Vecta
Oil & Gas Ltd.

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

Well Name: Huron State 21-16
Location: NE/NW Section 16 T14S R47W Cheyenne Co., CO
License Number: API: 05-017-07715 **Region:** Oyster Field
Spud Date: April 18, 2012 **Drilling Completed:** April 30, 2012
Surface Coordinates: 1011' FNL & 2549' FWL NE/NW Section 16 T14S R47W
Latitude 38.834890, Longitude -102.676230 (US NAD 83)
Bottom Hole Coordinates: Same.

Ground Elevation (ft): 4261' **K.B. Elevation (ft):** 4272'
Logged Interval (ft): 4000 To: 5440' **Total Depth (ft):** 5440' (LTD- 5433')
Formation: Morrow, (TD in Spergen).
Type of Drilling Fluid: LSND, Hydro Resources.

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OPERATOR

Company: Vecta Oil & Gas Ltd
Address: 575 Union Blvd, Suite 208
Lakewood, CO 80228
Tel. (303) 945-2860

GEOLOGIST

Name: Mike Dodge
Company: Goolsby Brothers and Associates
Address: 575 Union Blvd., Suite 208
Lakewood, CO 80228

Electric Logs

Open Hole Logs By: Schlumberger (Ft Morgan).
Program: Triple Combo AIT/LDT/CNL/MCFL: TD-Base of S.C.
FMI/Sonic Scanner: TD-Base of S.C. (FMI to 4000')

Casing

8 5/8" 24# J-55, LT&C set @ 413'.

5 1/2" 15.5# J-55 Production Casing Run to TD.

Comments

1) Contractor- Integrity Drilling, Rig #69. ToolPusher: Bob Kleisen
Pumps: #1 TSM-500 6" x 16" (0.1438 Bbl./Stk)
#2 Oilwell, P-214 6" x 14"

2) Company Geologist: Dave Bowen.
Company Man: Gary Doke.

3) Coring Service: NOV
Technician- Bob O'Shields.
Bit: 7 7/8" x 4" NOV CCPR 713S (SN 123812).
Core #1 5142-5181' (5135-5174' Logs) - Morrow.
Cut 39.8' in 2.75 Hrs. Recovered- 37' (93%).
Core #2 5182-5243' (5175-5236' Logs) - Morrow.
Cut 61' in 4 Hrs. Recovered- 60' (98%).

Core Handling, Pick Up & Lab Work: Core Labs.

4) Drill Stem Testing: Trilobite Testing Inc.,

DST#1 (St. Louis): 5290-5306' (5283-5299' Logs), Traditional Bottom Hole Test.

Times: 5-30-60-90. IF: Bottom of Bucket in 30 sec., ISI: Built to 3" in 30 min. FF: Bottom of Bucket in 30 sec., Gas to Surface in 10 min.- (Too Low to Gauge; 4-6' Flare). FSI: Return Built to BOB in 25 min., GTS in 40 min.

Pressures: IH: 2649, FH: 2557, IF: 69-78, FF: 66-179, ISI: 736, FSI: 643.

Pipe Recovery: 4650' Gas in Pipe, 617' Total Fluid [124' Free Oil (36 Grav), 186' Gassy Oil (40% Oil, 60% Gas), 185' Mud/Gas Cut Oil (5% Mud, 45% Oil, 50% Gas), 122' Mud).

Sampler: Pressure - 650#
Total Volume Sampler- 2000cc
Sample: 2000 mL Gas (.5 Cubic Ft.).
BHT- 153° F
One Gas Canister Sample Caught During Final Flow.

5) Gas Detector from Terra Services: MSI Redbox Total Gas Detector w/ Chromatograph (#173).

6) All Drilling data (ROP, Lithology, Gas) has been adjusted Uphole 7' to Correlate to Electric Logs.

7) As of 5/1/12, Preparations were being made to run 5.5" Production Casing to TD.

ROCK TYPES

ss_fg+
Carb sh
Bent
Cht
Clyst

Coal
Congl
Dol
Gyp
Ls

Mrlst
Shale
Sh (col)
Sh (gy)
Ss

Sltst
Anhy
Chalk
Slty sh
Arg ls

ACCESSORIES

MINERAL
Pyr
Anhy
Arggrn
Arg
Bent
Bit
Brecfrag
Calc
Carb
Chtdk
Chtlt

Marl
Minxl
Nodule
Phos
Pyr
Salt
Sandy
Silt
Sil
Sulphur
Tuff

Coral
Crin
Echin
Fish
Foram
Fossil
Gastro
Oolite
Ostra
Pelec
Pellet
Pisolite

Dol
Gyp
Ls
Mrst
Sltstrg
Ssstrg
Chalk strg

TEXTURE
Boundst
Chalky
CryxIn

Dol
Feldspar
Ferrpel
Ferr
Glau
Gyp
Hvymin
Kaol

FOSSIL
Algae
Amph
Belm
Bioclst
Brach
Bryozoa
Cephal

Plant
Strom

STRINGER
Anhy
Arg
Bent
Coal

Earthy
FinexIn
Grainst
Lithogr
MicroxIn
Mudst
Packst
Wackest

OTHER SYMBOLS

POROSITY TYPE
Earthy
Fenest
Fracture
Inter
Moldic
Organic
Pinpoint
Vuggy

SORTING
Well

Moderate
Poor

ROUNDING
Rounded
Subrnd
Subang
Angular

OIL SHOWS
Even
Spotted

near even
Ques
Dead
vspotty

INTERVALS
Core
Dst
casing

EVENTS
Rft

Sidewall
New bit
casingr
casing
Survey
Off bottom
conn
perfs
Survey(red)

ROP,GR
Gamma (API)
SP (Mv)
DST
ROP (min/ft)
WOB (KLb)

Depth

Lithology

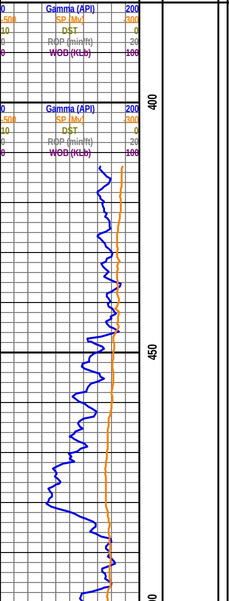
Sample Shows

Geological Descriptions

GAS
C1 (units)
C2 (units)
C3 (units)
C4 (units)
Total Gas (units)
PE (Be)
ML (flag)

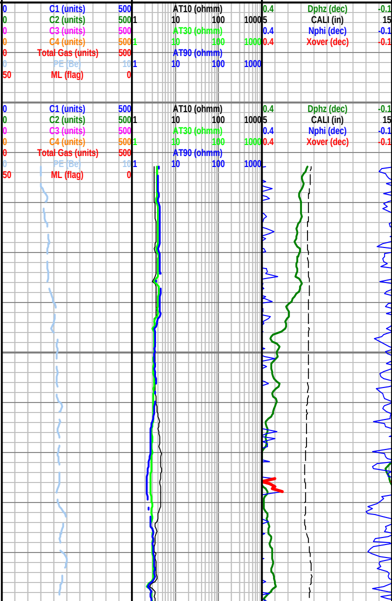
Resistivity
AT10 (ohmm)
AT30 (ohmm)
AT90 (ohmm)

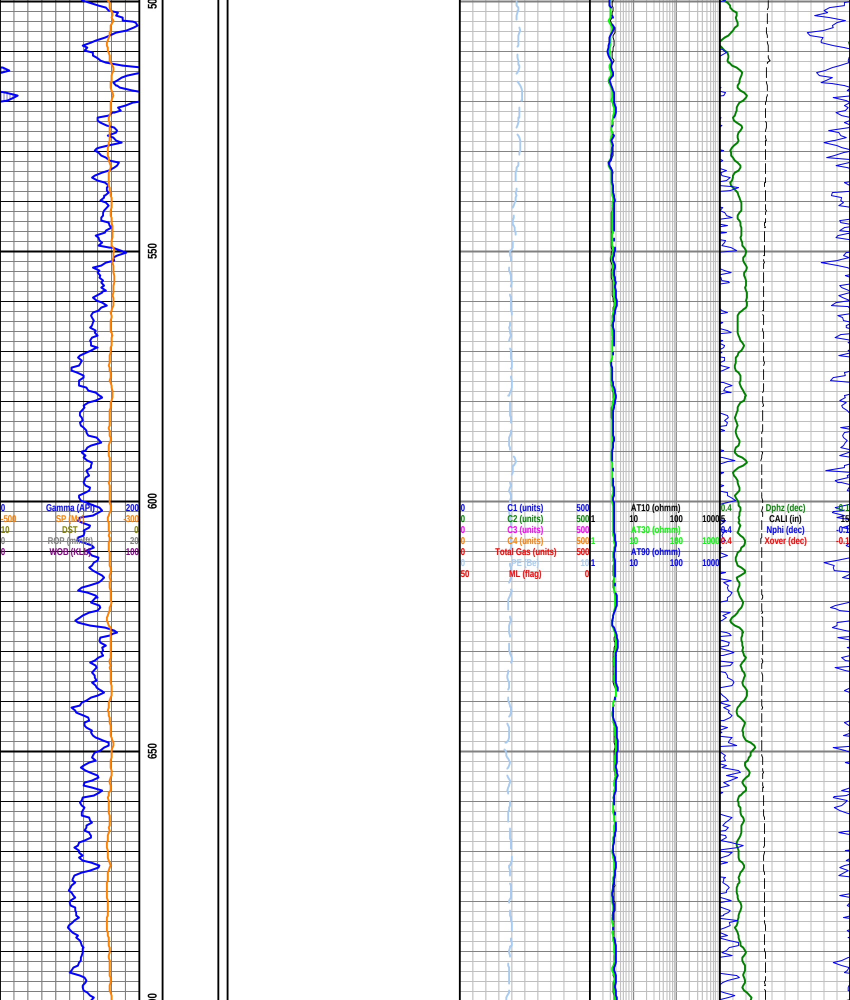
Porosity
Dphz (dec)
CALI (in)
Nphi (dec)
Xover (dec)

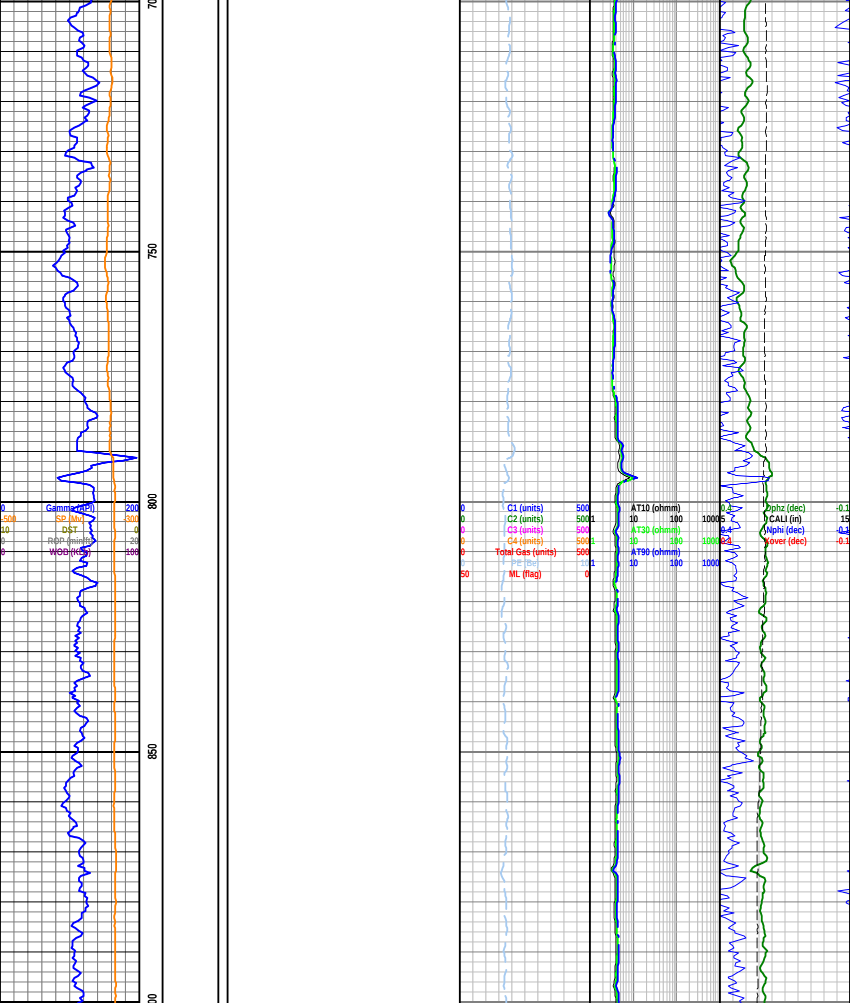


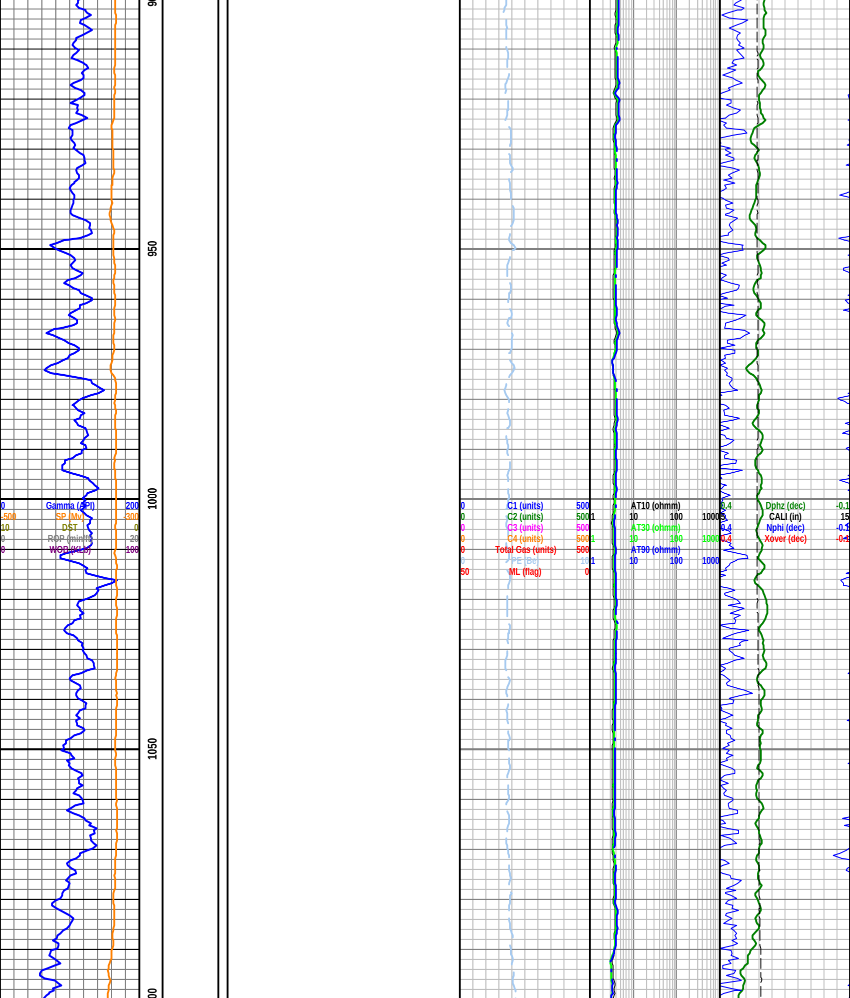
This well was Spudded on April 18, 2012, and a 12 1/4" Hole was Drilled to 416'. 8 5/8" 24# J-55, LT&C Surface Casing was set @ 413', at which Point a 7 7/8" Hole was Drilled to TD. Geological Supervision was begun at 4000'.

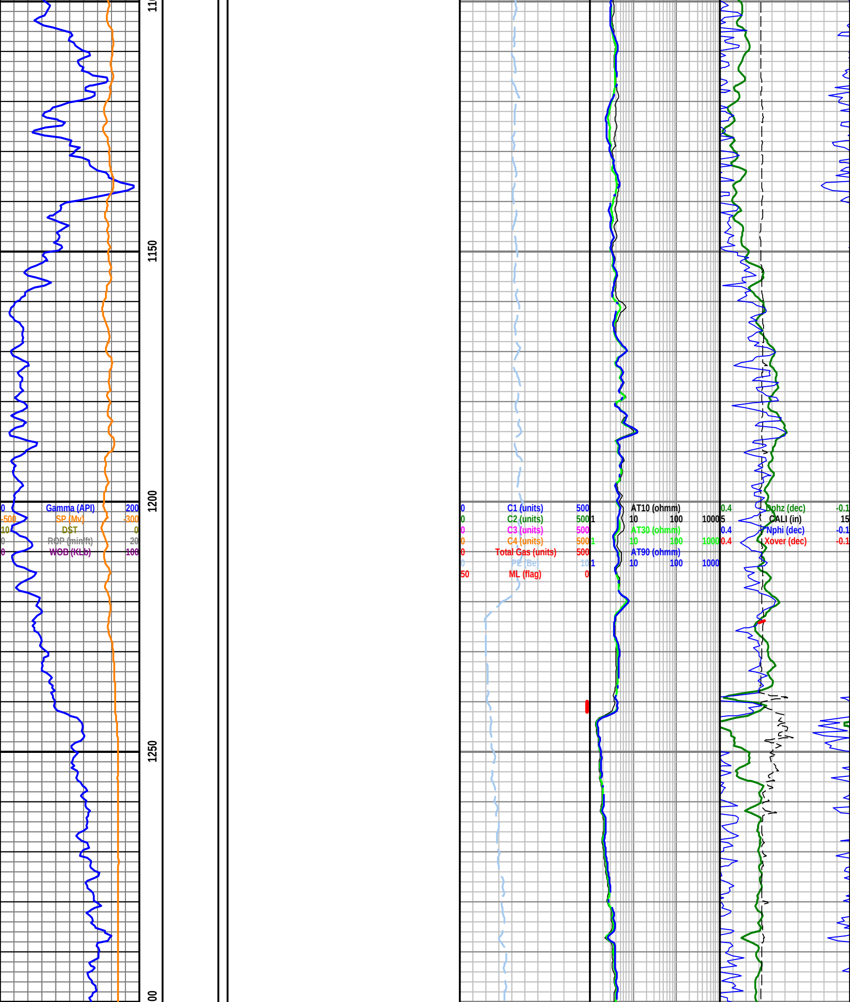
NIOBRARA - 446' (+3826)

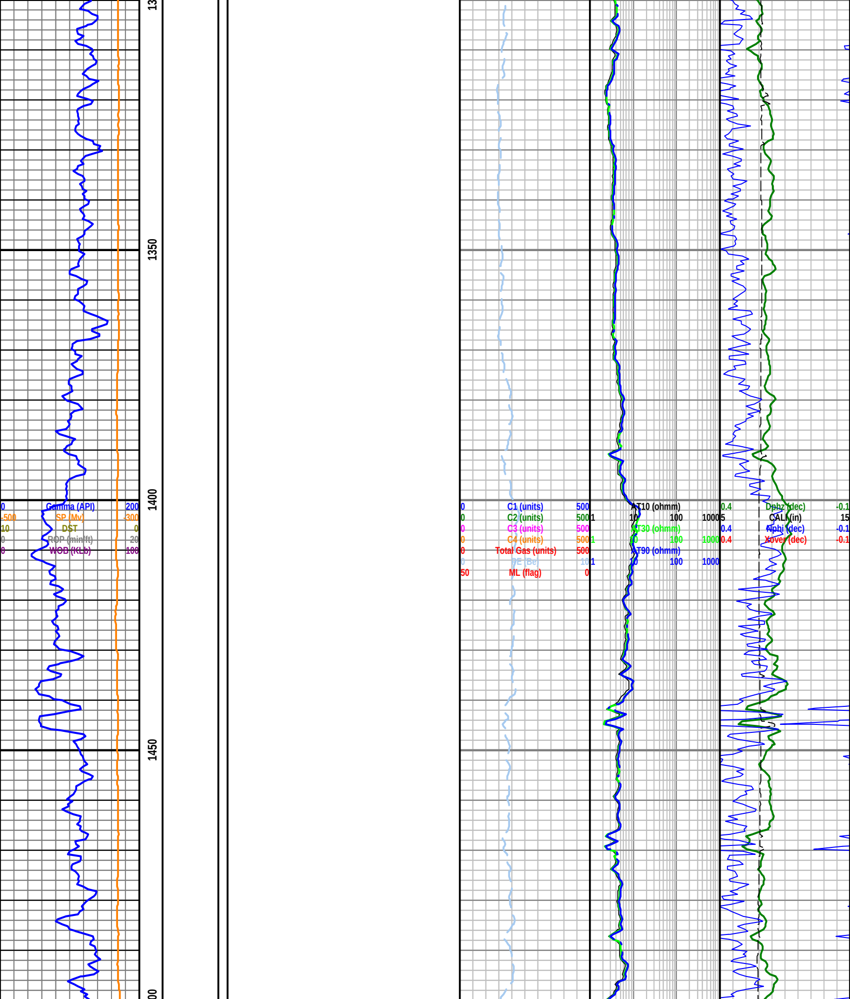


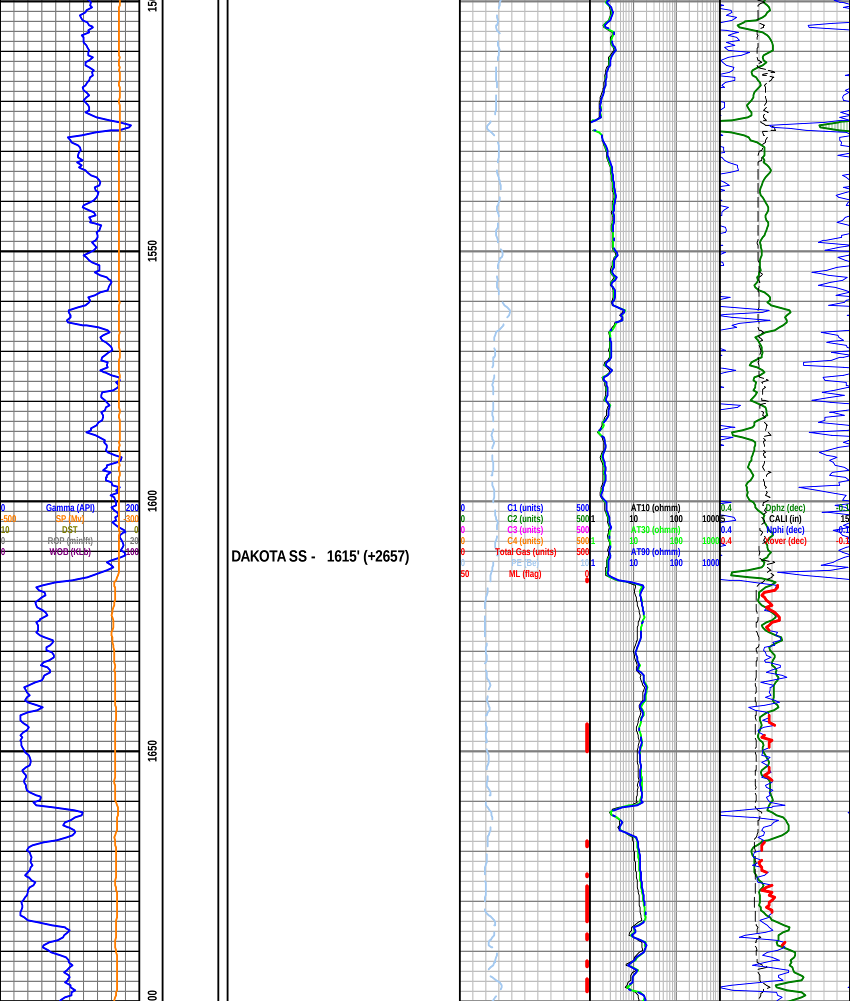




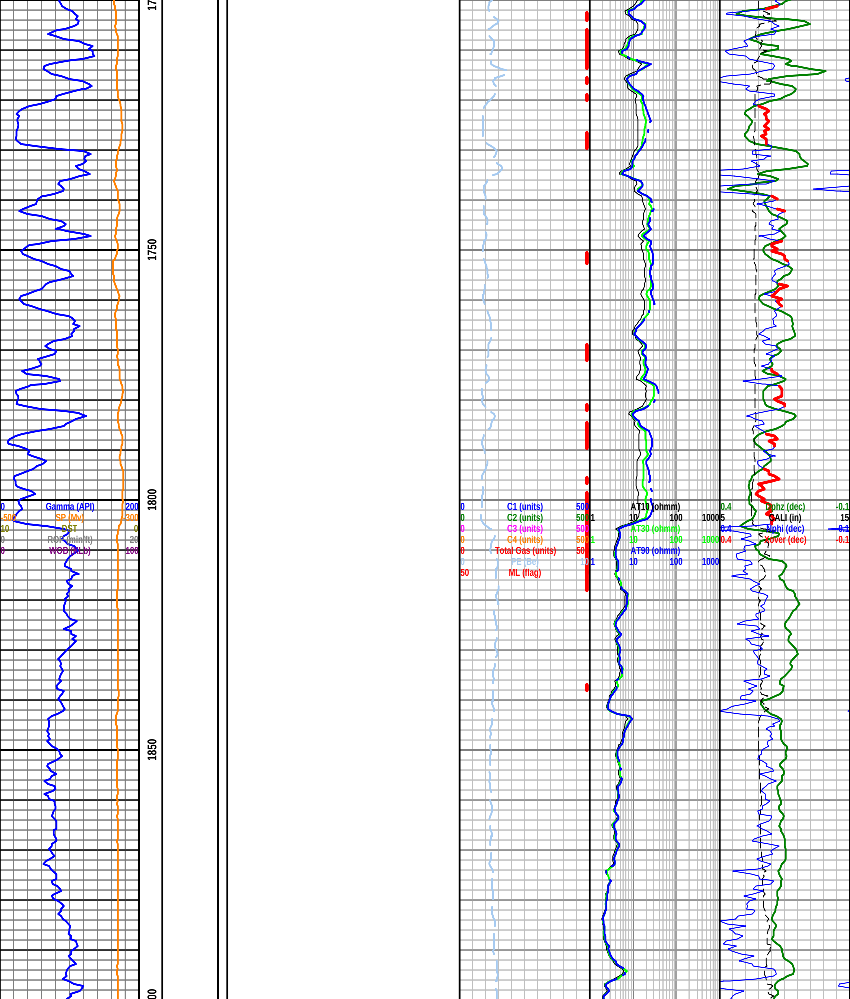


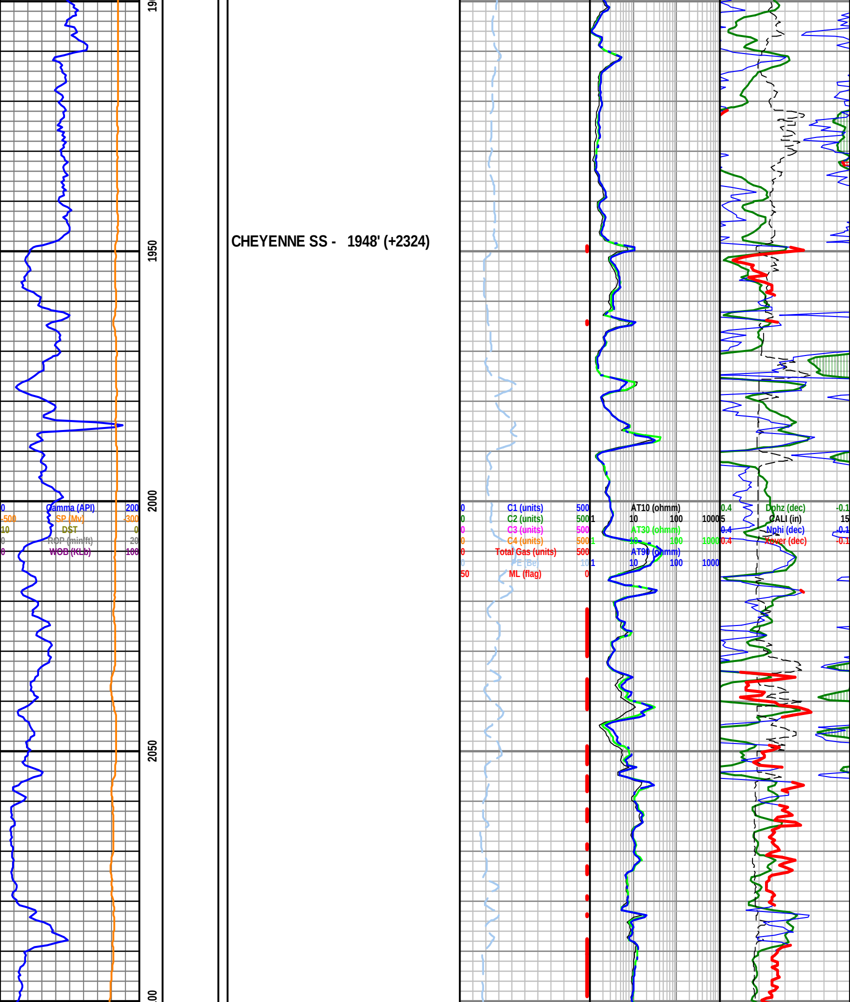


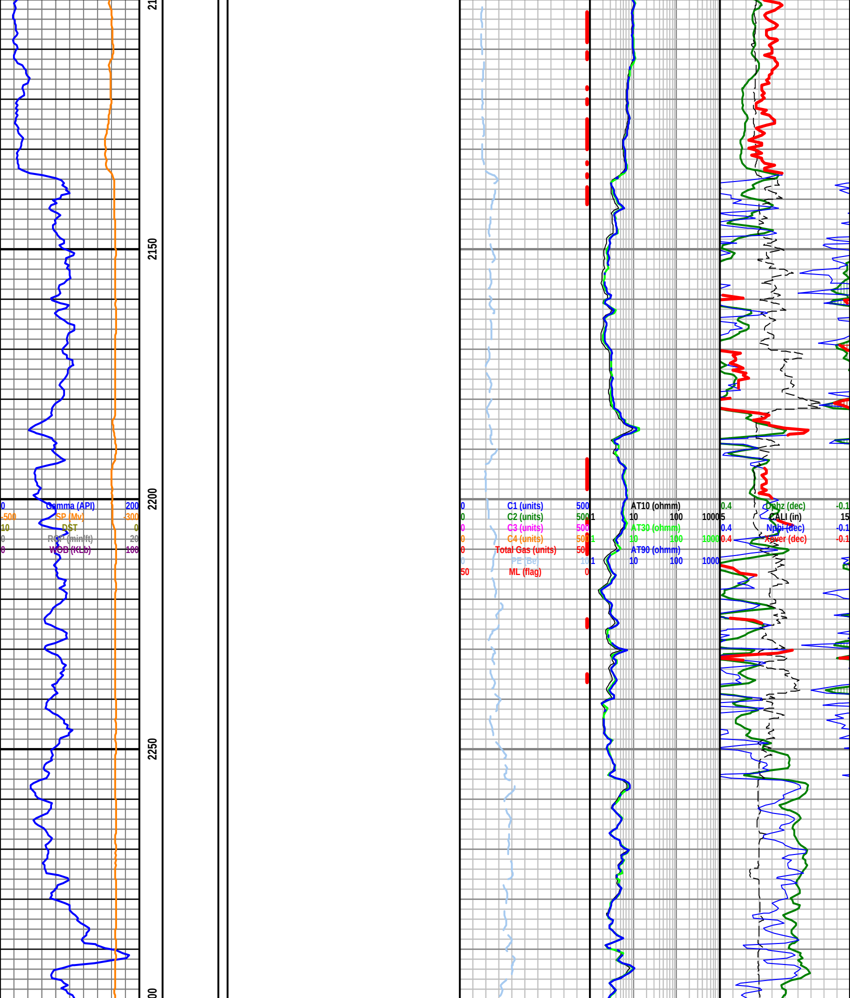


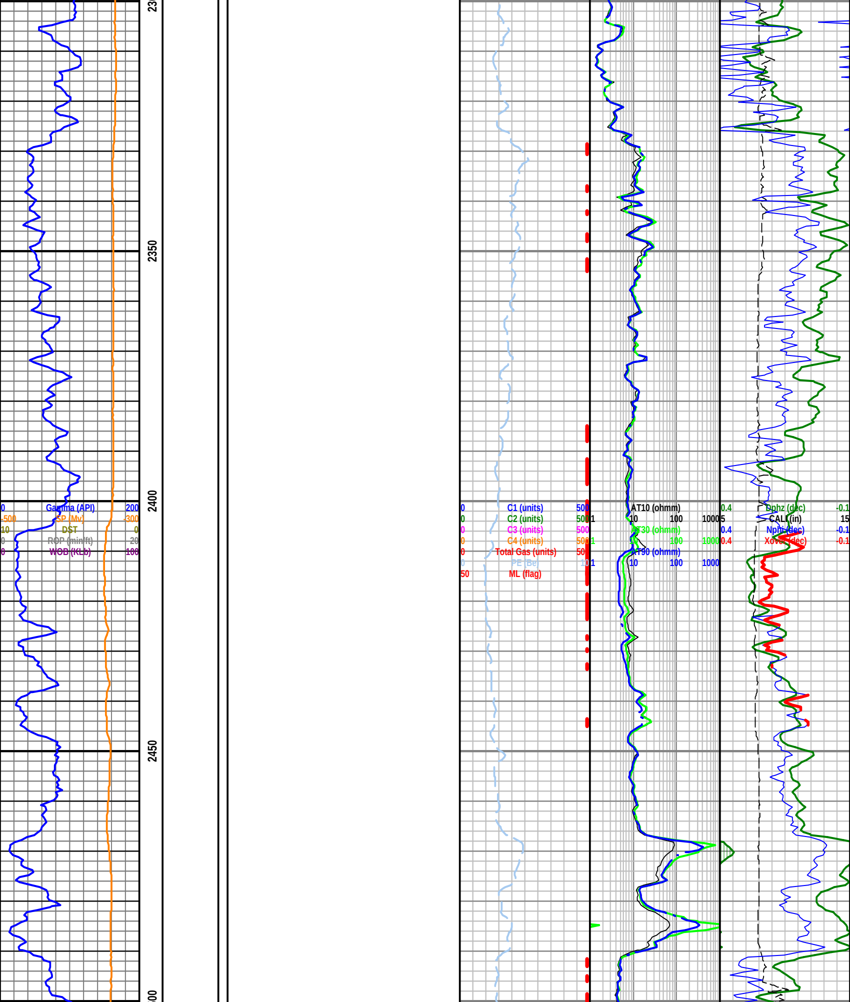


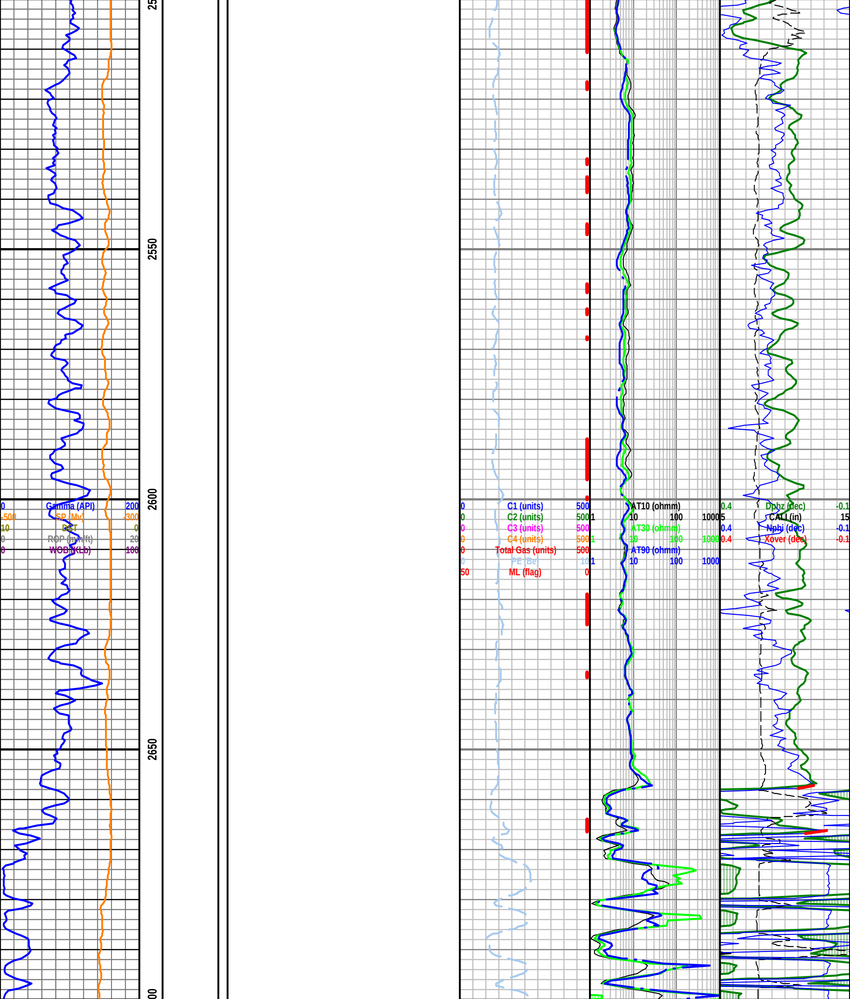
DAKOTA SS - 1615' (+2657)

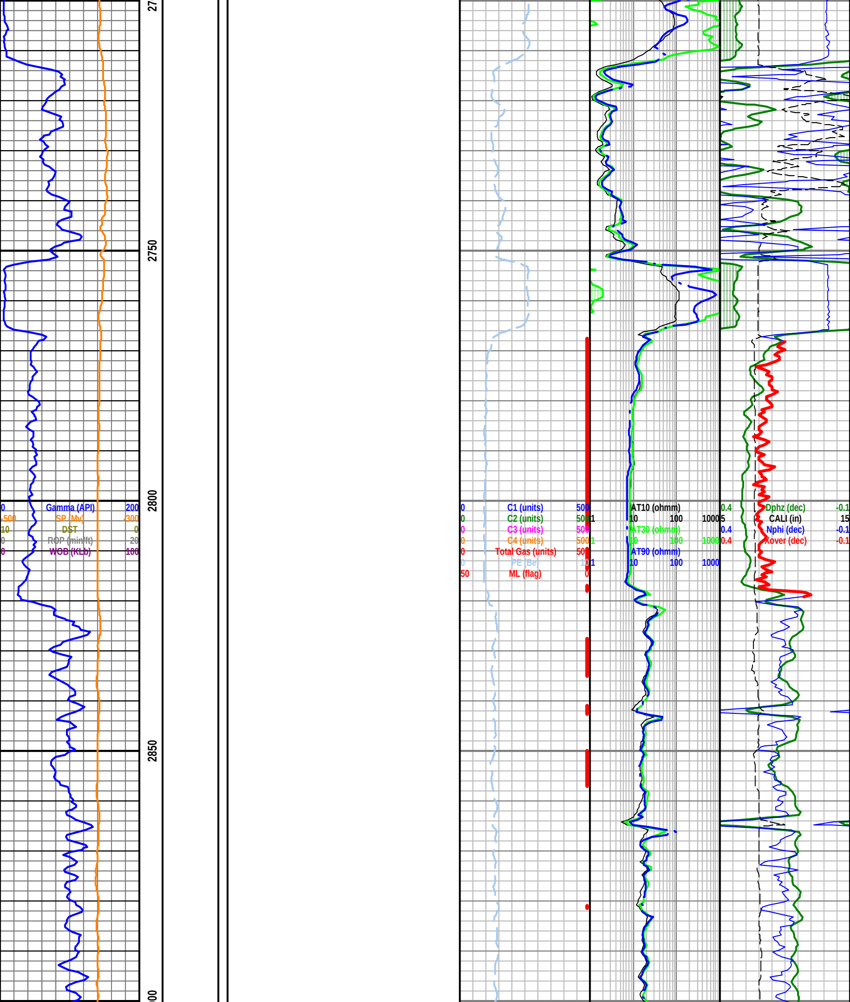


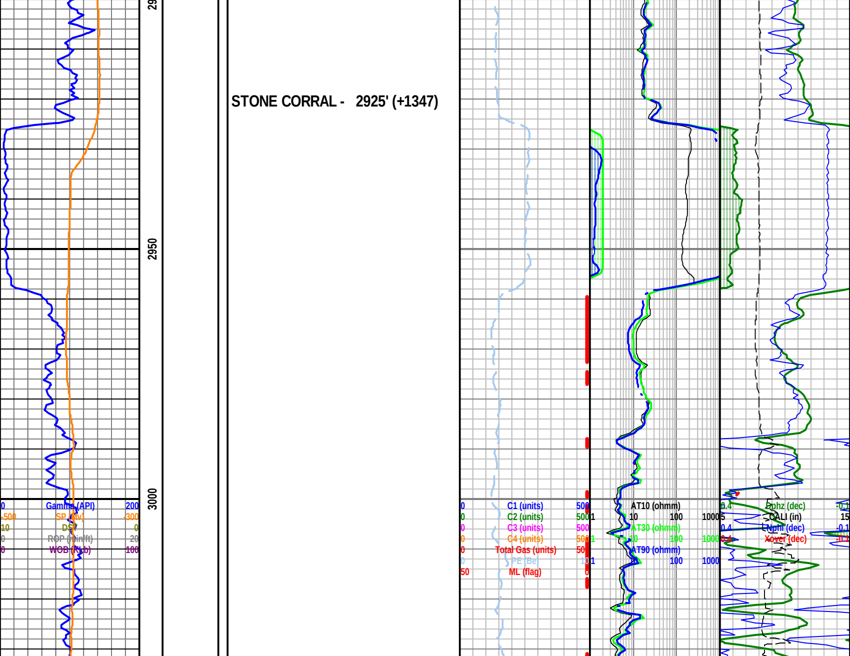












This well was spudded 4/18/12. A 12 1/4" Hole was drilled to 416', and 8 5/8" 24# S.C. was set @ 413'. A 7 7/8" Hole was Drilled from 416' to TD.

Drilling w/ Bit #2 7 7/8" JZ QX21-S (Jets 2x14, 1x13) in @ 416'.

UPHOLE SURVEYS:

199'	.53°
416'	.92°
995'	.54°
1495'	.73°
1993'	.80°
2495'	.61°
3065'	.84°
3510'	.74°

Start Gas and Sample Evaluation @ 4000' 01:00 4/24/12. Drillers Catching 10' Lagged Samples from 4000'-TD. One set of Dry Cuts Saved.

SHAWNEE - 3991' (+281)

DOL (40%) ltbrn crm, occ lt rdbrn, frm, gny-mic sucr mic xln, sbchky ip, vis por (est <8%), NSOC w/ occ fnt gld mnrl flor. LS (30%) crm ltbrn wh, frm, mic-crp xln, sbchky, dolic ip, indist foss, no vis por, NSOC w. occ fnt-mod yel mnrl flor. SH (30%) pred rdbrn purp gn, frm, blky-ireg, slty txt, sbchky ip, non calc, occ m-dkgy, frm, sbplty-plty, non calc, carb ip.

Survey @ 4014' - .64°

LS (70%) crm ltbrn gybrn wh, frm, mic-vf-crp xln, sbchky ip, indist foss ip, occ scat dist vf ool, tr Pyr, no vis-vp intxln por, NSOC w/ occ fnt yel mnrl flor. DOL (20%). SH (10%) pred dk-mgy, frm-sl sft, sbplty-blky, rthy-sm txt, calc ip, carb ip, occ rdbrn aa.

LS (95%) crm wh, frm, mic-crp xln, tr vf xln, sl-mod chky ip, grny sl dolic ip, tr slty-sdy, tr indist foss, no vis-vp intxln por, NSOC w/ occ fnt-mod yel mnrl flor. SH (5%) dk-mgy, tr rdbrn gn.

LS (50%) aa, vf xln ip, dolic ip, incr foss w/ lt-mgy, frm, grny mic xln, arg ip, foss, dolic ip, no vis-vp intxln por, NSOC w/ mod-fnt yel mnrl flor. DOL (25%) lt-mgy gybrn, frm, grny-mic sucr mic xln, sl calc ip, sl arg ip, no vis-vp por, NSOC w/ occ fnt yel mnrl flor. SH (25%) m-dk-vdk gy, frm-brit, blky-sbplty-ireg, slty-rthy-sm txt, mod-sl calc, carb ip.

Circ., Drop Survey (1.31°) & Strap Out for NB#3 @ 4109'. Bit #2 Cut 3693' in 86.75 Hrs. NB#3 7 7/8" JZ QX28 (Jets 2x14, 1x13).

LS (70%) crm ltbrn gybrn lt-mgy, frm, mic-vf xln, sbchky, dolic ip, occ foss, arg ip / occ Sh ptgs, slty-sdy ip, tr Pyr, no vis-vp intxln por, NSOC w/ occ fnt-mod yel mnrl flor. DOL (10%) m-ltgy, grny-mic sucr, as above. SH (20%) dk-m-vdkgy, frm-sft-brit, sbblky-sbplty, rthy txt, mod-sl calc, carb ip.

LS (85%) crm ltbrn, occ m-ltgy gybrn brn, frm, mic xln, sbchky, sl arg ip, tr foss, no vis-vp intxln por, NSOC w/ mod-fnt yel mnrl flor. DOL (Tr). SH (15%) dk-v dk-mgy, frm-brit, rthy txt, calc-sl calc, carb ip, slty ip, tr Pyr.

LS (95%) crm ltbrn, frm, mic xln, sbchky-chky ip, grny ip, sl foss, no vis-vp intxln por, NSOC w/ mod-fnt yel mnrl flor. SH (5%) dk-mgy, tr blk, frm, sbplty-blky, rthy-sl slty txt, calc-sl calc, carb-sl carb.

SH (50%) v dk-mgy, blk, frm-brit-v frm, ireg-sbplty-splty, calc-sl calc, carb, mic mica ip, sl slty ip. LS (40%) crm ltgy gybrn, frm, mic-crp xln, grny ip, sl dolic ip, slty ip, tr foss, no vis por, NSOC w/ occ fnt yel mnrl flor. DOL (20%) lt-mbrn lt-mgy wh, frm-vfrm, grny-mic sucr, NSOFC.

SLTST (50%) lt-mgy, frm, calc-sl dolic, sdy grdg-slty vf gr Ss ip, tt, no vis por, NSOFC. LS (40%) crm lt-mbrn ltgy, frm, dns crp-mic xln, chky ip, slty ip, dolic ip, no vis por, NSOC w/ occ fnt yel mnrl flor. SH (10%).

LS (60%) lt-mgy gybrn lt-mbrn rdbrn, frm, mic-crp xln, dns, slty ip, sbchky ip, arg ip, no vis por, NSOC w/ occ fnt yel mnrl flor. SLTST (10%). SH (40%) m-dkgy rdbrn, frm-vfrm, blky-sbplty, slty-rthy txt, calc, sl carb ip.

LS (80%) crm, occ lt-mgy, frm-vfrm, sbchky mic-crp xln, sl slty ip, sl foss ip, no vis por, NSOC w/ fnt-mod yel mnrl flor. SH (20%) mgy, occ dkgy, aa.

LS (70%) aa. SH (30%) rdbrn, mgy dkgy, frm, blky, slty-rthy txt, sbchky ip, calc.

LANSING/K.C. - 4226' (+46)

LS (95%) crm offwh, frm, mic-crp-vf xln, sl-mod chky, grny, tr foss, tr mlky Cht, no vis-vp por, NSOC w/ occ fnt yel mnrl flor. SH (5%).

LS (40%) crm lt-mgy wh, frm-fri-vfrm, mic-vf-crp xln, chky ip, foss ip, arg ip, tr-occ Pyr, no vis-vp intxln por, NSOC w/ fnt-mod yel mnrl flor. SLTST (30%) lt-mgy, frm, calc, sl sdy ip, no vis por, NSOFC. SH (30%) m-dkgy, frm-brit-vfrm, ireg-blky-sbplty, slty-rthy txt, calc, carb ip, tr foss, tr Pyr.

LS (70%) crm ltgy ltbrn wh, frm, mic-crp-vf xln, sbchky, grny ip, sl foss, occ sl arg, no vis por, NSOC w/ occ fnt yel mnrl flor. SLTST (10%). SH (20%) m-dkgy, rdbrn gn, tr blk, frm, blky-ireg-sbplty, slty-rthy txt, calc, tr carb.

LS (95%) crm offwh, frm, mic-crp xln, sl-mod chky, grny ip, no vis-vp por, NSOC w/ occ fnt-mod yel mnrl flor. SH (5%).

LS (70%) crm tan wh brn-gybrn, frm, mic-vf xln, grny-gran ip, sbchky ip, foss, occ arg ptgs, tr xln Calc, rr dist f ool, vp-o vis intxln por, NSO w/ occ fnt-mod yel mnrl flor, tr wk mlky-resd yel cuts. SH (30%)(dk-mgy, occ gngy gn rdbrn-mar, frm, blky-ireg-sbplty, slty-rthy txt, sl-non-mod calc, sl carb ip.

LS (60%) lt-mgy crm-ltbrn, frm, mic-vf-crp xln, frag ip, chky ip, sl foss, occ scat dist f ool, tr Pyr, no vis-vp intxln por, v fnt petro odor, no vis stn, mod-fnt yel flor (mnrl), occ wk resd-vp mlky cuts. SLTST (20%) lt-mgy offwh, frm, calc, sl sdy ip, NSOFC. SH (20%) m-dkgy, frm, blky-sbplty, rthy-slty txt, calc, occ Ls & Sltst ptgs, tr carb, tr Pyr.

LS (90%) ltbrn crm tan, lt-mgy, frm, mic-vf xln, tr f xln, sbchky ip / tr wh Chk, p dev f ool (mold ip / xln Calc), tr blk styl, n vis-vp-p vis por (<8% intxln, 8-10% mold), v fnt petro odor, no vis stn, mod-fnt yel flor (mnrl), occ v wk mlky cuts. SH (10%).

LS (85%) aa / mgy gybrn arg, foss, NSO, occ fnt-mod yel mnrl flor, tr wk mlky-resd yel cuts. SH (15%).

LS (60%) crm tan ltbrn lt-mgy gybrn, frm, mic-crp xln, pred dns sbchky, arg ip, slty ip, sl foss, occ Sh ptgs, no vis por, NSOC w/ occ fnt-mod yel mnrl flor. SH (40%) m-dkgy gybrn, tr blk, frm-v frm, blky-sbplty, slty-rthy txt, calc-sl calc, carb ip, v slty ip, tr foss.

LS (90%) gybrn tan ltbrn crm lt-mgy, mott ip, frm-fri-v frm, mic-vf-crp xln, chky ip, gran ip, foss ip, occ f ool (pred tt / spar mtx, vf xln Calc mtx ip, sl mold ip), tr brn Cht, n vis-vp intxln por, tr p intool & mold por (<8%), NSOC w/ occ fnt-mod yel mnrl flor. SH (10%).

No Sample.

LS (80%) tan crm lt-mbrn wh, mott ip, frm, mic-crp-vf xln, sl-mod chky ip / tr wh Chk, grny ip, foss ip, occ xln Calc, tr-occ mic Pyr, no vis-vp intxln por, NSOC w/ occ fnt yel mnrl flor. DOL (10%) brn, frm, dns grny mic xln, no vis por, NSOFC. SH (10%) dk-m gy, gybrn, frm, calc, carb ip.

LS (95%) crm tan brn lt-m gy, mott ip, frm-v frm, mic-vf xln, sl-mod chky ip, grny-gran-sucr ip, foss, tr tt vf ool, arg ip, no vis por, NSOC w/ occ fnt-mod yel mnrl flor. SH (5%).

LS (90%) mott crm ltbrn tan offwh, frm, mic-vf xln, grny-mic sucr-gran, chky ip, xln Calc incl, occ sl foss, occ blk styl & carb incl, tr trnsl Cht, no vis-vp-p intxln por (tr 8-10%), NSO w/ fnt-mod tr brt yel flor, wk mlky cuts ip. SH (10%) mgy, tr dk-vdkgy blk, frm, blky, calc, carb, slty ip, mic mica ip.

LS (50%). DOL 10%) ltbrn, frm, mic sucr, no vis-vp por (<8%), v fnt petro odor, no vis stn, fnt-mod yel flor, wk mlky-slow strmg yel cuts, mod yel resd ring. SH (40%) vdk-dkgy blk, frm-brit-sft, sbplty-splty-ireg, rthy-sm, calc, sl-mod-v carb, mic mica ip, NSOF w/ slow strmg yel cuts.

LS (70%) mott m-ltgy gybrn tan brn crm, frm-v frm, mic-crp-vf xln, sbchky, tr v chky, grny ip, tr mic sucr, foss, arg ip, tr trnsl Cht, no vis por, NSOC w/ tr-occ fnt yel mnrl flor. SH (30%) m-dkgy blk, frm, blky-sbplty, calc, carb ip, slty ip, NSOF w/ slow strmg yel cuts in blk carb.

LS (80%) aa, incr m-ltgy, mott / m-dkgy arg incl, grny-vf sucr ip, tt vf ool ip, no vis-vp intxln por, NSOC w/ occ fnt yel mnrl flor. SH (20%) aa w/ blk frm, calc, carb.

LS (90%) crm ltgy ltbrn wh, frm, mic xln, grny ip, sbchky ip, tr wh Chk, sl foss, no vis-vp intxln por, NSOC w/occ fnt yel mnrl flor. SH (10%).

LS (70%) aa, bcmg grny-mic sucr dolic ip, tr trnsl mlky Cht, tr tt mic ool, occ p vis intxln por w/ DOL (20%) tan lt-mbrn, frm, grny-mic sucr, vp-no vis por, mv fnt petro odor, mod-brt yel flor, slow strmg-fr cldy yel cuts, mod resd ring. SH (10%).

LS (70%). DOL (10%). SH (20%) mgy, frm, blky-ireg-sbplty, sl slty txt, sbchky ip, calc.

LS (90%) crm lt-mgy ltbrn-gybrn, frm-vfrm, mic-crp xln, sbchky ip, sl arg ip, occ sl foss, tr mlky ltgy trnsl Cht, tr mic Pyr, no vis por, NSOC w/ occ fnt tr mod yel mnrl flor. SH (10%).

MARMATON - 4590' (-318)

LS (70%) crm ltgy wh ltbrn, frm-fri, frag vf-mic xln, sl-mod chky / occ wh Chk, foss, dolic ip, mlky trnsl Cht, occ xln Calc, tr Pyr, vp-no vis intxln por, NSO / mod-fnt tr brt yel flor, occ p-fr mlky cuts. DOL (10%) wh ltgy, frm, grny, NSOFC. SH (20%) m-dkvdkgy, frm, ireg-blky, calc, carb ip, foss ip.

LS (80%) aa. SH (20%) dk-vdk-mgy blk.

Survey @ 4611' - .99°

LS (90%) lt-mgy, fri-frm, slty mic xln, sbchky, tr-occ Sh ptgs, tr Cht, no vis por, NSOC w/ tr-occ fnt-mod yel mnrl flor. SH (10%) v dk-mgy, blk, frm, sbblky-splty-plt,y, calc ip, carb ip.

LS (90%) tan offwh ltgy gybrn, frm, mic xln, pred dns, sbchky, sl grny ip, foss ip, arg ip, tr tt dist vf ool, tr mlky trnsl Cht, no vis por, no odor, tr ques splotchy brn stn, fnt-mod yel flor (mnrl), wk mlky cuts. SH (10%).

LS (85%) crm ltbrn gybrn lt-mgy brn, mott ip, frm-vfrm, mic-crp xln, pred dns, gran ip, chky ip, sl foss ip, occ arg,tr dolic, tr mlky Cht, no vis por, NSO, occ fnt-tr mod yel mnrl flor, occ v wk mlky cuts. SH (15%) m-dkgy gybrn, frm, sbplty-plty-ireg, sl slty-rthy txt, carb ip, foss ip.

LS (80%) crm, tan-gybrn brn gy, frm-brit-v frm, mic-crp xln, tr vf xln, pred dns, sbchky, sl arg ip, tr grny dolic, rr Cht, no vis por, v fnt petro odor, pred NSOC w/ fnt yel mnrl flor, 20% w/ fnt-mod-brt yel flor, p-fr-gd cldy cuts. SH (20%) m-dkgy gybrn frm, blky-sbplty, rthy txt, calc, carb ip.

LS (95%) bcmg dns cr-mic xln, chky ip, no vis por, NSOC w/ occ fnt yel mnrl flor. SH (10%).

LS (95%) mott lt-mgy gybrn, frm, dns sbchky crp-mic xln, sl arg ip / tr-occ dkgy Sh ptgs, tr Pyr, no vis por, NSOC w/ tr fnt yel mnrl flor. SH (5%).

LS (60%) lt-mgy gybrn tan wh, mott ip, frm-fri, mic-crp-vf xln, frag ip, chky ip / tr wh Chk, foss ip, occ pelt, tr mlky trnsl brn Cht, tr brn gy Slt strgs, tr Pyr, no vis-vp intxln por, NSOC w/ occ fnt-mod yel mnrl flor. DOL (10%) brn, vfrm, dns grny mic xln, no vis por, occ ques brn stn / fnt=mod yel flor, wk mlky cuts. SH (30%) v dkgy, blk, frm, blky-ireg, rthy-sm, calc-sl calc, carb, mic mica ip, NSOF / fr-gd slow strmg yelwh strmg cuts.

CHEROKEE - 4720' (-448)

LS (60%) aa, bcmg incr slty / arg, foss ip, occ brn trnsl Cht. DOL (Tr). SLTST (10%) lt-mgy, fri-frm, calc, NSOFC. SH (30%).

LS (70%) lt-mgy, crm tan gybrn wh, mott ip, frm, mic-crp-vf xln, frag ip, chky ip, foss, occ scat f ool / pelt, tr Slt strgs, tr trnsl brn Cht, no vis-vp por, NSO, mod-fnt-brt yel flor, occ wk-fr mlky cuts. SH (30%) dk-vdk-mgy, frm-brit, ireg-sbplty-splty, sm-rthy txt, non-sl calc, carb ip, NSOF / p-fr strmg yelwh cuts.

LS (60%) lt-mgy gybrn brn, frm-fri-hd, mic-crp xln, pred dns, grny ip, foss ip, arg ip, tr-occ xln Calc & mlky trnsl brn dkgy Cht, no vis por, NSOC w/ tr-occ fnt yel mnrl flor. SH (50%) dk-m-v dkgy, frm-brit-v frm, ireg-blky-splty, rthy-sm txt, calc, carb ip, tr foss, NSOC w/ p-fr slow strmg yelwh cuts.

LS (80%) aa w/ occ vf xln, .2-.75mm ool / micr mtx, vp vis por (est 8%), no vis stn, fnt yelgld flor, wk mky cuts. SH (20%) dk-v dkgy, blk, brit-frm, calc ip, carb ip, occ mic mica, NSOF w/ fr strmg cuts.

LS (90%) gybrn tan crm lt-mgy brn, frm, mic-crp-f xln, frag ip, chky ip, sl foss, occ .5-1 mm ool / chky-cln micr-vf xln mtx, occ dkgy trnsl mlky brn Cht, no vis-vp intxln por, tr p-fr (10-12%) int ool por, NSO, occ fnt tr mod yel flor, occ v wk mlky cuts. SH (10%) aa.

LS (70%) tan brn lt-mgy offwh, frm-fri-v frm, mic xln, pred dns & sl arg, slty ip, chky ip, sl foss, occ xln Calc & mlky brn trnsl Cht, tr Pyr, no vis por, NSOC w/ occ fnt yel mnrl flor. SH (30%) dk-m-vdkgy blk, brit-frm, blky-ireg-sbplty, slty-rthy-sm txt, calc ip, carb ip, NSOF w/ occ fr strmg yel cuts.

LS (70%) tan crm brn lt-mgy, frm-hd, mic-crp xln, dns, chky ip, arg ip, sl foss, occ scat f ool, occ trnsl brn Cht, tr xln Calc & Pyr, no vis por, NSOC w/ occ fnt yel mnrl flor. SH (30%) dk-vdk-mgy, frm-brit-vfrm, blky-ireg-plty, slty-rthy-sm txt, calc ip, carb ip, mic mica ip, occ sl foss, NSOF w/ occ p-fr strmg cuts.

LS (50%) aa. SH (50%) dk-mgy, frm-brit, ireg-sbplty, rthy, calc, mic mica, sl carb ip, sl foss ip, NSOF w/ occ p-fr mlky cuts.

LS (65%) lt-mgy gybrn brn wh, frm, mic-crp-vf xln, dns, arg ip, chky ip, foss ip, occ Cht, tr Pyr, no vis-vp intxln por, NSOC w/ tr fnt yel mnrl flor. SH (35%) aa, foss ip, occ mic Pyr.

ATOKA - 4884' (-612)

LS (50%) aa. SH (50%) dk-vdk-nmgy, sft-brit-frm, sbply-splty-flky, rthy-sm, calc, mic mica, carb ip, foss ip, tr Pyr, NSOF w/ occ wk-fr mlky cuts.

LS (60%) m-ltgy offwh brn-gybrn-tan, frm-brit-hd, mic-crp-vf xln, pred dns, sbchky ip, grny-gran ip, sl foss, tr trnsl brn Cht, no vis tr vp por, NSOC w/ occ fnt yel mnrl flor. SH (40%) dk-vdk-m gy, brit-frm-v frm, blky-splty-flky, calc, carb ip, foss ip, tr Pyr, NSOF w/ fr mlky-slow strmg yel cuts.

LS (50%) crm tan wh lt-mgy lt-mbrn, mott ip, vfrm-frm, mic-crp xln, tr vf xln, chky ip, sl foss, arg ip / dk Sh ptgs, no vis por, NSOC w/ occ fnt yel mnrl flor. SH (50%) aa w/ occ gn m-ltgy, frm, sbplty-splty, sbwxy-sbchky, calc.

LS (60%) aa, grny ip, mod chky ip. SH (40%) pred dk-vdkgy, frm, blky-ireg-plty, calc, carb, foss ip, NSOF w/ fr mlky-slow strmg cuts, occ gngy gn mgy as above.

LS (65%) lt-m-dkgy gybrn crm-offwh, frm, mic-vf-crp xln, dns, arg ip, grny-gran ip, sl-mod chky, foss, occ trnsl brn dkgy Cht, tr Pyr, dk Sh strgs & ptgs com, no vis por, NSOC w/ occ fnt yel mnrl flor. SH (35%) dk-vdk-mgy, frm-brit-hd, sbblky-sbplty-plty-splty, calc-sl calc, carb ip, mic mica ip, foss ip, tr mic Pyr, NSOF w/ p slow strmg cuts.

LS (70%) dk-m-ltgy gybrn brn wh, hd-frm, mic-vf-crp xln, pred dns, foss, arg ip / dk Sh ptgs & strgs, chky ip, tr-occ trnsl mlky brn Cht, tr Pyr, no vis por, NSOC w/ occ fnt yel mnrl flor. SH (30%) v dk-dkgy, brit-frm, sbblky-sbplty, rthy-sl slty txt, calc-sl calc, foss ip, carb ip, mic mica ip, tr mic Pyr, NSOF w/ wk mlky-p strmg yel cuts.

LS (70%) m-lt-dkgy wh tan-ltbrn, mott ip, gen aa, grny-gran vf xln ip, v chky ip. SH (30%) dk-vdk-mgy, brit, ireg-sbplty-plty, calc ip, carb ip, foss ip, tr Cht incl & mic Pyr, NSOF w/ occ wk mlky-p strmg yel cuts.

LS (60%) m-lt-dkgy wh brn, mott ip, frm, mic xln, pred dns, chky ip, arg ip, sl foss, tr xln Calc fld fracs & mic Pyr, no vis por, NSOC w/ tr-occ fnt yel mnrl flor. SH (40%) aa, tr dkgy Slt strgs.

LS (80%) m-lt-dkgy gybrn crm tan wh, mott ip, frm-v frm, mic-crp-vf xln, aa, tr xln Calc & trnsl brn gy Cht. SH (20%) dk-vdk-mgy, brit-frm, sbblky-splty-ireg, calc, carb ip, occ mic & f Pyr, sl foss ip, NSOF w/ occ p cldy yel cuts.

MORROW - 5060' (-788)

SH (50%) aa w/ tr-occ mgy, sft-frm, ireg, sbwxy, calc, tr-occ mic Pyr. LS (50%) dk-m-ltgy gybrn tan, frm, mic-crp-vf xln, chky ip, arg ip, tr foss, tr trnsl Cht, no vis-vp intxln por, NSOC w/ tr fnt yel mnrl flor.

SH (30%) gn mgy tan, sft-sl frm, ireg-splty, sbwxy, non calc. LS (40%). SH (30%) dk-v dkgy.

SH (60%) mgy gngy ltgy-silv, sbplty-splty-plty, non calc, sbwxy-sbchky, intbdd w/ m-dkgy, carb ip, mic mica. LS (40%) tan crm lt-mgy ltbrn, frm, mic-crp-vf xln,m frag, foss ip.

SH (80%) pred dkgy, occ mgy, frm-sl sft, plty-splty-flky, sl-mod calc, mic mica, scat carb matr, tr mic Pyr / occ gngy mgy sbwxy aa. LS (20%).

SH (80%) dk-mgy silv, frm-sl sft, flky-sbplty-splty, rthy, sl-non calc, mic mica, scat carb matr, tr mic Pyr, w/ occ mgy gn ltgy tan, sbwxy-sbchky. LS (20%) brn crm, frm, mic xln.

SH (70%) aa, bcmg lmy ip / Ls strgs, tr Slt & slty vf gr Ss ptgs. LS (20%) gybrn brn tan crm, frm, mic-vf xln, frag, foss ip, chky ip, tr sdy, no vis-vp por, NSOC w/ tr yel mnrl flor. SLTST/SS (10%) ltgy gybrn mgy, fri-frm, pred drty arg Sltst & slty vf gr Ss, rr tt cln vf gr Ss, sl calc, tr glau, no vis por, NSOFC.

SH (90%) pred dkgy, occ m-ltgy gngy. LS (10%). SLTST (Tr).

Circ., Short Trip, Circ. TOH for Core #1 @ 5142'. Bit#3 Cut 1033' in 63.7 Hrs. Bit #4 7 7/8" NOV Cut 39.8', Rec. 37' (93%). See Bottom of Log for Detailed Description.

Survey @ 5142' - .15°

SH vdkgy, hd-brit, fiss-sbfiss-splty, sm, unif, non-tr calc, scat mic mica, NSOF w/ v wk mlky cuts.

SH dk-mgy, vfrm-hd, mass sbfiss, sl rthy-sl slty txt, unif, non calc, scat mic mica, rr plnt remn w/ Tr Ls strgs (Cuttings Samples) NSOF, wk mlky cuts.

CLYST mgy, v frm, mass, sbwxy, non calc, plnt remn/imprints com.

CLYST gybrn, vfrm-hd, mass, sbwxy-rthy, non calc, tr-occ indist plnt remn.

CLYST/SH mgy, vfrm, mass, sbwxy-rthy-sl slty, non calc, occ scat vf mic mica, tr mic Pyr/plnt remn.

SH mgy gngy, frm, ireg-splty, slty-sbwxy txt, non calc, tr-occ scat plnt remn & mic mica w/ Tr occ Slt/vf gr Ss in Cuttings Samples, wk mlky cuts

RR Bit #4 , Core #2 Cut 61', Rec. 60' (98%). See Bottom of Log for Detailed Desc.

SH gngy, vfrm-hd, mass, slty-sbwxy, non calc, scat carb matr/plnt remn & mic mica, NSOFC.

SS/CONGL ltbrn ltgy, hd, vc gr-f peb, sbang-sbrnd, p srt, Calc cmt/sec Qtz, sl cly fld, tt, tr Sh/carb grs, no vis por/perm, scat lt-mbrn stn, p-fr cldy yel cuts/wk-mod resd ring.

Intbdd CLYST mgy gngy, vfrm, non-tr calc, sl sdy ip/tr glau; SLTST/vf gr SS frm, sl calc, scat glau, no vis por, NSOFC; SH dkgy, vfrm, sbwxy-rthy, non calc.

SH dkgy, vfrm, ireg-mass, rthy-sbwxy, calc, abnt Fos frags.

SH m dkgy, vfrm-hd, sbfiss-fiss-splty, unif, non-tr calc.

SLTST (Samples) ltgy trnsl wh, fri, c Slt/slty vf gr Ss, sbrnd-sbang, mod w srt, Sil cmt, wh/gn cly fld, tr glau & Pyr, tt, no vis por, pred NSOFC w/ tr wk mlky/resd cuts.

SH m dkgy, hd, mass-sbfiss, sm-sl slty, unif, sl calc, scat mic plnt remn/Fos frags & vf mic mica.

SH m dkgy, hd, sbfiss, sm-sl slty, sl calc, scat vf mic mica, tr mic plnt remn.

TOH & LD Core #2, TIH w/ RR Bit #3.

SH (95%) dkgy, occ mgy gngy, frm, plty-splty-sbplty, rthy-sm-slty txt, calc ip, mic mica, scat carb matr/plnt remn. SLTST/SS (5%) ltgy trnsl, fri, pred Sltst (sdy ip) / slty vf & vf-f gr Ss ip, tr calc, cly fld ip, no vis por, NSOFC.

SH (90%) aa, tr gngy tan w/ Pyr & scat plnt remn. SLTST (5%). LS (5%) ltbrn gybrn gy, frm, dns sbchky mic xln, tr chky vf xln / scat f ool, NSOFC.

SH (85%). SS (10%) lt-mgy, tt vf gr, tr trnsl f-m gr, tt, Silic w/ sec Qtz, no vis por, NSOFC. LS (5%) crm wh ltbrn, dns sbchky mic-vf xln, foss ip, no vis por, NSOC w/ tr yel mnrl flor.

ST. LOUIS - 5278' (-1006)

LS (40%) crm, offwh, frm-fri, vf-f xln, sl-v chky, sdy ip / tr glau, occ sl foss, tr scat vf ool, no vis-vp intxln por, NSO / mod-fnt tr brt yel flor, occ p cldy yel cut. SH (60%)

DOL (30%) brn, occ ltgy-wh, frm-vfrm-fri, mic sucr-sucr-grny, slty-sdy (grdg-dolic vf-f gr Ss ip), vuggy ip, rr glau, 8-12% vis por w/ occ p-fr vis perm, 25% even brn stn, 20% patchy-spty brn gy stn, 50% brt-mod yel flor / imed-fast strmg yelwh cuts, hvy-mod brt yel resd ring. LS (30%). SH (40%).

DST #1: 5290-5306' (5283-5299' Logs) (5-30-60-90); BOB in 30 sec., GTS 10 min. into FF, Rec. 124' O, 186' GCO, 185' GMCO, 122' Mud. (See Header for Details).

SPERGEN - 5317' (-1045)

SH (50%) dkgy, frm, plty-splty, rthy, sl calc. LS (25%) wh ltgy brn, frm, mic- vf-f xln ip, chky ip, sdy ip, tr trnsl Cht/vf ool/Fos frags, NSOC, occ fnt-mod yel mnrl flor. DOL (25%) brn, v frm-fri, grny-f sucr, calc ip, NSOFC. SLTST (Tr) gngygy, fri-frm, sdy, non calc, scat carb matr/glau/Pyr.

DOL (40%) m-lt-dkbrn, occ m-ltgy, frm-hd, mic-vf-f xln, grny-sucr, tr blk incl, vp-no vis por, 5% / patchy brn stn, fnt-mod yel flor, v wk mlky cuts. LS (10%). SH (40%).

DOL (50%) tan, m-lt-dkbrn, mott ip, v frm, pred dns grny micxln, gran-micsucr mic-vf xln ip, sbchky ip, scat dk-mgy incl, no vis-vp por, NSOF / occ v wk mlky cuts. LS (10%). SH (40%).

DOL (25%) aa, pred brn dns grny. LS (25%) mott wh tan crm lt-m-dkbrn, mic-vf xln, chky ip, dolic ip / scat Dol ptgs, occ rwkd Fos frags, t f ool, no vis-vp por, NSOC / tr yel mnrl flor. SH (50%) dkgy, occ gn, slty grdg-Sltst ip.

DOL (50%) m-ltbrn lt-mgy dkgybrn, mott ip, bcmg grny-mic sucr, occ scat indist Fos frags, calc ip / Ls ptgs, no vis-vp por, NSO / occ v fnt yel flor, v wk cldy-resd cuts. LS (20%). SH (20%).

DOL (60%) lt-mgy, lt tan, frm-fri-v frm, grny, pred dns, sl calc ip, tr f ool, no vis-vp por, NSO / occ v fnt yel flor, v wk cldy-resd cuts. LS (20%) aa, v chky ip / tr wh Chk. SH (20%).

DOL (75%) tan lt-mgy brn, mott ip, frm-fri, grny mic xln, tr mic sucr, no vis-vp por, NSOC w/ occ fnt yel mnrl flor. LS (5%) aa, occ sft wh Chk. SH (20%) dkgy, occ mgy, plty-splty, calc.

DOL (40%) lt-mgy tan brn, frm, dns grny mic xln, calc ip. LS (40%) lt-mbrn lt-mgy wh, mott, vfrm-hd, mic-vf xln, grny dolic ip, occ mgy arg incl, tr Pyr, no vis por, NSOC w/ occ fnt yel mnrl flor. SH (20%).

LS (55%) as above, occ dkgy Sh ptgs, sl-v chky ip. DOL (35%). SH (10%).

LS (70%) lt-mgy wh ltbrn, frm-vfrm-hd, vf-mic-f xln, gran ip, grny ip, sl-v chky ip, tr Fos frags & dist f ool, tr Pyr & gy trnsl Cht, no vis-vp intxln por, NSOC w/ fnt yel mnrl flor. DOL brn ltgy wh, frm, grny, calc ip, NSOFC. SH (10%).

LS (75%) ltgy crm wh tan mgy, fri-vfrm-hd, vf-f-mic xln, sbchky-chky, gran ip, trnsl mlky gy Cht, tr-occ scat vf-f ool, rr Fos frags, no vis-vp por, NSOC w/ fnt yel mnrl flor. DOL (15%) as above. SH (10%) dkgy, occ gn gngy.

Survey @ 5440' - .15°

Reached TD of 5440' at 20:15 4/30/12. Circ. 1 Hr., Make 5 Std. Wiper Trip, Lost Circ., Mix Mud & LCM, TOH for Logs.

Drillers TD: 5440'
Loggers TD: 5433'

All Drilling data (ROP, Lithology, Gas) has been adjusted Uphole 7' to Correlate to Electric Logs.

Formation Log Tops:
- Niobrara- 446' (+3826)
- Dakota SS- 1615' (+2657)
- Cheyenne SS- 1948' (+2324)
- Stone Corral- 2925' (+1347)
- Shawnee- 3991' (+281)
- Lansing / Kansas City- 4226' (+46)
- Marmaton- 4590' (-318)
  - Pawnee- 4626' (-354)
  - Ft. Scott- 4670' (-398)
- Cherokee- 4720' (-448)
- Atoka- 4884' (-612)
- Morrow- 5060' (-788)
  - Lower Morrow- 5270' (-998)
- St. Louis- 5278' (-1006)
- Spergen- 5317' (-1045)

CORE CHIP DESC. Depths Used Here are Drill Depths (7' Low to E-Log Depths).

Core #1 5142-5181'- Core Chip Descriptions:

5142' SH vdkgy, hd-brit, sbfiss-splty, sm, non-tr calc, unif, scat mic mica, NSOF w/ v wk mlky cuts..
5145' SH as above, non calc.
5147.5' SH vdkgy, frm, fiss-plty, sm, non calc, unif, mic mica.
5150' SH vdkgy-blk, frm-brit, sbfiss-fiss-splty, sm-sbvit, non calc, unif, tr mic mica.
5153' SH dk-mgy, vfrm-hd, mass sbfiss, sl rthy-sl slty txt, unif, non calc, scat mic mica, rr plnt remn.
5156' SH as above, mass, non-tr calc, mic mica, tr Shell frags

5171' CLYST/SH mgy, vfrm, mass, sbwxy-rthy-sl slty, non calc, occ scat vf mic mica.
w/ Tr Ls strgs (Samples) ltbrn, frm, mic-vf xln, grny-slty ip, sbchky ip, no vis por, NSOF, wk mlky cuts.
5159' CLYST mgy, vfrm, mass, sbwxy, non calc, occ plnt remn/imprints.
5162' CLYST mgy, rthy-sbwxy-sl slty, mass, non calc, tr mica & indist Fos frags/plnt remn.
5165' CLYST as above, hd, mass.
5168' CLYST gybrn, vfrm-hd, mass, sbwxy-rthy, non calc, tr-occ indist plnt remn.

5171' CLYST/SH mgy, vfrm, mass, sbwxy-rthy-sl slty, non calc, occ scat vf mic mica.
5174' CLYST/SH as above, vfrm-hd, tr mic Pyr/plnt remn.
5177' CLYST/SH as above, sbfiss ip.
5178.3' CLYST/SH mgy, vfrm, sbfiss-ireg, sbwxy-sl slty, non calc, scat vf mic mica.
5179' SH/SLTST mgy gngy, frm, ireg-splty, slty-sbwxy txt, non calc, tr-occ scat plnt remn & mic mica.
5179-5181' No Recovery.

Core #2 5182-5243'- Core Chip Descriptions:

5182' SLTST gngy, vfrm, mass, non calc, sdy, scat plnt remn, NSOFC.
5185' SH gngy, vfrm-hd, mass, slty-sbwxy, non calc, scat carb matr/plnt remn & mic mica, NSOFC.
5188' CLYST/SH mgy gngy, as above.
5191' SLTST/ARG SS mgy, vfrm, non calc, clayey Slt / scat f-m gr Sd grs, scat carb matr/plnt remn, NSOF w/ v wk resd cuts.

5194' SS/CONGL ltbrn ltgy, hd, vc gr-f peb, sbang-sbrnd, p srt, Calc cmt/sec Qtz, sl cly fld, tt, tr Sh/carb grs, no vis por/perm, scat lt-mbrn stn, p-fr cldy yel cuts/wk-mod resd ring.
5197' CLYST gngy, vfrm, mass, sl slty-sbwxy, scat vf mic mica & plnt remn.
5200' SLTST/SH mgy, hd, mass, mic mica.

5203' Intbdd:
CLYST mgy gngy, vfrm, non-tr calc, sl sdy ip/tr glau; SLTST/vf gr SS frm, sl calc, scat glau, no vis por, NSOFC; SH dkgy, vfrm, sbwxy-rthy, non calc.
5206' SH dkgy, hd, sbfiss, non calc, slty-rthy txt, mic mica , sl carb / tr scat plnt remn.
5209' SH dkgy, hd, mass-sbfiss-splty, sm, noon calc, vf mic mica.
5212' SH dkgy, vfrm, ireg-mass, rthy-sbwxy, calc, abnt Fos frags.
5215'SH m dkgy, vfrm-hd, mass-splty-sbfiss, sm-sl slty-sbwxy, non calc, scat vf mic mica.
5218, 5221, 5224' SH m dkgy, vfrm-hd, sbfiss-fiss-splty, unif, non-tr calc.
5227' SH as above, sbfiss-splty.
5230, 5233, 5236' SH mdkgy, hd, mass-sbfiss, sm-sl slty, unif, sl calc, scat mic plnt remn/Fos frags & vf mic mica.
5239' SH m dkgy, hd, sbfiss, sm-sl slty, sl calc, scat vf mic mica, tr mic plnt remn.
5242' SH as above, sbfiss-splty, sm-sl slty-sbwxy.

Thank You!

Mike Dodge

Goolsby Brothers &
Associates, Inc.

Mud @ 4030'
WT 8.5
FV 46
PV/YP 10/15
GS 7/14
Fil 7.6
pH 12
Cl 650
Hd 20
Sol 1.3%
LCM 6#

Mud @ 4322'
WT 8.7
FV 42
PV/YP 11/13
GS 3/9
Fil 7.6
pH 10
Cl 660
Hd 30
Sol 2.8%
LCM 16#

Mud @ 5440'
WT 9.1
FV 58
PV/YP 17/14
GS 7/18
Fil 7.6
pH 9.5
Cl 660
Hd 60
Sol 5.8%
LCM 12#