

Décollement Consulting Inc.



Scale: 5" / 100'
Measured Depth Log

Well Name North Platte K21-O24-34HC_Curve

Location SE/SW Section 27, T5N - R63W

State CO

County Weld

Country USA

Rig Number Xtreme 22

API Number 05-123-41885

Field Wattenberg

Region D.J. Basin

Drilling Completed 9/10/2015

Spud Date 9/5/2015

Surface Coordinates 1153 FNL x 2473 FWL (Lat: 40.36638, -104.42240)

Bottom Hole Coordinates 470 FSL x 2256 FWL (Lat: 40.35002, -104.42321)

Ground Elevation 4,541

K.B. Elevation 4,558

Logged Interval 6,250 To 6,936

Total Depth 6,936

Formation Codell

Type of Drilling Fluid Water Based Mud

Operator

Address Bonanza Creek Energy, Inc.
410 17th Street, Suite 1500
Denver, Colorado 80202

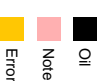
Geologist

Name Dan Kabala & Brian Spitzmiller

Company Décollement Consulting Inc.

Address 13300 Braun Rd.
Golden, CO. 80401

Zone Color Coding



Rock Types

Blank



CHALK

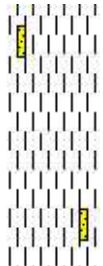
CEMENT

LIMESTONE

SANDSTONE



MPF



SHALE S



SHALE SF

CPF TT TT TT MARLSTONE --- -- -- SHALE



Accessories

Fossils

- ALGAE
- AMPHIPORA
- BELEMNITE
- BIOCLASTIC
- BRACHIOPOD
- BRYOZOA
- CEPHALOPOD
- CORAL
- CRINOID
- ECHINOID
- FISH
- FORAMINIFERA

F FOSSIL

GASTROPOD

OOLITE

OSTRACOD

PELECYPOD

PELLET

PISOLITE

PLANT REMAINS

PLANT SPORES

SCAPHOPOD

STROMATOPOROID

Minerals

ANHYDRITIC

ARGILLACEOUS

ARGILLITE GRAIN

BENTONITE

BITUMENOUS SUBSTANCE

BRECCIA FRAGMENTS

CALCAREOUS

CARBONACEOUS FLAKES

CHTDK

CHTLT

COAL - THIN BEDS

DOLOMITIC

FELDSPAR

FERRUGINOUS PELLET

FERRUGINOUS

GLAUCONITE

GYPSIFEROUS

HEAVY MINERAL

KAOLIN

MARLSTONE

MINERAL CRYSTALS

NODULES

PHOSPHATE PELLETS

PHYRITE

SALT CAST

SANDY

SILICEOUS

SILTY

TUFFACEOUS

Stringer

- ANHYDRITE STRINGER
- BENTONITE STRINGER
- COAL STRINGER
- DOLomite STRINGER
- GYPSUM STRINGER
- LIMESTONE STRINGER
- MARLSTONE (CALC) STRG
- MARLSTONE (DOU) STRG
- SANDSTONE STRINGER
- SHALE STRINGER
- SILTSTONE STRINGER

Slide/Rotate																					
Depth		6,210	6,220	6,230	6,240	6,250	6,260	6,270	6,280	6,290	6,300	6,310	6,320	6,330	6,340	6,350	6,360	6,370	6,380		
Total Gas & Chromatography	GAS																				
	C1																				
	C2																				
	C3																				
	iC4																				
Curves	CO2																				
	nC4																				
	ROP																				
	Gamma																				
	Depth Labels																				
Interpretive Lithology																					
Well Bore TVD																					
Oil Show																					

6,610 6,620 6,630 6,640 6,650 6,660 6,670 6,680 6,690 6,700 6,710 6,720 6,730 6,740 6,750 6,760 6,770 6,780 6,790 6,800 6,810 6,820

CO2: 0.0%

Trip due to poor build rates @ 6,636' MD @ 21:30 hrs on 9/9/2015. Resume drilling at 06:22 hrs on 9/10/2015.

Bit #: 3
Size: 8.75
Mfr.: VAREL
Type: HE04JMRSV
Depth In: 6,636'
Depth Out: 6,936'
Hours: 4.1 hrs
Avg FV/HR: 73 ' /hr
Jets: 3X24
S/N: 1464536

10000
1000000
100

C1: 70.3%
C2: 16.0%
C3: 9.3%
iC4: 0.8%
nC4: 3.3%

10000
1000000
100

GAS (units)
C1-iC4 (PPM)
CO2 (percent)

GAS (units)
C1-iC4 (PPM)
CO2 (percent)

MW: 9.2 VIS 39

MW: 9.2 VIS 38

WOB 42
RPM 0
SPM 2251
SPM 90/90

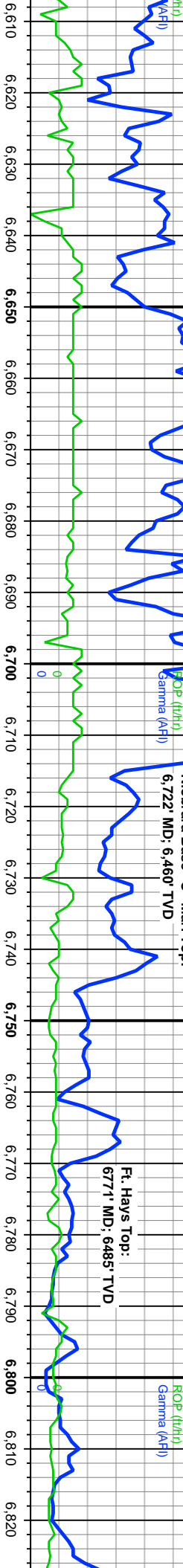
WOB 45
RPM 0
SPM 2126
SPM 90/90

Niobrara "C" Chalk Top:
6,618' MD: 6,397' TVD

Niobrara "C" Marl Top:
6,651' MD: 6,420' TVD

Niobrara Base "C" Marl Top:
6,722' MD: 6,460' TVD

Ft. Hays Top:
6771' MD: 6,485' TVD



MD: 6,652'
TVD: 6,421.03'
Inclination: 47.7°
Azimuth: 181.59°
VS: 1,352.69'

5700

MD: 6,746'
TVD: 6,474.59'
Inclination: 62.66°
Azimuth: 175.1°
VS: 1,429.35'

5700

MD: 6,792'
TVD: 6,492.25'
Inclination: 72.15°
MD: 6,790' 4.2°
TVD: 6,491.63'

MD: 6,820'
TVD: 6,499.47'

Sample contained ~100% lt gy- dk blk SH that fell down from uphole section during the trip - not accurate representation of lithology

100% MARL: drk gy/blk, frm-sft, sb pily-sb blkly, rthy
lst, grtty, mottd carb mat.
rr CHK: lt-med gy, occ brn, mottd wh, sft - mod
frm, occ brt, sb pily-sb blkly, rthy lstr, v calc, sl
brn/blk sh.

60% CHK: lt-med gy, occ lt brn, occ crm, mottd
wh, sft - mod frm, occ brt, sb pily-sb blkly, rthy lstr,
v calc.
40% MARL: drk gy/blk, frm-sft, sb pily-sb blkly, rthy
lstr, grtty, mottd carb mat.

90% LS: wh-crm, frm - v hd, mctic lex, pily - sb blkly
5% CHK: lt-med gy, occ lt brn, occ crm, mottd
wh, sft - mod frm, occ brt, sb pily-sb blkly, rthy lstr,
v calc.
5% MARL: drk gy/blk, frm-sft, sb pily-sb blkly, rthy
lstr, grtty, mottd carb mat.

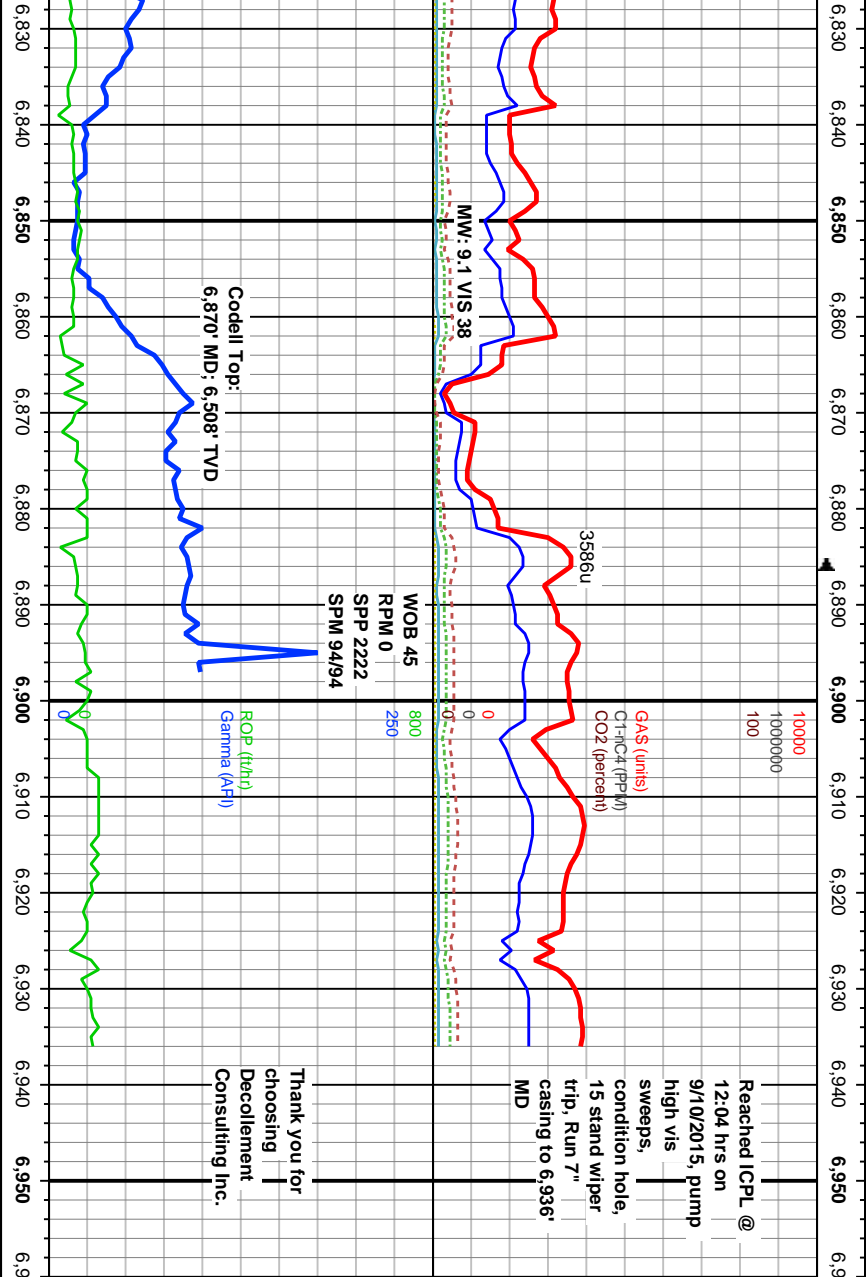
100% LS: wh-crm, frm - v hd,
lstr, grtty, mottd carb mat.

Mod fst sl br blu-whi mlky strmg cut, frt blu-whi
resid ring.

Slw mlky mod bri blu-whi cut, sl thn blu-whi resid
ring.

V slw v dul blu cldy cut, v thn sl blu ring

tr SH
NSOF



Reached ICPL @
12:04 hrs on
9/10/2015. pump
high vis
sweeps,
condition hole,
15 stand wiper
trip, Run 7"
casing to 6,936'
MD

Thank you for
choosing
Decollement
Consulting Inc.

MD: 6.841'
TVD: 6.504.22'
Inclination: 79.55°
Azimuth: 174.76°
VS: 1.518.4'

MD: 6.891'
TVD: 6.510.91'
Inclination: 85.06°
Azimuth: 175.85°
VS: 1.567.55'

Projection to Bit t
MD: 6.936'
TVD: 6.514.78'
Inclination: 85.06°
Azimuth: 175.85°
VS: 1.612.08'

mcrtc tex, ply - sb

95% SS: med - med dk gry, occ sl brn, gy-whi ip,
fri, dom v fn - fn w/ occ med grns, subang - rnd,
mod sphrcy, fr - w strd, gm suprd, no mtrix, ~10%
vis por, pnt - lng cntct.
5% LS: wh-crm, frm - v nd, mcrtc tex, ply - sb blkly

95% SS: med - med dk gry, occ sl brn, gy-whi ip,
fri, dom v fn - fn w/ occ med grns, subang - rnd,
mod sphrcy, fr - w strd, gm suprd, no mtrix, ~10%
vis por, pnt - lng cntct.
5% LS: wh-crm, frm - v nd, mcrtc tex, ply - sb blkly

Mod fst sl brt blu cldy cut, v thn sl blu ring

Mod fst sl brt blu cldy cut, v thn sl blu ring

TVD (ft)