GOOLSBY BROTHERS
and associates, inc.
575 Union Blvd, Suite 208
Lakewood, CO 80228
303-945-2860 Office
Geological Wellsite
Supervision
PETCOM
www.goolsbybrothers.com

Scale 1:240 (5"=100') Imperial
Measured Depth Log

Well Name: Farley 30N-23HZ
Location: Section 23, T3N, R66W, Weld County, CO.
License Number: API: 05-123-36306 **Region:** Wattenberg
Spud Date: 11 July 2013 **Drilling Completed:** 19 July 2013
Surface Coordinates: 536' FSL X 554' FWL SWSW Sec. 23, T3N, R66W
LAT: 40.204931 LONG: -104.751799
Bottom Hole 484' FNL X 65' FWL (Proj) NWNW Sec. 23, T3N, R66W
Coordinates: Lat: 40.216452 LONG: -104.753537
Ground Elevation (ft): 4939' **K.B. Elevation (ft):** 4955'
Logged Interval (ft): 6700' **To:** 11722' **Total Depth (ft):** 11722'
Formation: Niobrara B Chalk
Type of Drilling Fluid: Polymer-Gel

Printed by HORIZONTAL.LOG from WellSight Systems 1-800-447-1534 www.WellSight.com

OPERATOR

Company: Kerr-McGee Oil & Gas Onshore LP
Address: Granite Tower - 1099 18th St, Ste 1800
Denver, CO 80202
CO Geologist, Tom Birmingham

GEOLOGIST

Name: Tekabe Gedamu & John Adams
Company: Goolsby Brothers & Assoc. (GBA), Inc. (www.goolsbybrothers.com)
Address: 575 Union Blvd.
Suite 208,
Lakewood CO. 80228

E-logs

MWD GR 6668' - 11680'
RES 7550 - 11644'

Casing

9 5/8" Surface Casing set @ 967'
7" Intermediate Casing set @ 7553' MD, set on 15 July, 2013
run 4 1/2" Production Liner run on 20 July, 2013.

Comments

1) Drilling Contractor: Xtreme Drilling, Rig # 23
2) Directional Drilling: Weatherford Drilling Services
MWD: Corey Jacobs & Denny Palmer
3) Gas Equipment: Mudlogging Systems Inc.
by Terra Services
Redbox # ML-392 & Ratcliff Agitator

ROCK TYPES

- Anhy
- Bent
- Brec
- Cht
- Clyst
- Coal
- Oil sat.
- Congl
- Dol
- Gyp
- Igne
- Lmst
- Meta
- Mrlst
- Salt
- Shale
- Shcol
- Shgy
- Ss
- Sltst
- Ss
- Chalk
- Carb sh
- Slty sh

ACCESSORIES

MINERAL

- Anhy
- Arggrn
- Arg
- Bent
- Bit
- Brecfrag
- Calc
- Carb
- Chtdk
- Chtlt
- Dol
- Feldspar
- Ferrpel
- Ferr
- Glau
- Gyp
- Hvymin
- Kaol
- Marl
- Minxl
- Nodule
- Phos
- Pyr
- Salt
- Sandy
- Silt
- Sil
- Sulphur
- Tuff

FOSSIL

- Algae
- Amph
- Belm
- Bioclst
- Brach
- Bryozoa
- Cephal
- Coral
- Crin
- Echin
- Fish
- Foram
- Fossil
- Gastro
- Oolite
- Ostra
- Pelec
- Pellet
- Pisolite
- Plant
- Strom

STRINGER

- Chlkstg
- Anhy
- Arg
- Bent
- Coal
- Dol
- Gyp
- Ls
- Mrst
- Sltstrg
- Ssstrg

TEXTURE

- Boundst
- Chalky
- Cryxln
- Earthy
- Finexln
- Grainst
- Lithogr
- Microxln
- Mudst
- Packst
- Wackest

OTHER SYMBOLS

OIL SHOWS

●	Even
◑	Spotted
○	Ques
D	Dead
◔	Vspotty
◕	near even

POROSITY TYPE

E	Earthy
▣	Fenest
F	Fracture
☒	Inter
∠	Moldic
o	Organic
P	Pinpoint
V	Vuggy

ROUNDING

R	Rounded
r	Subrnd
a	Subang
A	Angular

SORTING

W	Well
M	Moderate
P	Poor

TOOH for Mud motor 12:00 on 13 July 2013

Pump # 2 fail at 05:00 14 July 2013

Bit #1 8.75" Security PDC FX64D, 6X19 JETS; MWD GR/Survey BHA w/ Directional Mud Motor; In @ 981'.

KOP @ 6668' MD

Bit - GR: 44'
Bit - Svy: 58'

GBA two man crew start Log @ 6700' on 07/13/13 using Striplog and ML-392 TG detector.

MD 6695 TVD 6611.4
INC 1.19 AZ 2.95
N -491.21 E -474.33
VS -490.63 DL 1.8

Drilling resumed on 14 Jul; 02:21 hr

Bit #2 8.75" Security PDC MMD55M, 5X20 JETS; MWD GR/Survey BHA w/ Directional Mud Motor; In @ 6734' MD.

SH: (100%), gy-m drk gry, rr blk, v rthy, v slty, occ smth & wxy, rr flk, frm - mhd, plty - sb blky, SLTST intbd, n calc, tr pyr, tr bent, SS stngr.

SH: (100%), gy-m drk gry, rr blk, v rthy, v slty, rr smth & wxy, rr flk, frm - mhd, plty - sb blky, SLTST intbd, n calc, tr pyr, tr bent, SS stngr.

MD 6780 TVD 6696.13
INC 7.23 AZ 352.85
N -485.02 E -474.94
VS -484.44 DL 7.16

SH: (100%), gy-m drk gry, rr blk, v rthy, v slty, rr smth & wxy, rr flk, frm - mhd, plty - sb blky, SLTST intbd, n calc, tr pyr, tr bent, SS stngr.

SH: (100%), gy-m drk gry, rr blk, v rthy, v slty, rr smth & wxy, rr flk, frm - mhd, plty - sb blky, SLTST intbd, n calc, tr pyr, tr bent, SS stngr.

MD 6866 TVD 6780.31
INC 15.87 AZ 1.67
N -467.86 E -475.26
VS -467.28 DL 10.22

SH: (100%), gy-m drk gry, rr blk, v rthy, v slty, rr smth & wxy, rr flk, frm - mhd, plty - sb blky, SLTST intbd, n calc, tr pyr, tr bent, SS stngr.

SH: (100%), gy-m drk gry, rr blk, v rthy, v slty, rr smth & wxy, rr flk, frm - mhd, plty - sb blky, SLTST intbd, n calc, tr pyr, tr bent, SS stngr.

MD 6951 TVD 6860.26
INC 23.62 AZ 4.21
N -439.22 E -473.67
VS -438.64 DL 9.17

SHORT TRIP
5 STANDS.

SH: (100%), gy-m drk gry, rr blk, v rthy, v slty, rr smth & wxy, rr flk, frm - mhd, plty - sb blky, SLTST intbd, n calc, tr pyr, tr bent, SS stngr.

MD 7037 TVD 6936.15
INC 32.3 AZ 359.56
N -398.98 E -472.58
VS -398.4 DL 10.4

SH: (100%), gy-m drk gry, rr blk, v rthy, v slty, rr smth & wxy, rr flk, frm - mhd, plty - sb blky, SLTST intbd, n calc, tr pyr, tr bent, SS stngr.

SH: (100%), gy-m drk gry, rr blk, v rthy, v slty, rr smth & wxy, rr flk, frm - mhd, plty - sb blky, SLTST intbd, n calc, tr pyr, tr bent, SS stngr.

MD 7122 TVD 7003.67
INC 42.34 AZ 1.86
N -347.52 E -471.81
VS -346.95 DL 11.83

Sharon Springs top @ 7164' MD, 7033' TVD

SH: (100%), gy-m drk gry, rr blk, v rthy, v slty, rr smth & wxy, rr flk, frm - mhd, plty - sb blky, SLTST intbd, n calc, tr pyr, tr bent.

SH: (100%), gy-m drk gry, rr blk, v rthy, v slty, rr smth & wxy, rr flk, frm - mhd, plty - sb blky, SLTST intbd, n calc, tr pyr, tr bent.

MD 7207 TVD 7060.67
INC 53.27 AZ 1.4
N -284.67 E -470.04
VS -284.09 DL 12.87

SH: (100%), gy-m drk gry, rr blk, v rthy, v slty, rr smth & wxy, rr flk, frm - mhd, plty - sb blky, SLTST intbd, n calc, tr pyr, tr bent.

Niobrara 'A' top @ 7277' MD, 7098' TVD.

MRLST: (80%), dkgyshbn-m drk grysh bn, occ blk, rthy, occ smth, crb thru, sbblky-sbplty, sft- frm-m hd, v calc, SH: (20%) gy-dk gyk, sb plty-plty, carb, v calc, v slty, cly mtrx, mics-rthy, sl mrly,CHLK intbd gy-dk gy wi blk lam & frag, sft-frm, mot, sl carb, v calc

MD 7293 TVD 7105.42
INC 63.84 AZ 357.77
N -211.39 E -470.7
VS -210.81 DL 12.63

MRLST: (80%), dkgyshbn-m drk grysh bn, occ blk, rthy, occ smth, crb thru, sbblky-sbplty, sft- frm-m hd, v calc, SH: (20%) gy-dk gyk, sb plty-plty, carb, v calc, v slty, cly mtrx, mics-rthy, sl mrly,CHLK intbd gy-dk gy wi blk lam & frag, sft-frm, mot, sl carb, v calc

MRLST: (80%), dkgyshbn-m drk grysh bn, occ blk, rthy, occ smth, crb thru, sbblky-sbplty, sft- frm-m hd, v calc, SH: (20%) gy-dk gyk, sb plty-plty, carb, v calc, v slty, cly mtrx, mics-rthy, sl mrly,CHLK intbd gy-dk gy wi blk lam & frag, sft-frm, mot, sl carb, v calc

MD 7378 TVD 7136.55
INC 73.05 AZ 354.3
N -132.61 E -475.72
VS -132.03 DL 11.37

MRLST: (80%), dkgyshbn-m drk grysh bn, occ blk, rthy, occ smth, crb thru, sbblky-sbplty, sft- frm-m hd, v calc, SH: (20%) gy-dk gyk, sb plty-plty, carb, v calc, v slty, cly mtrx, mics-rthy, sl mrly,CHLK intbd gy-dk gy wi blk lam & frag, sft-frm, mot, sl carb, v calc

MD 7463 TVD 7155.54
INC 79.74 AZ 354.4
N -50.44 E -483.05
VS -49.85 DL 7.87

MRLST: (80%), dkgyshbn-m drk grysh bn, occ blk, rthy, occ smth, crb thru, sbblky-sbplty, sft- frm-m hd, v calc, SH intbd, gybn-m drk grysh bn, mrly, occ blk, rthy, occ smth, crb thru, sbblky-sbplty, sft- frm-m hd, v calcCHLK: (20%) gy-dk gy wi blk lam & frag, sft-frm, mot, sl carb, v calc, m fst gd mlky cut, v lt res rng.

MD 7505 TVD 7162.05
INC 85.18 AZ 357.2
N -8.94 E -486.89
VS -8.34 DL 14.54

CHLK: (60%) gy-dk gy wi blk lam & frag, sft-frm, mot, sl carb, v calc,MRLST: (40%), dkgyshbn-m drk grysh bn, occ blk, rthy, slty, occ smth, crb thru, sbblky-sbplty, sft- frm-m hd, v calc, m fst gd mlky cut, v lt res rng.

IC shoe @ 7553' MD

Resumed drilling
16 July 2013 @
13:45

Bit #3 6.125" Varel PDC VS513D, 5X22 JETS; MWD GR/Res/Survey BHA w/ Directional Mud Motor; In @ 7565' MD.

CHLK: (50%) gy-dk gy wi blk lam & frag, sft-frm, mot, sl carb, v calc,MRLST: (50%), dkgyshbn-m drk grysh bn, occ blk, rthy, slty, occ smth, crb thru, sbblky-sbplty, sft- frm-m hd, v calc, tr bnt, m fst gd mlky cut, v lt res rng.

MD 7615 TVD 7165.49
INC 91.23 AZ 1.89
N 100.92 E -487.76
VS 101.52 DL 6.96

CHLK: (50%) gy-dk gy wi blk lam & frag, sft-frm, mot, sl carb, v calc,MRLST: (50%), dkgyshbn-m drk grysh bn, occ blk, rthy, slty, occ smth, crb thru, sbblky-sbplty, sft- frm-m hd, v calc, tr bnt, m fst gd mlky cut, v lt res rng.

MD 7700 TVD 7164.17
INC 90.56 AZ 1.8
N 185.87 E -485.02
VS 186.46 DL 0.8

MRLST: (60%), dkgyshbn-m drk grysh bn, occ blk, rthy, slty, occ smth, crb thru, sbblky-sbplty, sft- frm-m hd, v calc, CHLK: (40%) gy-dk gy wi blk lam & frag, sft-frm, mot, sl carb, v calc, m fst gd mlky cut, v lt res rng.

MRLST: (60%), dkgyshbn-m drk grysh bn, occ blk, rthy, slty, occ smth, crb thru, sbblky-sbplty, sft- frm-m hd, v calc, CHLK: (40%) gy-dk gy wi blk lam & frag, sft-frm, mot, sl carb, v calc, m fst gd mlky cut, v lt res rng.

MD 7871 TVD 7160.44
INC 91.84 AZ 359.95
N 356.8 E -482.41
VS 357.39 DL 1.35

TOOH for
MWD tool

Fault: ~30' upthrow

MRLST: (80%), dkgyshbn-m drk grysh bn, occ blk, rthy, occ smth, crb thru, sbblky-sbplty, sft- frm-m hd, v calc, SH intbd, gybn-m drk grysh bn, mrly, occ blk, rthy, occ smth, crb thru, sbblky-sbplty, sft- frm-m hd, v calcCHLK: (20%) gy-dk gy wi blk lam & frag, sft-frm, mot, sl carb, v calc, m fst gd mlky cut, v lt res rng.

MD 8020 TVD 7157.16
INC 90.56 AZ 3.45
N 505.67 E -477.99
VS 506.25 DL 2.52

MRLST: (80%), dkgyshbn-m drk grysh bn, occ blk, rthy, occ smth, crb thru, sbblky-sbplty, sft- frm-m hd, v calc, SH intbd, gybn-m drk grysh bn, mrly, occ blk, rthy, occ smth, crb thru, sbblky-sbplty, sft- frm-m hd, CHLK: (20%) gy-dk gy wi blk lam & frag, sft-frm, mot, sl carb, v calc, m fst gd mlky cut, v lt res rng.

MD 8105 TVD 7156.54
INC 90.31 AZ 3.58
N 590.51 E -472.78
VS 591.08 DL 0.33

MRLST: (90%), dkgyshbn-m drk grysh bn, occ blk, rthy, occ smth, crb thru, sbblky-sbplty, sft- frm-m hd, v calc, SH intbd, gybn-m drk grysh bn, mrly, occ blk, rthy, occ smth, crb thru, sbblky-sbplty, sft- frm-m hd, CHLK: (10%) gy-dk gy wi blk lam & frag, sft-frm, mot, sl carb, v calc.

MD 8190 TVD 7155.66
INC 90.88 AZ 3.48
N 675.34 E -467.55
VS 675.91 DL 0.68

Fault up throw ~35'.

MRLST: (90%), dkgyshbn-m drk grysh bn, occ blk, rthy, occ smth, crb thru, sbblky-sbplty, sft- frm-m hd, v calc, SH intbd, gybn-m drk grysh bn, mrly, occ blk, rthy, occ smth, crb thru, sbblky-sbplty, sft- frm-m hd, CHLK (10%) gy-dk gy wi blk lam & frag, sft-frm, mot, sl carb, v calc.

MD 8276 TVD 7154.95
INC 90.06 AZ 3.56
N 761.17 E -462.27
VS 761.74 DL 0.96

MD 8361 TVD 7155.18
INC 89.63 AZ 3.03
N 846.03 E -457.38
VS 846.59 DL 0.8

MRLST: (100%), dkgyshbn-m drk grysh bn, occ blk, rthy, occ smth, crb thru, sbblky-sbplty, sft- frm-m hd, v calc, SH intbd, gybn-m drk grysh bn, mrly, occ blk, rthy, occ smth, crb thru, sbblky-sbplty, sft- frm-m hd, CHLK intbd, gy-dk gy wi blk lam & frag, sft-frm, mot, sl carb, v calc, m slw weak mlky cut, v lt ylwsh bn res rng.

MD 8447 TVD 7156.16
INC 89.07 AZ 2.48
N 931.83 E -453.25
VS 932.48 DL 0.91

MRLST: (100%), dkgy - m drk grysh bn, occ blk, rthy, occ smth, crb thru, sbblky-sbplty, sft- frm-m hd, v calc, SH intbd, gybn-m drk gry - blk, mrly, rthy, occ smth, crb thru, sbblky-sbplty, sft- frm-m hd, CHLK intbd, gy-dk gy wi blk lam & frag, sft-frm, mot, sl carb, v calc, m slw weak mlky cut, v lt ylwsh bn res rng.

200' samples

MD 8532 TVD 7157.63
INC 88.95 AZ 0.55
N 1016.88 E -451
VS 1017.43 DL 2.27

MRLST: (90%), dkgy - m drk grysh bn - blk, v slty, v rthy, smth, crb thru, sbblky-sbplty, frm-m hd, v calc, SH intbd, gybn-m drk gry - blk, mrly, occ blk, occ rthy, occ smth, crb thru, sbblky-sbplty, sft- frm-m hd, m slw weak mlky cut, v lt ylwsh bn res rng.

MD 8618 TVD 7159.25
INC 88.89 AZ 359.93
N 1102.86 E -450.64
VS 1103.41 DL 0.72

MD 8703 TVD 7160.66
INC 89.21 AZ 359.07
N 1187.85 E -451.38
VS 1188.4 DL 1.08

MRLST: (100%), dkgy - m drk grysh bn - blk, m rthy, smth, crb thru, sbblky-sbplty, frm-m hd, v calc, SH intbd, gybn-m drk gry - blk, mrly, occ blk, occ rthy, occ smth, crb thru, sbblky-sbplty, sft- frm-m hd, m slw weak mlky cut, v lt ylwsh bn res rng.

MD 8789 TVD 7161.53
INC 89.63 AZ 358.64
N 1273.83 E -453.1
VS 1274.38 DL 0.7

MD 8874 TVD 7162.03
INC 89.69 AZ 358.57
N 1358.8 E -455.17
VS 1359.35 DL 0.11

MRLST: (90%), dkgy - m drk grysh bn - blk, m rthy, smth
sbblky-sbplty, sft- frm-m hd, m slw weak mlky cut, v lt y

MD 8959 TVD
INC 89.86
N 1443.78 E -
VS 1444.33 D

MUD WT 10; VIS 38

MUD WT 10; VIS 36

MUD WT 10; VIS 40

HI VIS SWEEP

MUD WT 10.2; VIS 41

MUD WT 10.2; VIS 41

MUD WT 10.2; VIS 42

MUD WT 10.2; VIS 39

MUD WT 10.4; VIS 41

MUD WT 10.1; VIS 41

MUD WT 10.2; VIS 36

MUD WT 10.2, VIS 39

MUD WT 10.2, VIS 40

MUD WT 10.2, VIS 40

MUD WT 10.2, VIS 40

MUD WT 10.2, VIS 40

7162.35
358.8
457.12
L 0.35

MD 9045 TVD 7162.57
INC 89.82 AZ 359.17
N 1529.76 E -458.64
VS 1530.32 DL 0.44

MD 9130 TVD 7162.75
INC 89.94 AZ 358.98
N 1614.75 E -460.02
VS 1615.31 DL 0.26

MD 9216 TVD 7162.73
INC 90.09 AZ 358.54
N 1700.73 E -461.88
VS 1701.29 DL 0.54

MD 9301 TVD 7162.47
INC 90.26 AZ 358.54
N 1785.7 E -464.04
VS 1786.27 DL 0.2

MD 9386 TVD 7162.14
INC 90.18 AZ 358.14
N 1870.67 E -466.31
VS 1871.24 DL 0.48

MD 9472 TVD 7161.64
INC 90.49 AZ 357.86
N 1956.62 E -469.42
VS 1957.19 DL 0.41

MD 9557 TVD 7161.05
INC 90.31 AZ 356.72
N 2041.58 E -471.86
VS 2042.15 DL 0.9

MD 9642 TVD 7161.14
INC 89.56 AZ 359.25
N 2126.56 E -473.37
VS 2127.14 DL 1.08

MD 9728 TVD 7161.66
INC 89.75 AZ 358.86
N 2212.55 E -474.79
VS 2213.13 DL 0.5

MD 9813 TVD 7162.21
INC 89.51 AZ 359.39
N 2297.54 E -476.09
VS 2298.12 DL 0.68

MD 9898 TVD 7163.49
INC 88.77 AZ 359.84
N 2382.52 E -476.81
VS 2383.11 DL 0.92

MD 9984 TVD 7164.87
INC 89.26 AZ 359.41
N 2468.51 E -477.52
VS 2469.09 DL 0.63

MD 10069 TVD 7165.38
INC 90.18 AZ 359.6
N 2553.5 E -478.25
VS 2554.09 DL 1.11

MD 10155 TVD 7165.44
INC 89.74 AZ 0.13
N 2639.5 E -478.46
VS 2640.09 DL 0.8

MD 10240 TVD 7165.45
INC 90.25 AZ 0.6
N 2724.5 E -477.77
VS 2725.08 DL 0.99

MD 10325 TVD 7164.28
INC 91.32 AZ 1.36
N 2809.47 E -476.16
VS 2810.05 DL 1.42

MD 10410 TVD 7162.39
INC 91.23 AZ 1.58
N 2894.43 E -473.98
VS 2895 DL 0.28

MD 10496 TVD 7161.7
INC 89.69 AZ 2.51
N 2980.36 E -470.92
VS 2980.94 DL 2.09

MD 10581 TVD 7162.89
INC 88.71 AZ 1.8
N 3065.29 E -467.72
VS 3065.86 DL 1.42

MD 10667 TVD 7165.39
INC 87.96 AZ 1.5
N 3151.22 E -465.24
VS 3151.79 DL 0.94

MD 10752 TVD 7168.41
INC 87.97 AZ 0.99
N 3236.15 E -463.4
VS 3236.71 DL 0.6

MD 10838 TVD 7172.15
INC 87.04 AZ 0.28
N 3322.06 E -462.45
VS 3322.62 DL 1.36

MD 10923 TVD 7176.18
INC 87.53 AZ 359.35
N 3406.96 E -462.72
VS 3407.53 DL 1.24

MD 11009 TVD 7179.27
INC 88.34 AZ 358.14
N 3492.86 E -464.6
VS 3493.45 DL 1.69

MD 11094 TVD 7181.69
INC 88.4 AZ 358.8
N 3577.82 E -466.87
VS 3578.39 DL 0.78

MD 11179 TVD 7185.03
INC 87.1 AZ 358.21
N 3662.72 E -469.09
VS 3663.29 DL 1.68

MD 11264 TVD 7189.47
INC 86.91 AZ 357.55
N 3747.55 E -472.23
VS 3748.12 DL 0.81

MD 11350 TVD 7193.73
INC 87.41 AZ 358.05
N 3833.38 E -475.52
VS 3833.96 DL 0.82

, crb thru, sbblky-sbplty, frm-m hd, v calc, SH: (10%), gybn-m drk gry - blk, mrly, occ blk, occ rthy, occ smth, crb thru, sbblky-sbplty, frm-m hd, v calc, wsh bn res rng.

MRLST: (90%), dkgy - m drk grysh bn - blk, m rthy, smth, crb thru, sbblky-sbplty, frm-m hd, v calc, SH:(20%), gybn-m drk gry - blk, mrly, occ blk, occ rthy, occ smth, crb thru, sbblky-sbplty, sft- frm-m hd, m slw weak mlky cut, v lt ylwsh bn res rng.

MRLST: (60%), dkgy - m drk grysh bn - blk, m rthy, smth, crb thru, sbblky-sbplty, frm-m hd, v calc, SH: (40%), gybn-m drk gry - blk, mrly, occ blk, occ rthy, occ smth, crb thru, sbblky-sbplty, sft- frm-m hd, pyr, m slw weak mlky cut, v lt ylwsh bn res rng.

SH: (80%), gybn-m drk gry - blk, mrly, occ blk, occ rthy, occ smth, crb thru, sbblky-sbplty, sft- frm-m hd, pyr, MRLST: (20%), dkgy - m drk grysh bn - blk, m rthy, smth, crb thru, sbblky-sbplty, frm-m hd, v calc,m slw weak mlky cut, v lt ylwsh bn res rng.

MRLST: (60%), dkgyshbn-m drk grysh bn, occ blk, rthy, slty, occ smth, crb thru, sbblky-sbplty, sft- frm-m hd, v calc, CHLK: (40%) gy-dk gy wi blk lam & frag, sft-frm, mot, sl carb, v calc, m fst gd mlky cut, v lt res rng.

CHLK: (70%) gy-dk gy wi blk lam & frag, sft-frm, mot, sl carb, v calc, MRLST: (30%) dkgyshbn-m drk grysh bn, occ blk, rthy, slty, occ smth, crb thru, sbblky-sbplty, sft- frm-m hd, v calc, tr bnt, m fst gd mlky cut, v lt res rng.

CHLK: (70%) gy-dk gy wi blk lam & frag, sft-frm, mot, sl carb, v calc, MRLST: (30%) dkgyshbn-m drk grysh bn, occ blk, rthy, slty, occ smth, crb thru, sbblky-sbplty, sft- frm-m hd, v calc, tr bnt, m fst gd mlky cut, v lt res rng.

CHLK: (80%) gy-dk gy wi blk lam & frag, sft-frm, mot, sl carb, v calc, MRLST: (20%) dkgyshbn-m drk grysh bn, occ blk, rthy, slty, occ smth, crb thru, sbblky-sbplty, sft- frm-m hd, v calc, tr bnt, m fst gd mlky cut, v lt res rng.

CHLK: (60%) gy-dk gy wi blk lam & frag, sft-frm, mot, sl carb, v calc, MRLST: (40%) dkgyshbn-m drk grysh bn, occ blk, rthy, slty, occ smth, crb thru, sbblky-sbplty, sft- frm-m hd, v calc, tr bnt, m fst gd mlky cut, v lt res rng.

MRLST: (90%) dkgyshbn-m drk grysh bn, occ blk, rthy, slty, occ smth, crb thru, sbblky-sbplty, sft- frm-m hd, v calc, CHLK: (10%) gy-dk gy wi blk lam & frag, sft-frm, mot, sl carb, v calc, m fst gd mlky cut, v lt res rng.

MRLST: (90%) dkgyshbn-m drk grysh bn, occ blk, rthy, slty, occ smth, crb thru, sbblky-sbplty, sft- frm-m hd, v calc, CHLK: (10%) gy-dk gy wi blk lam & frag, sft-frm, mot, sl carb, v calc, m fst gd mlky cut, v lt res rng.

MRLST: (90%) dkgyshbn-m drk grysh bn, occ blk, rthy, slty, occ smth, crb thru, sbblky-sbplty, sft- frm-m hd, v calc, SH: (10%) gy-dk gy wi blk lam & frag, sft-frm, mot, sl carb, v calc, m fst gd mlky cut, v lt res rng.

MRLST: (80%) dkgyshbn-m drk grysh bn, occ blk, rthy, slty, occ smth, crb thru, sbblky-sbplty, sft- frm-m hd, v calc, SH: (20%) gy-dk gy wi blk lam & frag, sft-frm, mot, sl carb, v calc, m fst gd mlky cut, v lt res rng.

SH: (80%), gybn-m drk gry - blk, mrly, occ blk, occ rthy, occ smth, crb thru, sbblky-sbplty, sft- frm-m hd, pyr, MRLST: (20%), dkgy - m drk grysh bn - blk, m rthy, smth, crb thru, sbblky-sbplty, frm-m hd, v calc,m slw weak mlky cut, v lt ylwsh bn res rng.

SH: (100%), gybn-m drk gry - blk, mrly, occ blk, occ rthy, occ smth, crb thru, sbblky-sbplty, sft- frm-m hd, pyr, MRLST intbd, v calc,m slw weak mlky cut, v lt ylwsh bn res rng.

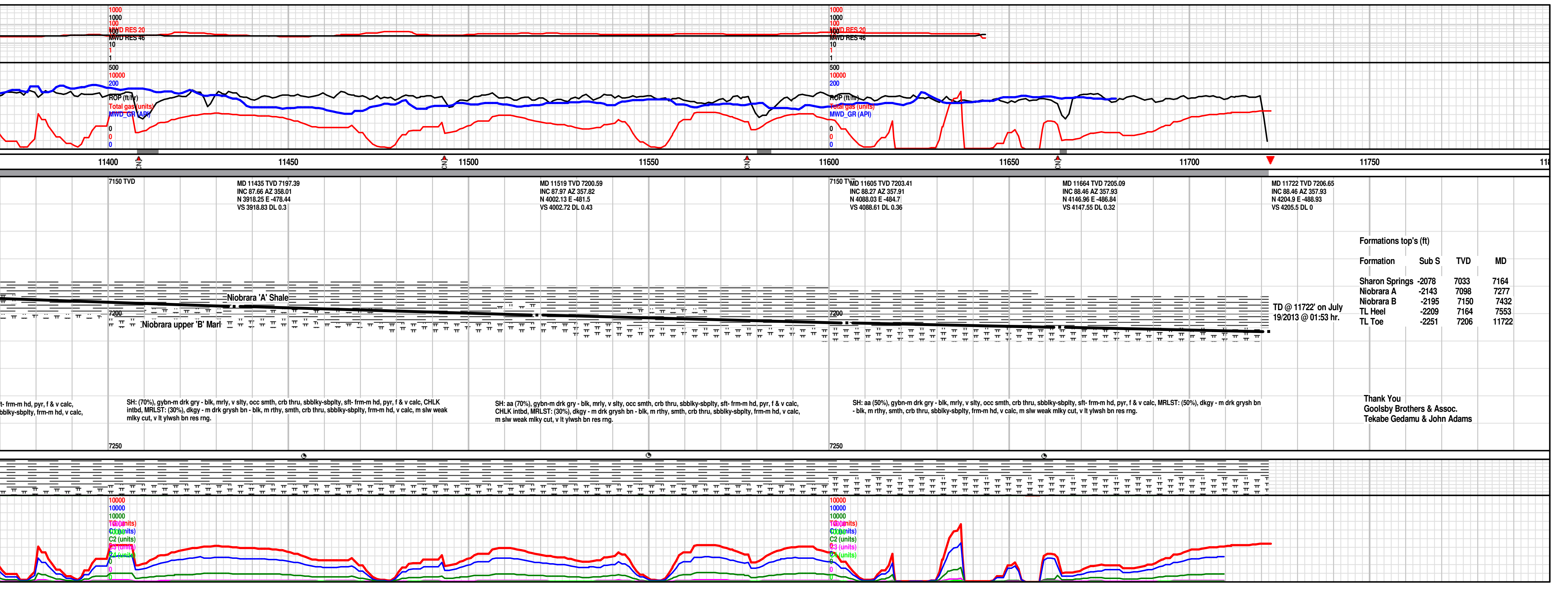
SH: (80%), gybn-m drk gry, mrly, occ blk, occ rthy, occ smth, crb thru, sbblky-sbplty, sft- frm-m hd, pyr, MRLST intbd, v calc, CHLK: (20%) gy-dk gy wi blk lam & frag, sft-frm, mot, sl carb, v calc, m fst gd mlky cut, v lt res rng.

SH: (60%), gybn-m drk gry - occ blk, mrly, occ rthy, occ smth, crb thru, sbblky-sbplty, sft- frm-m hd, pyr, MRLST intbd, v calc, CHLK: (40%) gy-dk gy wi blk lam & frag, sft-frm, mot, sl carb, v calc, m fst gd mlky cut, v lt res rng.

SH: (90%), gybn-m drk gry - blk, mrly, v slty, occ smth, crb thru, sbblky-sbplty, sft- frm-m hd, pyr, MRLST intbd, v calc, CHLK: (10%) gy-dk gy wi blk lam & frag, sft-frm, mot, sl carb, v calc, m fst gd mlky cut, v lt res rng.

SH: (80%), gybn-m drk gry - blk, mrly, v slty, occ smth, crb thru, sbblky-sbplty, sft- frm-m hd, pyr, f & v calc, CHLK intbd, MRLST: (20%), dkgy - m drk grysh bn - blk, m rthy, smth, crb thru, sbblky-sbplty, frm-m hd, v calc,m slw weak mlky cut, v lt ylwsh bn res rng.

SH: (80%), gybn-m drk gry - blk, mrly, v slty, occ smth, crb thru, sbblky-sbplty, sft- frm-m hd, pyr, f & v calc, CHLK intbd, MRLST: (20%), dkgy - m drk grysh bn - blk, m rthy, smth, crb thru, m slw weak mlky cut, v lt ylwsh bn res rng.



MD 11435 TVD 7197.39
INC 87.66 AZ 358.01
N 3918.25 E -478.44
VS 3918.83 DL 0.3

MD 11519 TVD 7200.59
INC 87.97 AZ 357.82
N 4002.13 E -481.5
VS 4002.72 DL 0.43

MD 11605 TVD 7203.41
INC 88.27 AZ 357.91
N 4088.03 E -484.7
VS 4088.61 DL 0.36

MD 11664 TVD 7205.09
INC 88.46 AZ 357.93
N 4146.96 E -486.84
VS 4147.55 DL 0.32

MD 11722 TVD 7206.65
INC 88.46 AZ 357.93
N 4204.9 E -488.93
VS 4205.5 DL 0

TD @ 11722' on July 19/2013 @ 01:53 hr.

t- frm-m hd, pyr, f & v calc,
bblky-sbplty, frm-m hd, v calc,

SH: (70%), gybn-m drk gry - blk, mrly, v slty, occ smth, crb thru, sbblky-sbplty, sft- frm-m hd, pyr, f & v calc, CHLK intbd, MRLST: (30%), dkgy - m drk grysh bn - blk, m rthy, smth, crb thru, sbblky-sbplty, frm-m hd, v calc, m slw weak mlky cut, v lt ylwsh bn res rng.

SH: aa (70%), gybn-m drk gry - blk, mrly, v slty, occ smth, crb thru, sbblky-sbplty, sft- frm-m hd, pyr, f & v calc, CHLK intbd, MRLST: (30%), dkgy - m drk grysh bn - blk, m rthy, smth, crb thru, sbblky-sbplty, frm-m hd, v calc, m slw weak mlky cut, v lt ylwsh bn res rng.

SH: aa (50%), gybn-m drk gry - blk, mrly, v slty, occ smth, crb thru, sbblky-sbplty, sft- frm-m hd, pyr, f & v calc, MRLST: (50%), dkgy - m drk grysh bn - blk, m rthy, smth, crb thru, sbblky-sbplty, frm-m hd, v calc, m slw weak mlky cut, v lt ylwsh bn res rng.

Formations top's (ft)

Formation	Sub S	TVD	MD
Sharon Springs	-2078	7033	7164
Niobrara A	-2143	7098	7277
Niobrara B	-2195	7150	7432
TL Heel	-2209	7164	7553
TL Toe	-2251	7206	11722

Thank You
Goolsby Brothers & Assoc.
Tekabe Gedamu & John Adams