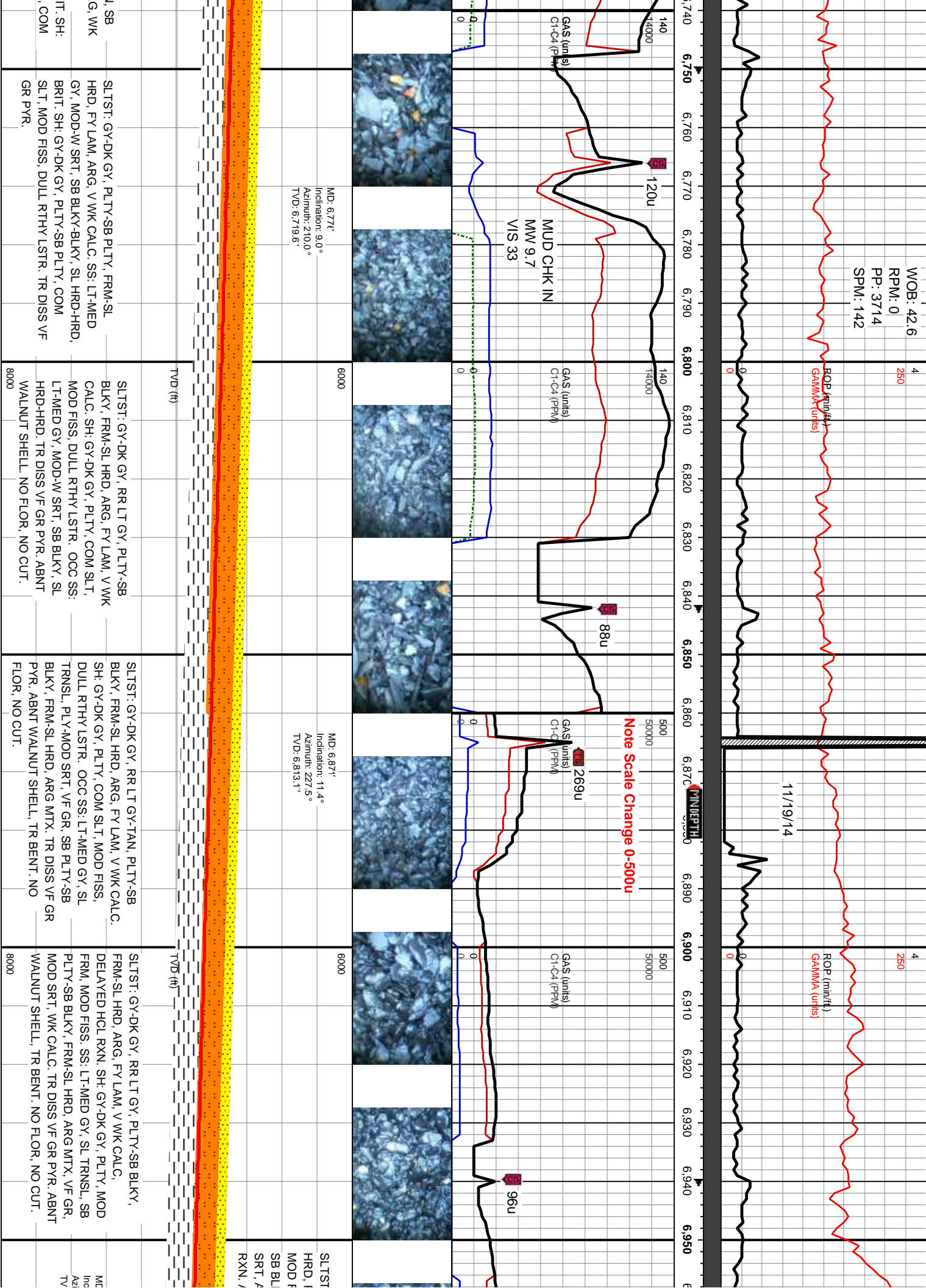
W WELL

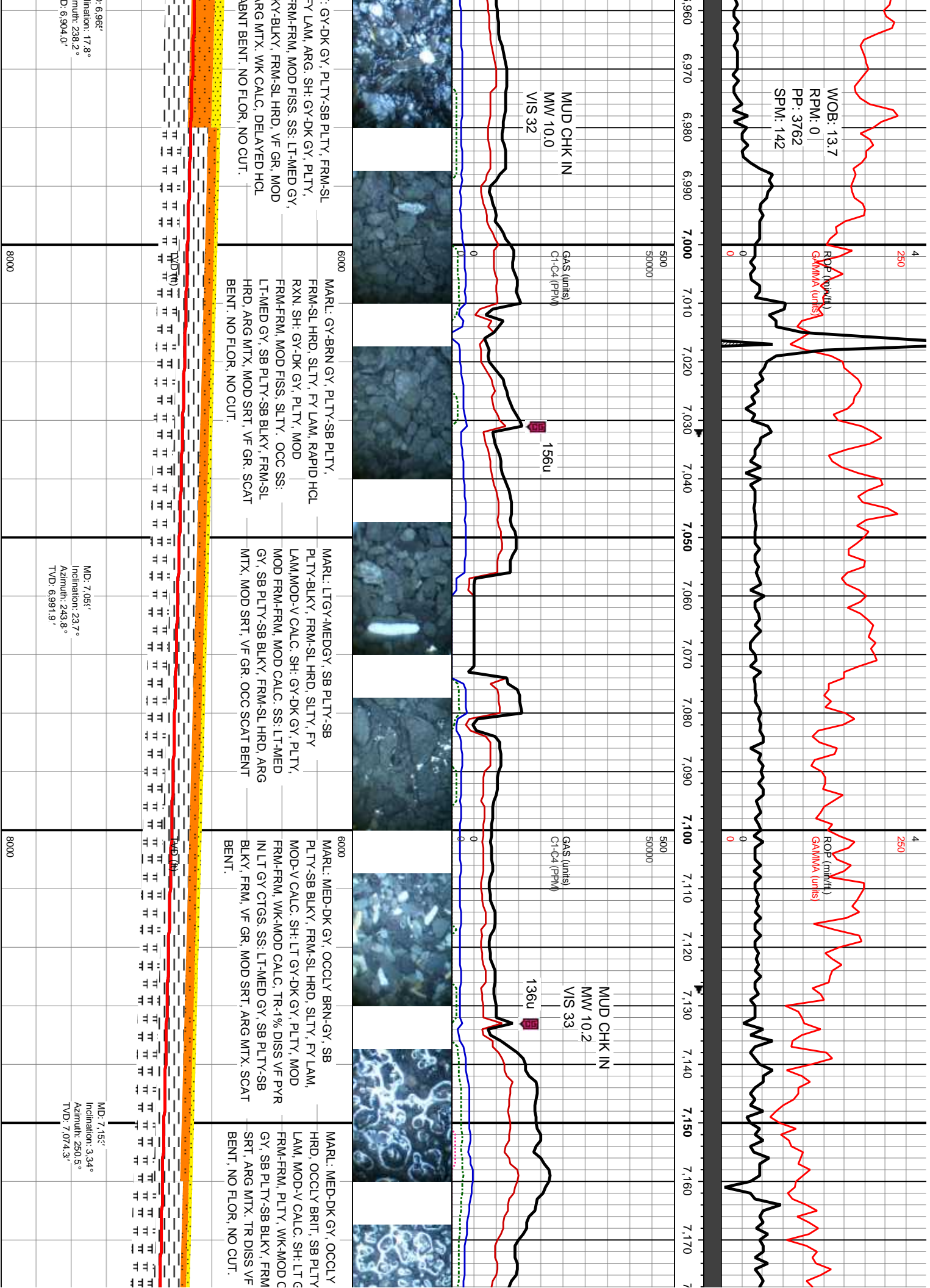
CX CRYPTOXLN

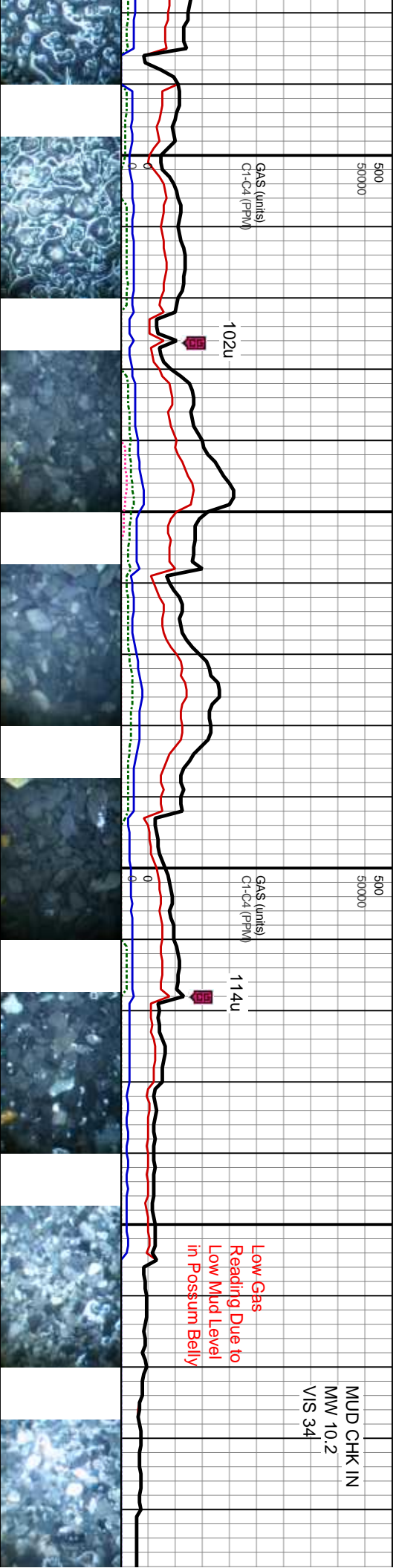
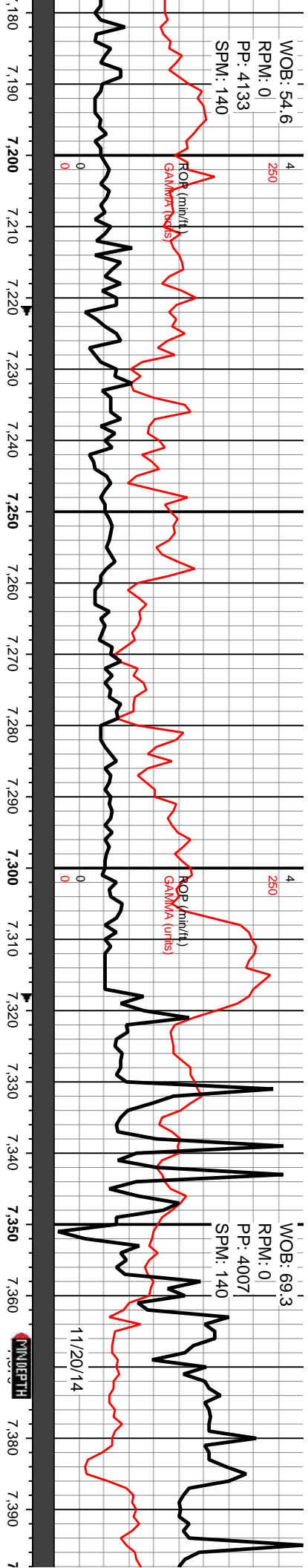
TESTED - LEFT **E** EARTHY



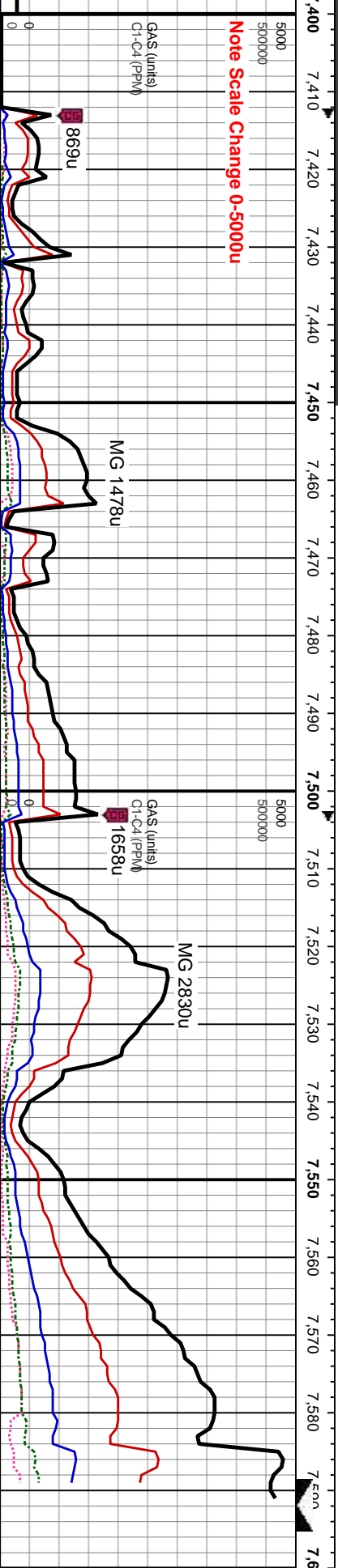
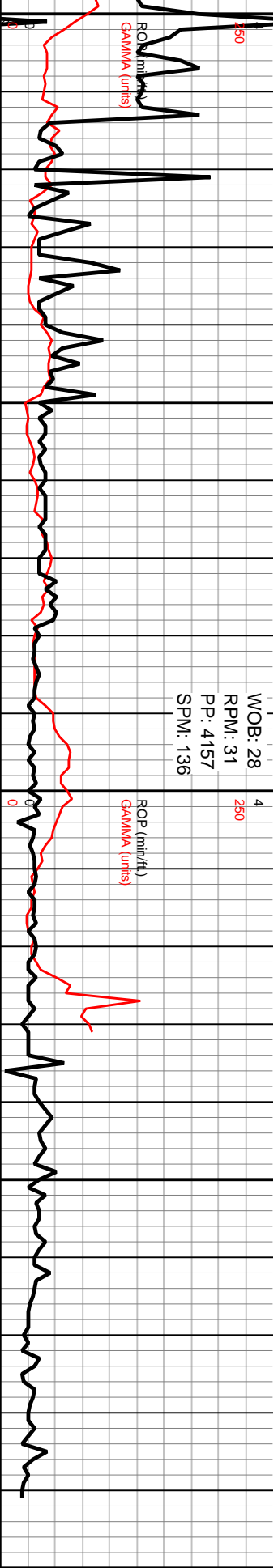
Well Bore	TVD (ft)	SLTST: GY-DK GY, MOD FRM-FRM, SB PLTY-PLTY, F LAM, WK CALC. SH: DK GY-GY, MOD FRM, PLTY, MOD FISS. SS: GY, SME DK GY, FRM, OCCLY BRIT, SB BLKY, MOD SRTD, VF-F GR, TR DISS F GR PYR.	TVD (ft)	SLTST: GY-DK GY, MOD FRM-FRM, SB PLTY-PLTY, F LAM, WK CALC. SH: DK GY-GY, MOD FRM, PLTY, MOD FISS. SLTY. SS: GY, SME DK GY, FRM, OCCLY BRIT, SB BLKY, MOD SRTD, VF-F GR, TR DISS F GR PYR.	TVD (ft)	SLTST: GY-DK GY, OCCLY LT GY-TAN PLTY-SB BLKY, SL HRD, FY LAM., AR CALC. SS: LT-MED GY, MOD SRT, SB BLKY-BLKY, SL HRD-HRD, OCCLY BR GY-DK GY, PLTY-SB PLTY, MOD FISS SLT, TR DISS VF GR PYR.
	6000		6000		6000	
	8000			8000		8000

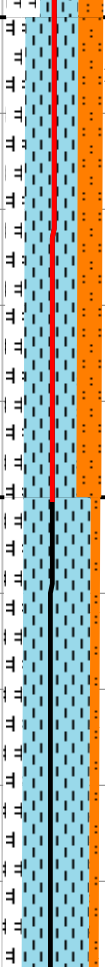
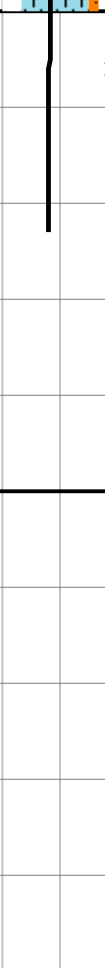






BRN-GY, FRM-SL SB BLKY, FY Y-DK GY, MOD CALC. SS: LT-MED VF GR, MOD PYR. SCAT	6000 MARL: MED-DK GY, OCCLY BRN-GY, FRM-SL HRD, OCCLY BRIT, SB PLTY-SB BLKY, FY LAM, MOD-V CALC. SH: LT GY-DK GY, MOD FRM-FRM, PLTY-SB BLKY, SLTY, WK-MOD CALC, ELG STRG OF CHK, OCC SS: LT-MED GY, SB BLKY, MOD-FRM, VF GR, PLY-MOD SRT, ARG MTX: TR-1% DISS VF PYR. SCAT BENT, NO FLOR, NO CUT.	6000 55% MARL: DK GY-BRN GY, SB PLTY-SB BLKY, FRM-SL HRD, OCCLY BRIT, CALC WITH STRONG HCL RXN. 45% CHKY SH: LT GY-BRN GY, MOD FRM-FRM, PLTY-SB BLKY, SLTY, CALC. STRG AND FY DISSM CHK, FY LAM, TR DISS VF PYR. TR BENT, NO FLOR, NO CUT.	6000 55% MARL: DK GY-BRN GY, SB PLTY-SB BLKY, FRM-SL HRD, OCCLY BRIT, CALC WITH STRONG HCL RXN. 45% SH: MED GY-BRN GY, RR OFF WH-TAN, MOD FRM, PLTY-SB BLKY, SLTY, MINOR CHK, WK CALC, FY LAM. 1% DISS VF PYR. TR BENT, NO FLOR, NO CUT.	40% CHK: OFF WH-LT GY, PLTY-SB BLKY, MOD FRM-SL HRD, WI VF-F GR SLT TO ARG MTX. VF LAM. V CALC. 35% MARL: DK GY, PLTY-SB PLTY, FRM-SL HRD. 1% VF DISSM PYR. MOD CALC. 25% SLTST: LT-MED GY, FRM-SL HRD, BRIT, SB PLTY-SB BLKY, P-MOD SRTD, MOD-ARG, V WK CALC, TR-0.5% VF DISSM PYR. TR BENT, NO FLOR, NO CUT.
MD: 7.18° Inclination: 38.8° Azimuth: 253.0° TVD: 7,100.1'	MD: 7.21° Inclination: 43.9° Azimuth: 254.7° TVD: 7,123.4'	MD: 7.27° Inclination: 54.5° Azimuth: 258.3° TVD: 7,164.4'	MD: 7.31° Inclination: 58.7° Azimuth: 261.2° TVD: 7,181.4'	MD: 7.37° Inclination: 68.8° Azimuth: 266.8° TVD: 7,209.5'



6000	55% CHK: OFF WH-LT GY, PLTY-SB BLKY, MOD FRM-SL HRD, WI VF-F GR SLT TO ARG MTX, VF LAM, V CALC. 20% MARL: DK GY, PLTY-SB PLTY, FRM-SL HRD, 1% VF DISSM PYR, MOD CALC. 25% SLTST: LT-MED GY, FRM-SL HRD, BRIT, SB PLTY-SB BLKY, P-MOD SRTD, MOD-ARG, V WK CALC, TR-0.5% VF DISSM PYR. TR BENT, NO FLOR, NO CUT.	70% CHK: WH-OFFWHT-LTGY, PLTY-SB BLKY, MOD FRM-SL HRD, WI VF-F GR SLT- ARG MTX, VF LAM, V CALC. 20% MRLST: DK GY, PLTY-SB PLTY, FRM-SL HRD, 1% VF DISSM PYR, MOD CALC. 10% SLTST: LT-MED GY, FRM-SL HRD, BRIT, SB PLTY-SB BLKY, P-MOD SRTD, MOD-ARG, V WK CALC, RR DISSM PYR. TR BENT	6000	80% CHK: WH-OFFWHT-LTGY, PLTY-SB BLKY, MOD FRM-SL HRD, WI VF-F GR SLT- ARG MTX, VF LAM, V CALC. 15% MRLST: DK GY, PLTY-SB PLTY, FRM-SL HRD, 1% VF DISSM PYR, MOD CALC. 5% SLTST: LT-MED GY, FRM-SL HRD, BRIT, SB PLTY-SB BLKY, P-MOD SRTD, MOD-ARG, V WK CALC, RR DISSM PYR. TR BENT	80% CHK: WH-OFFWHT-LTGY, PLTY-SB BLKY, MOD FRM-SL HRD, WI VF-F GR SLT- ARG MTX, VF LAM, V CALC. 10% MRLST: DK GY, PLTY-SB PLTY, FRM-SL HRD, 1% VF DISSM PYR, MOD CALC. 10% SLTST: LT-MED GY, FRM-SL HRD, BRIT, SB PLTY-SB BLKY, P-MOD SRTD, MOD-ARG, V WK CALC, RR DISSM PYR. TR BENT
TVD (ft)			TVD (ft)		
					
MD: 7.40' Inclination: 74.8° Azimuth: 268.1° TVD: 7.219, 1'	MD: 7.43' Inclination: 79.6° Azimuth: 268.4° TVD: 7.226, 2'	MD: 7.46' Inclination: 81.6° Azimuth: 268° TVD: 7.231, 2'	MD: 7.52' Inclination: 82.2° Azimuth: 268.6° TVD: 7.239, 1'		
8000			8000		