

# Décollement Consulting Inc.



Scale: 5" / 100'  
Measured Depth Log

**Well Name** North Platte 31-34-34HNC\_Curve

**Location** SE/SW Section 27, T5N - R63W

**State** CO

**County** Weld

**Country** USA

**Rig Number** Xtreme 22

**API Number** 05-123-41765

**Field** Wattenberg

**Region** D.J. Basin

**Drilling Completed** 8/28/2015

**Spud Date** 8/25/2015

**Surface Coordinates** 1205 FSL x 2502 FWL (Lat: 40.36652, -104.42229)

**Bottom Hole Coordinates** 470 FSL x 2018 FEL (Lat: 40.35003, -104.41991)

**Ground Elevation** 4,541

**K.B. Elevation** 4,558

**Logged Interval** 6250 To 6950

**Total Depth** 6984

**Formation** "C" Chalk

**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** Decollement Consulting Inc.

**Address** 13300 Braun Rd.  
Golden, CO. 80401

## Zone Color Coding


Oil  
Note  
Error

Condensate  
Core  
Water  
Gas  
Pressure  
Seal

## Rock Types

Blank


 CEMENT

 MPF


 SHALE S

CHALK

 LIMESTONE

 SANDSTONE













 SHALE SF

CPF  MARLSTONE


 SHALE

## Accessories


### Fossils

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

F FOSSIL


 GASTROPOD

 OOLITE


 OSTRACOD


 PELECYPOD


 PELLET

 PISOLUTE

 PLANT REMAINS

 PLANT SPORES

 SCAPHOPOD

 STROMATOPOROID

### Minerals


 ANHYDRITIC


- ARGILLACEOUS


/ ARGILLITE GRAIN

B 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


 PYRITE

 SALT CAST












 SANDY

 SILICEOUS

 SILTY

 TUFFACEOUS

### Stringer

-  ANHYDRITE STRINGER
-  BENTONITE STRINGER
-  COAL STRINGER
-  DOLOMITE STRINGER
-  GYPSUM STRINGER
-  LIMESTONE STRINGER
-  MARLSTONE (CALC) STRG
-  MARLSTONE (DOL) STRG
-  SANDSTONE STRINGER
-  SHALE STRINGER
-  SILTSTONE STRINGER

Other Symbols

ORGANIC      FORMATION TOP      L LITHOGRAPHIC

Show      Rounding

P PINPOINT      GAS SHOW      M<sub>X</sub> MICROXLN

V VUGGY      MINDEPTH MN DEPTH      A ANGULAR      M<sub>S</sub> MUDSTONE

NORMAL FAULT      R ROUNDED      P<sub>S</sub> PACKSTONE

**Engineering**      OIL SHOW      S SUBANG      W<sub>S</sub> WACKESTONE

OVERTURNED STRATA      r SUBRAND

Sorting

CASING      REVERSE FAULT

Textures

CONNECTION (LEFT)      SIDEWALL CORE (LEFT)      M MODERATE

CONNECTION (RIGHT)      SIDEWALL CORE (RIGHT)      B<sub>S</sub> BOUNDSTONE      P POOR

CONNECTION GAS      SLIDE      C CHALKY      W WELL

CORE - LOST      SURVEY      C<sub>X</sub> CRYPTOXLN

CORE - RECOVERED      TRIP GAS      E EARTHY

DST INTERVAL      WIRELINE TESTED - LEFT      F<sub>X</sub> FINELYXLN

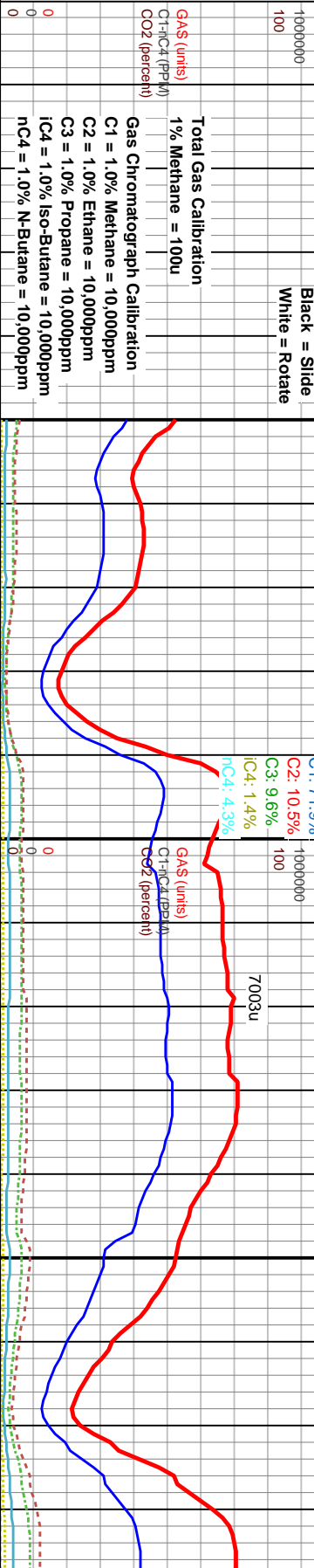
FAULT      WIRELINE TESTED - RT      G<sub>S</sub> GRAINSTONE

Depth

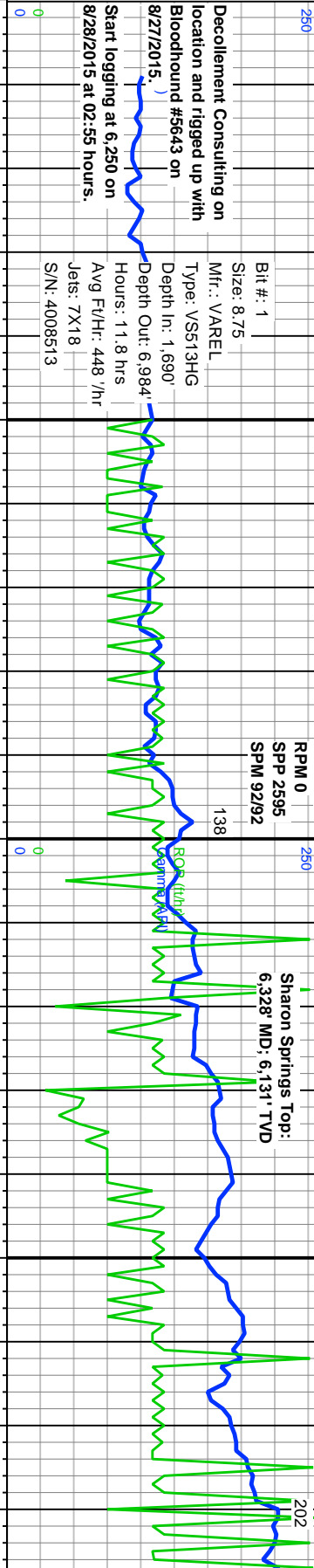


Total Gas & Chromatography

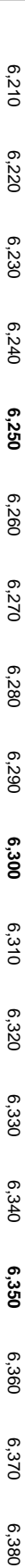
Legend for Total Gas & Chromatography:  
GAS: Red line  
C1: Blue line  
C2: Dashed red line  
C3: Dotted green line  
iC4: Dotted yellow line  
nC4: Solid light blue line  
CO2: Dashed dark red line



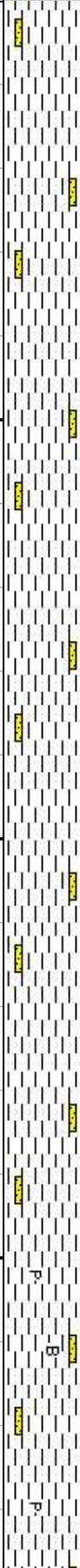
Curves  
ROP: Green line  
Gamma: Blue line



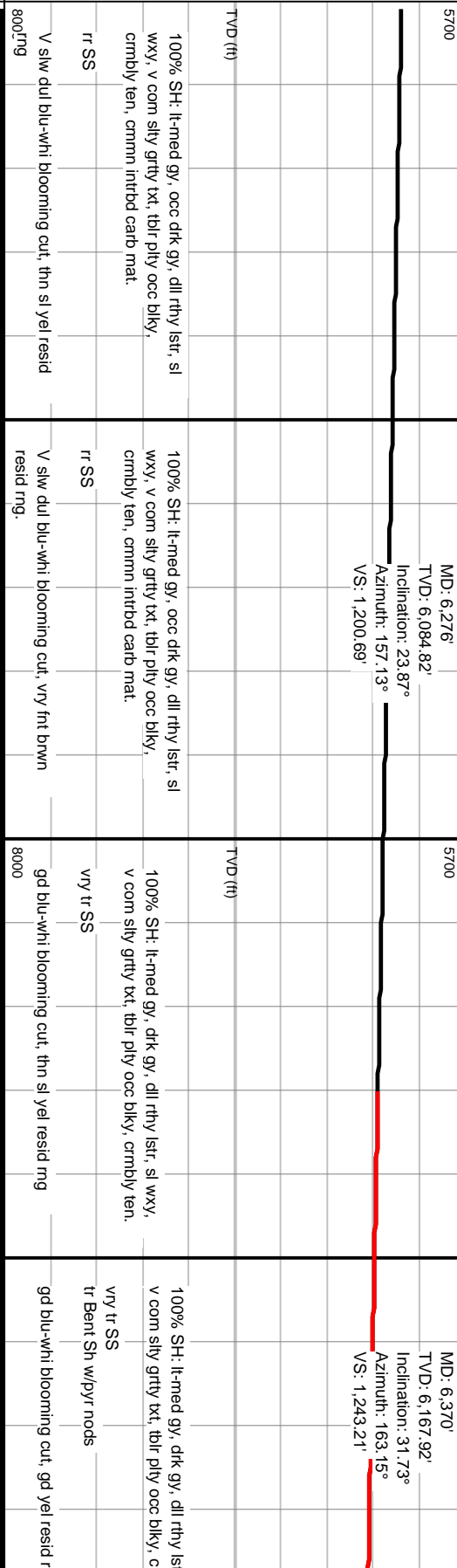
Depth Labels



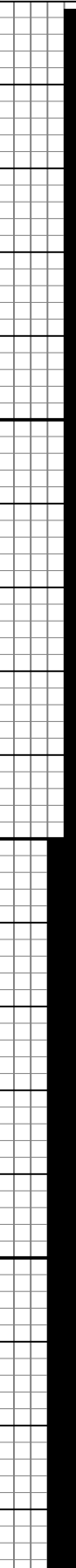
Interpretive Lithology

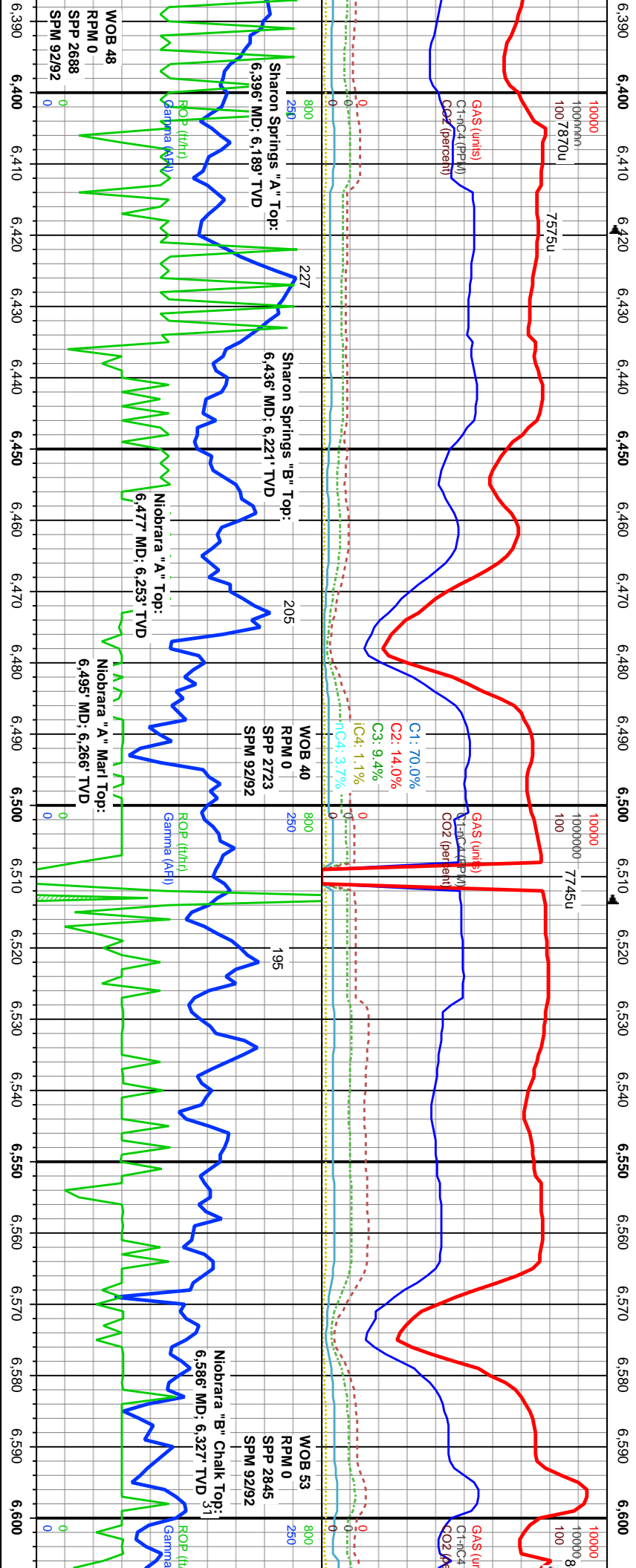


Well Bore  
TVD



Oil Show

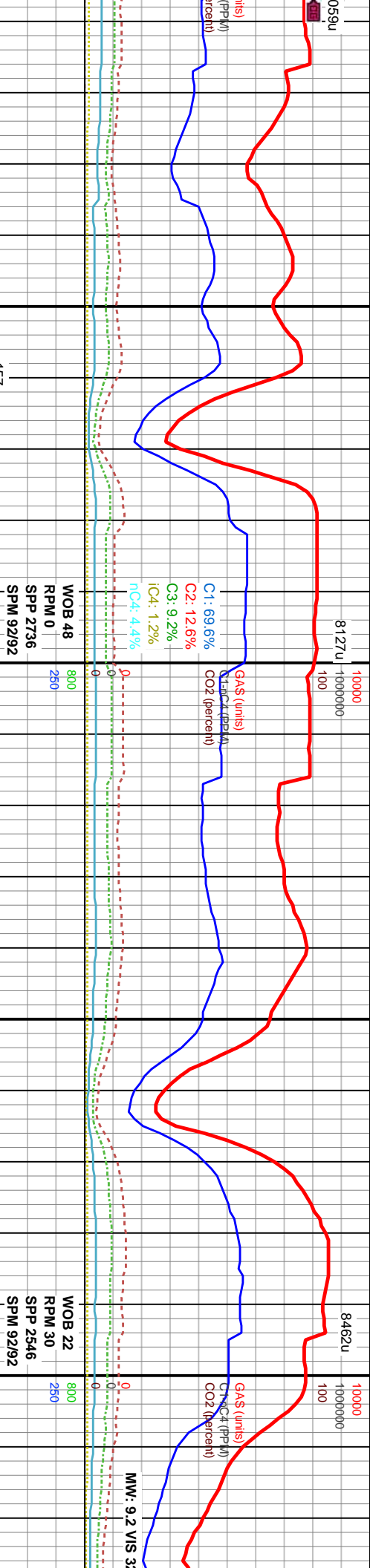




5700	MD: 6,464' TVD: 6,243.6' Inclination: 40.97° Azimuth: 172.23° VS: 1,298.43'	100% SH: med gy, dk gy occ lt gry, dll rthy lstr, sprkig ip, sl wxy, v com silty grty txt, tblr pily occ blk, blk, crmbly ten.	vry tr SS abn bent string rxn w hcl
5700	MD: 6,559' TVD: 6,311.42' Inclination: 47.86° Azimuth: 170.67° VS: 1,364.8'	70% CARB SH: med gy, dk gy occ lt gry, dll rthy lstr sprkig ip, sl wxy, v com silty grty txt, tblr pily occ blk, crmbly ten, string rxn w hcl.	vry, gd blu-whi blooming cut, gd yel resid rng
5700	MD: 6,559' TVD: 6,311.42' Inclination: 47.86° Azimuth: 170.67° VS: 1,364.8'	80% MARL: dk gy/blk, frm-sft, sb pily-sb blk, rthy lstr, grty, mottld carb mat.	vry, gd blu-whi blooming cut, mod thick blu resid ring

ing

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



Niobrara "B" Marl Top:  
6,635' MD; 6,356' TVD

Niobrara "C" Chalk Top:  
6,730' MD; 6,398' TVD

MD: 6,653'  
TVD: 6,366.81'  
Inclination: 59.81°  
Azimuth: 175.56°  
VS: 1,440.5'

MD: 6,747'  
TVD: 6,404.9'  
Inclination: 72.31°  
Azimuth: 180.72°  
VS: 1,525.99'

HK: lt-med gy, occ brn, mottld wh, sft - mod  
cc brit, sb ply-sb blkly, rthy istr, v calc, sl  
sn.  
MARL: dk gy/blk, frm-sft, sb ply-sb blkly, rthy  
istr, mottld carb mat.  
shell frag.  
cmn Bent Sh w/ pyr nodes.  
blu-whi blooming cut, thick blu-whi resid

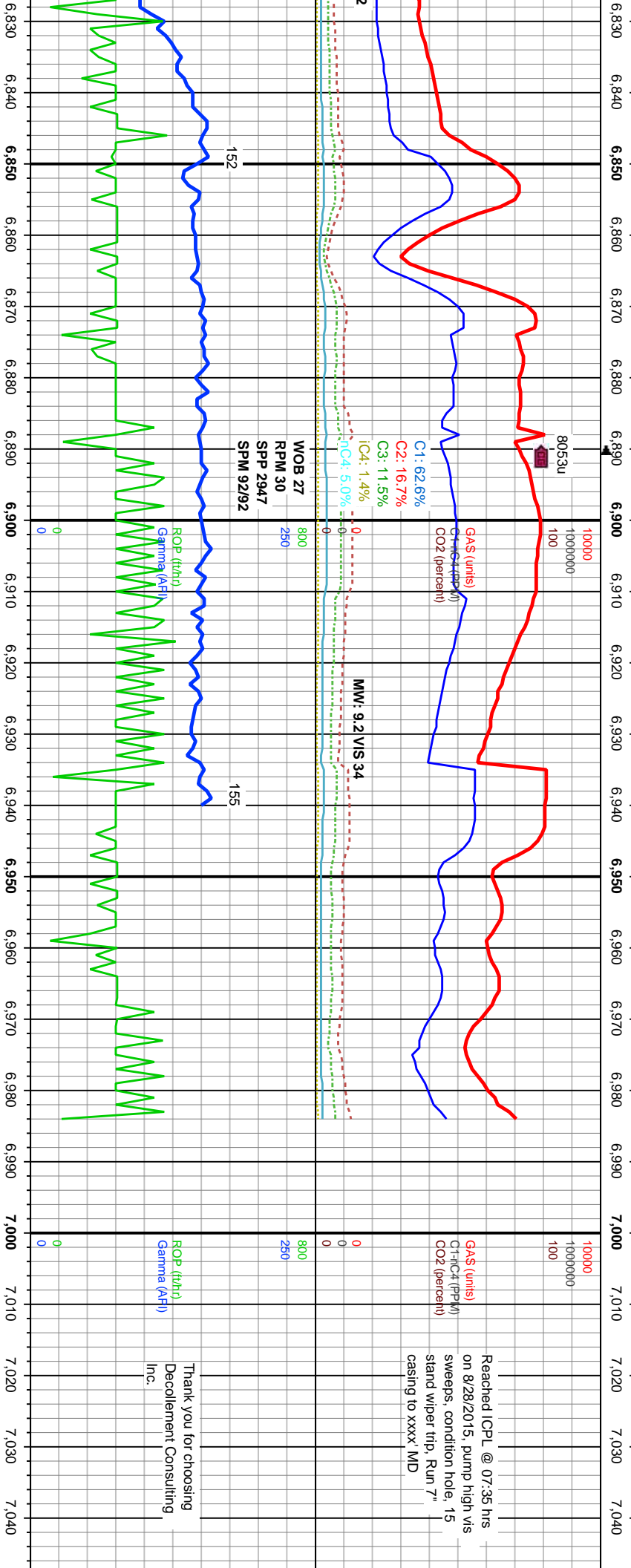
90% MARL: dk gy/blk, frm-sft, sb ply-sb blkly, rthy  
istr, grry, mottld carb mat.  
10% CHK: lt-med gy, occ brn, mottld wh, sft - mod  
frm, occ brit, sb ply-sb blkly, rthy istr, v calc, sl  
brn/blk sn.  
abn Bent Sh w/ pyr nodes.  
mod-st blu-whi blooming cut, mod thick blu-whi  
resid ring.

80% MARL: dk gy/blk, frm-sft, sb ply-sb blkly, rthy  
istr, grry, mottld carb mat.  
20% CHK: lt-med gy, occ brn, mottld wh, sft - mod  
frm, occ brit, sb ply-sb blkly, rthy istr, v calc, sl  
brn/blk sn.  
abn Bent SH w/ pyr nodes.  
Insnt blu-whi blooming cut, mod thick blu resid  
ring.

80% CHK: lt-med gy, occ brn, mottld wh, (micritic  
ip), sft - mod frm, occ brit, sb ply-sb blkly, rthy istr,  
v calc, sl brn/blk sn.  
20% MARL: dk gy/blk, frm-sft, sb ply-sb blkly, rthy  
istr, grry, mottld carb mat.  
tr Bent, cmn Bent Sh w/ pyr nodes.  
Insnt blu-whi blooming cut, thick blu-whi resid  
ring.

50% CHK: lt-med gy, occ brn  
ip), sft - mod frm, occ brit, sb  
v calc, sl brn/blk sn.  
50% MARL: dk gy/blk, frm-s  
istr, grry, mottld carb mat.  
tr Bent.  
Insnt blu-whi blooming cut, t  
grry.





Reached ICPL @ 07:35 hrs  
on 8/28/2015, pump high vis  
sweeps, condition hole, 15  
stand wiper trip, Run 7"  
casing to xxxx' MD

Thank you for choosing  
Decollement Consulting  
Inc.

MD: 6,841' TVD: 6,423.95' Inclination: 84.27° Azimuth: 184.04° VS: 1,616.9'	MD: 6,886' TVD: 6,426.4' Inclination: 89.66° Azimuth: 182.99° VS: 1,661.04'	MD: 6,935' TVD: 6,426.31' Inclination: 90.55° Azimuth: 182.3° VS: 1,709.5'	MD: 6,984' TVD: 6,426.34' Inclination: 89.38° Azimuth: 179.07° VS: 1,758.18'	MD: 6,984' TVD: 6,426.34' Inclination: 89.38° Azimuth: 179.07° VS: 1,758.18'
80% MARL: dk gy/blk, frm-sft, sb pty-sb blk, rthy lst, grty, motld carb mat. 10% SH: med gy - dk gry brwn, occ blk, dll rthy lst, sprkng ip, sl wxy, rr sl grty txt, tbr pty rr blk, y, crmbly ten, rr intbdd carb mat. 10% CHK: lt-med gy, occ brn, motld wh, sft - mod frm, occ brt, sb pty-sb blk, rthy lst, v calc, sl brn/blk stn. tr Bent. tr calc xls. fst gd blu-whi blooming cut, mod thick yllw-brwn resid ring.	95% MARL: dk gy/blk, frm-sft, sb pty-sb blk, rthy lst, grty, motld carb mat. 5% SH: med gy - dk gry brwn, occ blk, dll rthy lst, sprkng ip, sl wxy, rr sl grty txt, tbr pty rr blk, y, crmbly ten, rr intbdd carb mat. tr CHK: lt-med gy, occ brn, motld wh, sft - mod frm, occ brt, sb pty-sb blk, rthy lst, v calc, sl brn/blk stn. tr calc xls. Instnt blu-whi blooming cut, mod thick yllw-brwn resid ring.	95% MARL: dk gy/blk, frm-sft, sb pty-sb blk, rthy lst, grty, motld carb mat. 5% SH: med gy - dk gry brwn, occ blk, dll rthy lst, sprkng ip, sl wxy, rr sl grty txt, tbr pty rr blk, y, crmbly ten, rr intbdd carb mat. tr CHK: lt-med gy, occ brn, motld wh, sft - mod frm, occ brt, sb pty-sb blk, rthy lst, v calc, sl brn/blk stn. tr calc xls. Instnt blu-whi blooming cut, mod thick yllw-brwn resid ring.	95% MARL: dk gy/blk, frm-sft, sb pty-sb blk, rthy lst, grty, motld carb mat. 5% SH: med gy - dk gry brwn, occ blk, dll rthy lst, sprkng ip, sl wxy, rr sl grty txt, tbr pty rr blk, y, crmbly ten, rr intbdd carb mat. tr CHK: lt-med gy, occ brn, motld wh, sft - mod frm, occ brt, sb pty-sb blk, rthy lst, v calc, sl brn/blk stn. tr calc xls. Instnt blu-whi blooming cut, mod thick yllw-brwn resid ring.	95% MARL: dk gy/blk, frm-sft, sb pty-sb blk, rthy lst, grty, motld carb mat. 5% SH: med gy - dk gry brwn, occ blk, dll rthy lst, sprkng ip, sl wxy, rr sl grty txt, tbr pty rr blk, y, crmbly ten, rr intbdd carb mat. tr CHK: lt-med gy, occ brn, motld wh, sft - mod frm, occ brt, sb pty-sb blk, rthy lst, v calc, sl brn/blk stn. tr calc xls. Instnt blu-whi blooming cut, mod thick yllw-brwn resid ring.

Projection to Bit

MD: 6,984' TVD: 6,426.34' Inclination: 89.38° Azimuth: 179.07° VS: 1,758.18'	MD: 6,984' TVD: 6,426.34' Inclination: 89.38° Azimuth: 179.07° VS: 1,758.18'
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