ELEVATIONS
KB 3485'
GL 3476'

COMPANY & WELL Coral Prod #24-33 Rath-Newman
LOCATION 870' FSL, 1410' FWL, SW/4
SEC 33 TWSP 1s RGE 41w
COUNTY Cheyenne STATE Kansas

Tim J. Lauer

Petroleum Geologist

Office 316.832.0530
Cell 316.253.1275

GEOLOGIST'S REPORT

DRILLING TIME AND SAMPLE LOG

COMPANY *Coral Production Corp*
LEASE *#24-33D Rath-Newman*
FIELD *Wildcat*
LOCATION *870' FSL, 1410' FWL, SW/4*
SEC *33* TWSP *1s* RGE *41w*
COUNTY *Cheyenne* STATE *Kansas*

CONTRACTOR *Duke Drilling Rig #4*
SPUD *10-26-2015* COMP *11-7-2015*
RTD *5425'* LTD *5427'*
MUD UP *3400'* TYPE MUD *Chemical*

SAMPLES SAVED FROM *3800'* TO *RTD*
DRILLING TIME KEPT FROM *3800'* TO *RTD*
SAMPLES EXAMINED FROM *3800'* TO *RTD*
GEOLOGICAL SUPERVISION FROM *3905' to RTD*
GEOLOGIST ON WELL *Tim J. Lauer*

ELEVATIONS

KB *3485'*
DF
GL *3476'*
Measurements Are All From *Kelly Bushing*

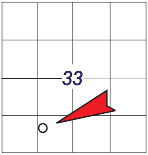
CASING

CONDUCTOR
SURFACE *8-5/8" @ 264'*
PRODUCTION *none*

ELECTRICAL SURVEYS

Nabors Stack - DCPL, DIL, ML, PE, Sonic - Engr: Jason Cappellucci

FORMATION TOPS	ELECTRIC LOG		SAMPLE LOG	
Anhydrite	*3453*	*(+32)*	*3453*	*(+32)*
Topeka	*4214*	*(-729)*	*4213*	*(-728)*
Lansing	*4399*	*(-914)*	*4393*	*(-908)*
Stark	*4630*	*(-1145)*	*4632*	*(-1147)*
Marmaton	*4790*	*(-1305)*	*4786*	*(-1301)*
Cherokee Shale	*4902*	*(-1417)*	*4899*	*(-1414)*
Morrow Shale	*5089*	*(-1604)*	*5089*	*(-1604)*
Mississippi	*5227*	*(-1742)*	*5227*	*(-1742)*
Arbuckle	*5356*	*(-1871)*	*5354*	*(-1869)*
Total Depth	*5427*	*(-1942)*	*5425*	*(-1940)*



REMARKS
Due to drill stem test results, and log evaluation, operator elected to plug and abandon the location without further testing the location. Note: Move DST intervls 3' downhole to match Elog measurements.

Respectfully submitted,

Tim J. Lauer
11/9/2015

LEGEND

Anhydrite	Sandstone	Limestone	Shale	Carb Sh	Cherty LS	Chert	Dolomite
▤	▨	▦	☰	■	▦	△	▨

LITHOLOGY

DRILL STEM TESTS

DRILLING TIME IN MINUTES PER FOOT

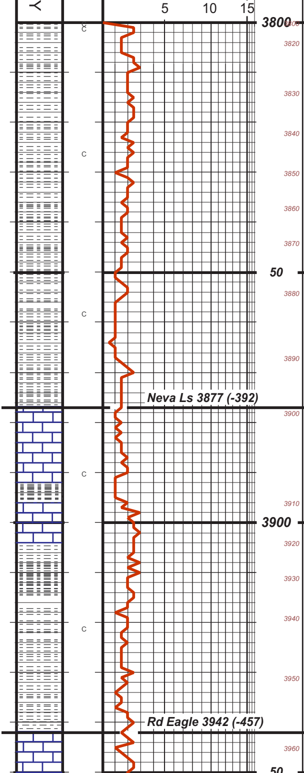
Rate of Penetration Decreases →

SHOWS

DEPTH

SAMPLE DESCRIPTION

REMARKS



Sh; flood redbeds, rust, brick red, silty-sdy IP, no Sd.

Sh; flood redbeds, rust, brick red, silty-sdy IP, no Ls or Sd.

Sh; redbeds, rust, brick red, silty-sdy, no Ls or Sd.

Sh; redbeds, rust, brick red, silty-sdy, no cln Ls or Sd.

Sh; redbeds AA, scat pcs Ls; crm-lt.gry buff, vfn-fngrdxln, mly-gran txt, soft IP, n. flor, n. stn, n. odor (3900 spl)

Ls; crm-lt.gry-bf, AA, micro-fngrdxln, dns, 1/4 mealy-gran txt, pr IG por, NS, n. flor, n. stn, n. odor.

Ls; AA, micro-fngrdxln, decr mly-gran txt, pr por, NS, scat chlk, wht, pr por, NS, n. flor, n. stn, n. od, incr Sh; redbeds, some md-dk.gry, decr .

50% redbeds, AA, incr grn-gry & dk. gy shale, silty IP, decr to 50% Ls; AA, micro-fngrdxln, mealy-occ gran txt, w/ por AA, NS, n. flor, n. stn, n. odor.

Sh; 90% redbeds, sli incr grn-gry, and dk. gry shale, scat pcs Sd; crm-lt.gry, silty-vfngrd, subrdd, most dns, pr por, NS, n. flor, n. stn, n. odor

Sh; 90% redbeds, AA, 10% Sd; crm-lt.gry, silty-vfngrd, AA, subrdd, calc, brittle-semi-fraib, scat pr IG por, NS, n. flor, n. stn, n. odor

Ls; crm-gry-buff, sli spkl'd brn , micro-mdgrdxln, foss, soft IP, most dns, scat fr IXLN por, NS, n. flor, n. stn, n. odor.

SPUD 4:00 PM 10-26-2015
RTD 8:10 AM 11-7-2015

"BIT RECORD"

1.) Varel HE21MSV (New)
Under Surface to 5425' RTD

"VERTICAL SURVEYS"

1/2 °	@	264'
1/2 °	@	1247'
3/4 °	@	2000'
3/4 °	@	3258'
1/2 °	@	4079'
1/2 °	@	4340'
1/2 °	@	5425'

10-26-2015 - MIRT, RURT
Prep to Spud

10-27-2015 - 7:00 AM
Drlg @ 345'
set 8-5/8"@ 287'

10-28-2015 - 7:00 AM
Drlg @ 2115'

10-29-2015 - 7:00 AM
Drlg @ 2960'

10-30-2015 - 7:00 AM
Drlg @ 3474'

10-31-2015 - 7:00 AM
PTD @ 4170'
Short Trip - Prep for DST (1)

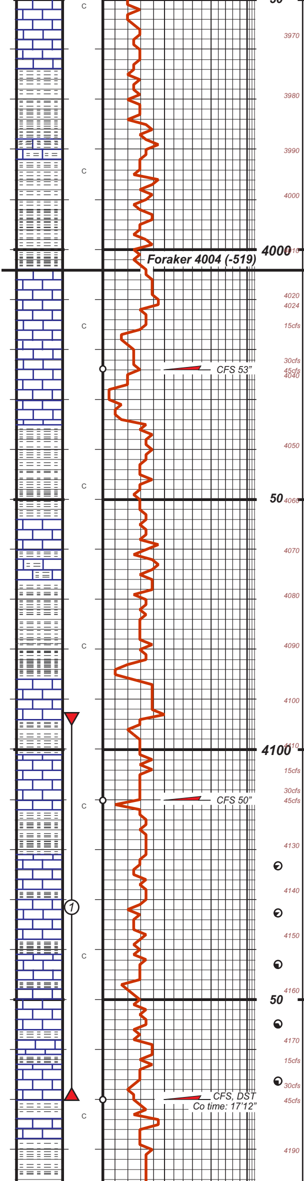
11-1-2015 - 7:00 AM
Drlg @ 4321'

11-2-2015 - 7:00 AM
Drlg @ 4445'

11-3-2015 - 7:00 AM
Drlg @ 4550'

11-4-2015 - 7:00 AM
PTD @ 4725'
Running DST(4)

11-5-2015 - 7:00 AM
Drlg @ 4926'



Ls; AA crm-gry-drk.gry, mott, micro-occ mdxln, scat fr IXLN and IG por, NS, n. flor, n. stn, n. odor.

Sh; most red, tan, flood brn-rust dirty limy shale, calc, dns, scat grn-gry, dk.gry, blk.

Sh; decr red, rust, incr brn-tan dirty limy shale AA, incr grn-gry, dk.gry, AA, occ blk., n. odor

Sh; AA, abund dirty Ls; AA, pr por, NS, no clean Ls or sand, n. odor

Sh; AA, flood brick red, n. clean Ls, n. clean sand, n. odor

Ls; md.gry-dk.gry-blk, micro-fnxln, scat mdxln, mostly dns, scat mly txt, pr por, NS, some Cht; brn, smoky, transluc, fresh, pr por, NS, n. flor, n. stn, n. odor (4020 and 4024 spl)

Ls; md.gry-dk.gry, micro-fnxln, s. foss, crinkl'd-mly txt, dns, pr por, NS, n. flor, stn, or odor, trc Cht; brn-tan, AA, NS (15" cfs)

Ls; crm-lt.gry-md.gry, s. mott, micro-fnxln, chalky, soft, pr por, NS, scat mdgrdxln, s. foss, occ gran txt, dns, pr por, NS, trc cht; AA, fresh, transluc, pr por, NS, n. odor (30" cfs)

Shaly Ls; mix AA, crm-lt.gry-md.gry, mott, micro-fnxln, decr chalk, NS, scat cht; AA, transluc, pr por, NS, n. odor, incr drk shale, scat red-brn, abund slough (45" cfs)

Ls; most crm-bf, some tan, micro-fnxln, chalky, softer, foss, scat pr IXLN por, OA pr por, NS, n. flor, stn, or odor, no cht or sd, incr Sh; most rd-brn, dk gry, blk, carb IP. (4050 spl)

Ls; crm-bf, tan, AA, micro-fnxln, softer, foss, pr por, NS, n. flor, or stn, abund Sh; rd-brn, drk gry AA, n. odor.

Sh; most rd-brn, some gry, dk.gry, scat pl.grn, wxy, 30% Ls; crm-dk.gry-brn, micro-fnxln, s. chalky IP, scat fn-mdxln, mly txt, pr IXLN por, NS, n. flor, n. stn, n. odor. (4070 spl)

Sh; drk, AA, scat Ls; crm-gry-brn, micro-fnxln, decr chalk, scat pr IXLN por, NS, n. flor, n. stn, n. odor (4080 spl)

Sh; most drk gry, blk, carb IP, incr red-brn, silty, dirty, occ pl. grn-crm soft clay, n. odor.

Sh; flood red-brn, silty, dirty, some gry/dk.gry, trc maroon, trc pl. green

Ls; crm-lt.gry, micro-vfngrdxln, mealy txt IP, dns, pr por, NS, n. flor, n. stn, n. odor. (4100 and 4110 spl)

Sh; most red-brn, silty, dirty, AA. s. vcol.

Ls; crm-lt.gry-md.gry, micro-vfngrdxln, most dns, comp, NS, scat fn-mdgrdxln, s. foss, mealy-gran txt, pr por, NS, n. flor, n. stn, n. odor. (15", 30" and 45" cfs)

Ls; crm-gry-scat blk (asphaltic stn), micro-mdxln, occ mly txt, soft IP, scat pr IXLN por, NSFO, n. flor, scat pcs spkld blk stn, wk-fr cut w/crush. fr halo, n. det odor

Ls; crm-gry-scat blk AA, micro-mdgrdxln, occ mealy-gran txt, some soft IP, pr-fr IXLN & IG por, 5% SSFO (tarry), wk flor, patchy-sat brn/blk stn, (asphaltic) fr stream'g cut, good halo, gd ring, drk brn oil in dimple dish, n. odor? (4150 spl)

Ls; crm-lt.gry, spkl'd-patchy blk (stn), micro-crsgrdxln, scat gran-rgh txt, pr-occ fr IXLN por, 5% S-FSFO (glossy tar), wk-fr even flor, 10% blk patchy-sat stn, fr-gd stream'g-flash cut w/o brk, gd drk oil and ring, poss faint odor (4160 spl)

Ls; crm-buff, spkld-sat blk stn, micro-mdgrdxln, foss, subool, incr gran-rgh txt, 10% fr IG, IXLN, & occ ppt por, same 10% S-FSFO, even md flor, patchy-sat blk stn, most gd stream'g-strong flash cut w/o brk, faint odor (4170 & 15" cfs)

Ls; crm-buff, AA, spkl'd-sat blk stn, micro-mdgrdxln, s.foss, por AA, 10% S-FSFO, even flor, patchy-sat stn and cut AA, no det odor? (30" and 45" cfs)

Sh; vcol, dk gry, gry-grn, blk, rd-brn, brick red, scat maroon, silty, scat Ls; crm-lt.gry, micro-vfnxln, s. foss, comp, pr por, NS, n. flor, n. stn, n. odor.

Sh; AA, most dk.gry, blk, 1/3 rd-brn, silty, scat Ls; crm-lt.gry-tan, foss, gran-rgh txt, pr por, NS, n. flor, n. stn, n. odor

11-6-2015 - 7:00 AM
PTD @ 5122'
Running DST(5)

11-7-2015 - 8:10 AM
RTD @ 5425'
CFS, Prep for Nabors ELogs

11-8-2015 - 7:00 AM
RTD @ 5425'
Plg and Abdn Loc

Mud Check at 3765:
vis: 47 wt: 8.7 Chlor: 700
LCM: 4# Ph:9.5 WL: 8.8

Call Point 3500'
7:00 PM 10-29-2015

Geologist on location 3905'
12:20 PM 10-30-2015

Rig check
vis: 48 wt: 8.9 LCM: 3#

Short Trip 40 Stands
Pulled 20-40K over
on stands 5-12

Mud Check at 4170 (before DST):
vis: 56 wt: 9.0 Chlor: 700
LCM: 4# Ph: 9.5 WL: 9.4

DST (1) 4093'- 4170'
30-30-30-60
Blow: weak, built to 1/2" on IFP,
no blowback on ISIP;
no blow on FFP,
no blowback on FSIP

1' Mud trace oil
(0% gas, 0% oil, 100% mud, 0% wtr)

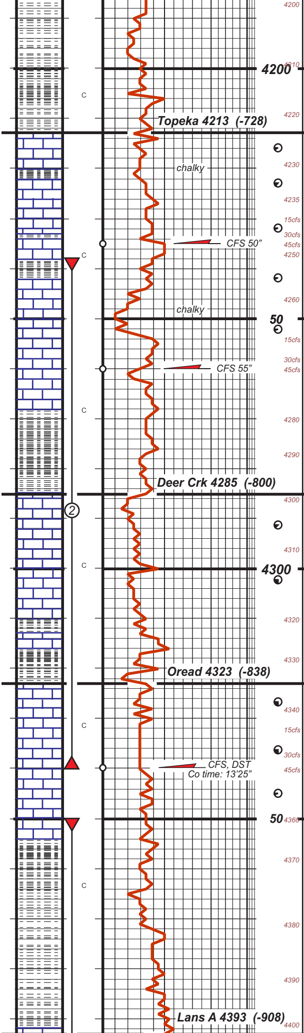
IHP:	2147	FFP:	12-12
IFP:	14-14	FSIP:	51
ISIP:	48	FHP:	2026

Temp: 133°F

Chlorides MUD: 500 PPM
DST: NA

Rw = NA

Pipe Strap on DST (1)
Board: 4173.72'
Strap: 4175.45'
Diff: 1.73' long



Sh; abund rd-brn, silty-sdy, dirty, gritty text, n. clean sand.

Sh; AA, rd-brn, silty, dirty, incr gry-blk, trc pyrite

Ls; crm-wht, spkl’d-patchy blk (stn), most micro-fnxln, 1/10 fn-mdxln, s. foss, w/gran-rgh txt, some chalky, most pr-occ IXLN por, trc (2 pcs) SSFO, n. flor, 3% spkl’d asphaltic stn, wk cut w/crush, scat dead asphalt flakes, n. odor, (4230 spl)

Ls; crm-wht, spkl’d-patchy blk (stn), most micro-occ mdxln, incr chalk, pr-scat fr IXLN por, trc (1 pc) SSFO, 5% spkl’d-patchy asphalt stn, wk cut w/crush, asphlt flakes, n. odor.

Ls; crm-lt.gry-v.pl.grn, most microxln, becom dns, comp, pr vis por, decr chalk, scat pcs w/blk stn AA, NSFO, n. flor, n, odor (15”, 30” cfs, incr slough in 45” cfs)

Ls; crm-wht-lt.gry, micro-fngrdxln, sdy IP, s. foss, most dns, occ gran txt, scat pr IXLN por, NSFO, n. flor, scat pcs w/blk stn & wk cut AA (slough?) decr chalk, no odor. (4260 spl)

Ls; crm-wht-blk (stn), vf-fngrdxln, subsucr txt, brittle, incr chlk, 1/4 pr-occ fr IG por, scat pcs (2-3 tray) SSFO, 3% wk flor & spkl’d-patchy blk stn, slow wk-fr cut, same crush’d, scat stn in chalk, fr halo, lt. oil ring, occ barren por, n. od (15” cfs)

Ls; crm-wht-lt.pink, micro-fnxln, most dns, mealy txt, scat pr IXLN por, sharp decr chalk, NSFO, n. flor, scat pcs blk asphaltic stn, wk-fr cut AA, n. odor (30” and 45” cfs)

Ls; crm-lt.pink, spkl’d blk (stn), AA, dns, pr por, NSFO, n. flor, scat pcs spkld stn, n. odor, incr Sh; red-brn, silty, dirty, some rd-purple, scat dk.gry, pl. grn.

Sh; rd-brn, some dk.gry-blk, scat gry-grn.

Ls; most crm-lt.gry, micro-fnxln, dns, comp, pr por, 1/10 md gry, micro-fngrdxln, foss, gran txt, brittle, pr-occ fr IG por, scat pcs (3-4 tray) SSFO (drk, microdrops on brk), same pcs wk flor, & spkl’d-patchy blk asphlt stn, fr stream’g cut w/o brk, drk free oil in dish, n. det odor? (4300 & 4310 spls)

Ls; crm-lt.gry, spkld blk (stn) AA 1/5 md. gry, micro-fngrdxln, foss, pr- scat fr IG por, incr pcs (5-6 tray) S-occ FSFO (drk, microdrops on brk), same w/wk flor, & spkl’d-patchy blk stn, fr stream’g cut & drk free oil in dish, n. det odor? (4320 spl))

Sh; gry, dk.gry, vcol blk, red, pl. grn, scat Ls; gry, tan, crypto-microxln, dns, n. vis por, NS

Ls; crm-wht-bf, abund blk stn, 4/5 micro-fnxln, dns, pr por, NS, 1/5 fn-mdgrdxln, foss, subool, gran-rgh txt, pr-occ fr IG & IXLN por, 5% S-occ FSFO (hvy, brn) 5% spkl’d. flor and patchy-sat blk asphaltic stn, fr-gd stream’g cut w/o brk, lite brn free oil & ring in dish, n. det odor? (4340 and 15” cfs)

Ls; crm-wht-tan, decr blk stn, most micro-vfnxln, becom dns, decr foss, most pr por, decr spkl’d-patchy blk asphaltic stn, trc pcs (2) SSFO, fr cut, n. odor. (30” & 45”cfs)

Ls; crm-lt.gry, most microxln, dns, comp, pr por, scat pcs with stn, NSFO, n. flor, n. odor (4360 spl)

Sh; most drk.gry, blk, scat red-brn, md.grn, decr Ls;AA.

Sh; md-drk.gry, some rd-brn, scat grn, blk, 10% Sd; lt.gry silty-vfngrd, s. mica, softer, fr sort, qtz, pr-fr IG por, NS, n. flor, n. stn? n. odor (4380 spl)

Sh; md-dk.gry, AA, incr rd-brn, blk, non-carb, decr Sd; crm-lt gry, AA, soft, NS, n. odor

Sh; most drk.gry, blk, scat red-brn, md-dk.grn, pyritic

Rig Check before DST:
vis: 55 wt: 9.1 LCM: 4#

DST (2) 4238’- 4340’

30-30-45-90

Blow: weak built to 1 3/4” on IFP,
no blowback on ISIP;
wk blow started 28”, built to 1/4” on FFP,
no blowback on FSIP

45’ MCW, Show oil in tool
(0% gas, 0% oil, 18% mud, 82% wtr)

IHP:	2159	FFP:	25-35
IFP:	18-23	FSIP:	1468
ISIP:	1408*	FHP:	1988

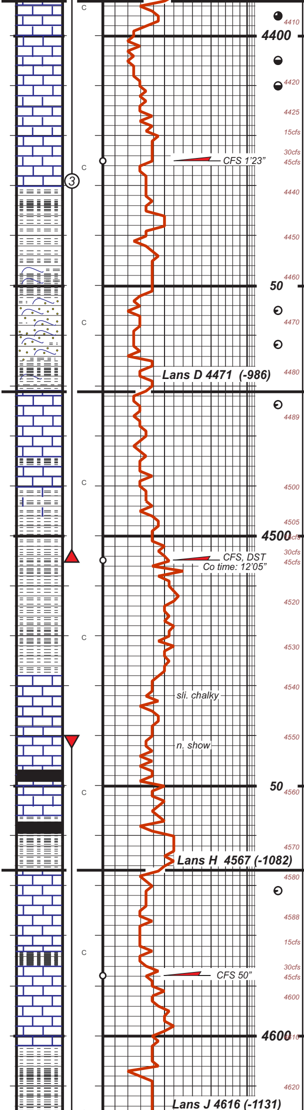
Temp: 139°F

Chlorides MUD: 500 PPM
DST: 7500 PPM

Rw = 1.047 Ohms @ 61.4°F

*Note: ISIP curve still bldg,
FSIP curve is broken over.

Mud Check at 4340 (during DST):
vis: 50 wt: 9.1 Chlor: 500
LCM: 3.5# Ph: 10.0 WL: 8.8



(4393-97) Ls; crm-gry, patchy brn/blk (stn), micro-fnxln, most pr IXLN por, 5% s. foss, subool, mealy-rgh txt, pr-fr IXLN por, scat fr pinhole & occ vug por, 5% F-GSFO (globular, bleed'g) med-brite spkl'd-even flor, patchy-satur drk brn/blk stn (live & ashaltic) strong stream'g-xcel flash cut, drk free oil and ring in dish, poss faint odor, gd drops oil in cup (4410 spl)

(4397-4415) Ls; crm-gry, spkld-patchy brn/blk, (asphalt stn), micro-fnxln, 1/10 sli .foss, subool, mly-rgh txt, 5% pr-fr IXLN por, scat pcs fr ppt & microvug por, s. chalky, scat (5-7 tray) pcs S-occ FSFO (brn/blk droplets, bleed'g) same with med-brite patchy flor, patchy-sat. drk brn stn, fr-gd stream'g-flash cut, dk brn oil in dish, gd ring, n.det od? (4420 & 4425 spls)

Ls; most crm-gry, becom micro-vfnxln, comp, dns, decr vis por, NS, n. flor, n. stn, n. odor (15", 30", and 45" cfs)

Ls; crm-gry, micro-vfnxln, comp, dns, pr por, NS, n. flor, n. stn, n. odor (4440 spl)

Sh; most gry-dk.gry, vcol blk, grn, scat brick red, abund Ls slough AA, crm-lt.gry, microxln, dns, NS.

Sh; most gry, drk, silty, mica IP, some rd-brn, n. clean sd

Sdy Sh; most gry-dk.gry, rd-brn, 20% Sd; gry-clr-tan, scat blk (stn) sli mica, vfn-occ fngrd, pr sort, subang qtz, sli.friab, pr IG por, NSFO, n. flor, 10% spkl'd-patchy blk asphalt stn, most wk-fr cut crush'd, fr halo, n. odor (4470 & 4480 spls)

Sh; most gry, drk.gry, blk, carb IP, some rd-brn, n. clean sd

Ls; crm-wht-gry, spkl'd blk(stn), micro-fnxln, dns, pr vis por, NS, scat vfn-mdxln s. foss w/mly txt, pr IXLN por, scat pcs (4-5 tray) with SSFO (blk microdrops w/brk, asphalt flakes) n. flor?, same pcs w/spkl'd asphaltic stn, wk-fr cut w/o brk, fr-gd cut crush'd, n. det odor (4489 spl)

Ls; crm-gry-md.gry, some tan, micro-vfnxln, dns, comp, pr por, scat mealy txt, pr por, NS, n. flor, n. stn, n. odor, flood red-brn shale (4500 spl)

Ls; gry-md.gry-tan, micro-vfnxln, dns, NS, n. flor, n. stn, n. odor, some dirty shaly dk.gry Ls; silty-microxln, dns, NS, abund red-brn shale (4505 spl)

Sh; drk. gry, abund red-brn, vcol blk, scat sd slough w/stn, scat dns Ls slough, pr por, NS, n. odor.

Sh; abund drk.gry, blk, decr rd-brn, scat sd and Ls slough, pr por, n. odor.

Sh; drk. gry, vcol, AA, scat blk, platy, rd-brn. silty.

Sh; flood red-brn, silty, dirty, some pl.grn, blk, n. cln sd.

Ls; most crm-wht, lt.gry, crypto-vfnxln, comp, dns, pr por, NS, scat chalk, soft, n. vis por, NS, n. flor, n. stn, n. odor, abund shale slough, drk, vcol AA.

Ls; crm-wht, crypto-vfnxln, AA, NS, some md.gry-dk.gry, micro-mdxln, sli. foss, mealy txt IP, dns, pr por, NS, n. flor, n. stn, n. odor, scat blk shale (4560 spl)

Sh; drk. gry, incr blk and red-brn.

Ls; crm-wht-lt.gry, microxln, dns, pr por, NS, n. stn, n. odor, incr Sh; drk. gry, vcol rd, grn, blk (4570 spl)

(4566-76) Ls; crm-gry-bf, trc blk stn, most crypto-microxln, sharp IP, dns, pr por, NS, scat pcs fn-mdxln, s. foss, dns, pr vis por, scat pcs pr IXLN por, trc pcs (2 tot) spkl'd blk stn, NSFO, n. flor, wk cut crush'd only, chalky; crm-wht, soft, pr por, NS, interval has n. odor (4580 and 4588 spls)

Ls; crm-bf-lt.gry, crypto-vfnxln, decr por, NSFO, n. flor, trc w/spkl'd blk stn, wk cut, n. odor. (15" cfs)

Ls; crm-buff-lt.gry, micro-vfnxln, comp, dns, pr vis por, NS, n. flor, n. stn, n. odor, some Sh; red-brn, blk (30" & 45" cfs)

Ls; crm-gry, some buff, micro-vfnxln, most dns, scat mealy txt, pr vis por, NS, n. flor, n. stn, n. odor (4600 & 4610 spls)

Sh; flood dk.gry, rd-brn, some blk, pl.green.

DST (3) 4350'- 4505'

30-45-30-90

Blow: weak built to 1" on IFP,
no blowback on ISIP;
no blow on FFP,
no blowback on FSIP

6' Mud, NS

IHP:	2301	FFP:	20-19
IFP:	21-22	FSIP:	231*
ISIP:	170*	FHP:	2213

Temp: 144°F

Chlorides MUD: 500 PPM
DST: NA

Rw = NA

*Note: both shut-in curves still bldg, both slightly concave up.

Mud Check at 4505 during DST:
vis: 47 wt: 9.3 Chlor: 700
LCM: 3# Ph: 9.5 WL: 9.0

Mud Check at 4570:
vis: 57 wt: 9.2 Chlor: 500
LCM: 4.5# Ph: 9.2 WL: 8.4

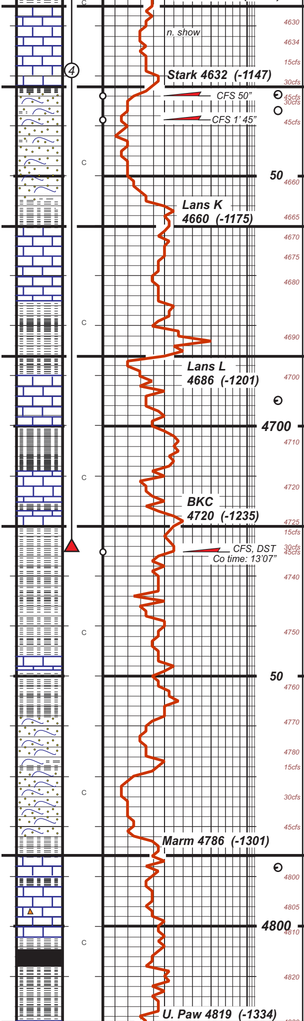
DST (4) 4540'- 4725'

30-30-45-90

Blow: fair built to 7 1/4" on IFP,
no blowback on ISIP;
fair built to 6 1/2" on FFP,
no blowback on FSIP

90' VSOCM
(0% gas, 2% oil, 98% mud, 0% wtr)
125' VSOGCWM
(3% gas, 3% oil, 70% mud, 24% wtr)
215' Total Fluid

IHP:	2362	FFP:	65-117
IFP:	21-61	FSIP:	1413
ISIP:	1376	FHP:	2270



Ls; most crm-gry, some bf, crypto-vfnxln, most dns, chalky IP, scat pcs mealy txt, pr IXLN por, NSFO, n. flor, n. stn, n. odor (4630 and 4634 spls)

Ls; crm-gry-md.gry, micro-vfnxln, comp, chalky, (spls wash wht), pr vis por, NS, n. flor, n. stn, n. odor. (15" & 30" cfs)

Sh; drk.gry, blk, vcol, rd-brn, scat grn, 20% silty Sd; crm-gry spkld'blk (stn), vfngrd, fr sort qtz, fr IG por, soft, friab, NSFO, 5% spkld stn, wk-fr cut brkn, asphlt flakes, n. odor (45" cfs)

Sd; crm-gry-md.gry, vfn-fngrd, subang, gd sort, qtz, friab, most fr-gd IG por, NSFO, few pcs spkl'd blk stn, wk-fr cut w/o brk, gd cut crush'd, blk asphlt flakes dissolve to lt. brn oil in dimple dish, n. odor, abund barren por (45" cfs)

Sd; crm-lt.gry-tan-clr vn-fngrd, fr sort, subang-subrdd, friab IP, fr IG por, NS, n. flor, n. stn, n. odor.(4660 & 4665 spls)

Sh; flood red-brn, silty-sdy, vfngrd, dirty, pr vis por, some dk.gry, blk, pl.grn, sharp decr Sd; AA, NS, n. odor.

Ls; crm-bf-gry/brn, most micro-fnxln, s. foss, pr vis por, sli. chalky, NS, n. flor, n. stn, n. det odor (4670 spl)

Ls; crm-gry-md.gry, most micro-vfnxln, dns,1/10 fn-mdxln, sli. foss, mly-rgh txt IP, pr por, NS, n. flor, n. stn, n. od (4675 spl)

Ls; crm-bf-lt.gry, micro-occ mdxln, becom compact, dns, sharp, n. vis por, NS, n. flor, n. stn, n. odor (4680 spl)

Sh; drk. gry, blk, incr rd-brn, scat grn, abund Ls slough.

Sh; most drk. gry, blk, rd-brn, AA

Ls; flood crm-wht-gry, most micro-mdxln, dns, pr por, NS, no flor, n. stn, scat chalk, wht, soft, n. odor. (4700 spl)

Ls; crm-wht-gry, micro-vfnxln, most dns, crinkl'd txt, some sharp, OA pr vis por, decr chalk, n. odor, incr rd-brn, grn-gry, dk.gry-blk shale

Sh; drk gry, platy, some blk, rd-brn, dirty grn-gry

Ls; crm-lt gry, micro-vfnxln, dns, pr por, NS, occ md-dk gry, microxln, crinkl'd txt, comp, some sharp, OA pr por, NS, n. flor, n. stn, n. odor. (4720 and 4725 spl)

Sh; incr red-brn, maroon, drk gry, scat Ls; crm-gry-dk.gry, AA, micro-fnxln, dns, pr por, NS, n. flor, n. stn, n. odor.

Sh; most rd-brn, drk gry, blk, scat maroon.

Ls; most crm-bf, micro-fnxln, scat mdgrdxln, some chalky, scat pr IXLN por, NSFO, n. flor, n. stn, n. odor, abund Sh; dk.rd-brn, blk, grn-gry, drk gry.

Ls; crm-gry, micro-fnxln, scat mealy txt, dns, pr por, NS, n. flor, n. stn, n. odor, abund Sh; most red-brn, vcol grn, grn-gry, blk, AA.

Ls; crm-gry, micro-mdxln, s. foss, crinkl'd-scat mealy txt, dns, pr por, NS, n. flor, n. stn, n. odor, abund Sh; most red-brn, silty IP, vcol AA.

Silty Sd; most red-brn, silty-fngrd, pr sort, pr IG por, NS, n. flor, n. stn, n. odor (4780 spl)

Silty Sh, drk rd-brn, maroon, decr Sd (15" cfs)

Silty Sd; most AA, pr por, incr to 30% Sd; rust-rd-brn, vfn-fngrd, mod sort, pr-fr IG por, semi-friab, NS, n. flor, n. stn, n. odor (30" cfs)

Silty Sd; AA, pr por, 40% Sd; rust-rd-brn, vfn-fngrd, AA, pr-fr IG por, friab IP, NS, n. flor, n. stn, n. odor (45" cfs)

Sh; most red-brn, scat vcol grn, blk.

(4786-90) Ls; crm-bf, gry, micro-mdgrdxln, sli. foss, subool most dns, scat pr IXLN por, n. oolit por, trace (2 pcs) patchy blk tarry stn VSSFO (tar, hvy) n. flor, gd stream'g cut, lt brn oil and strong halo after cut, n. det odor. (4800 spl)

(4790-96) Ls; most crm-gry, md.gry, s.mott, micro-fnxln, sli. foss AA, becom dns, sharp, OA pr por, NS, scat wht chalk, softer, n. por, NS, n. flor, n. stn, n. odor (4805 spl)

(4796-4812) Ls; crm-gry-dk.gry, micro-fnxln, dns, subsucr txt IP, pr por, NS, incr chalk, wht, soft, AA, NS, trc salmon Cht, transluc, sharp, OA n. flor, n. stn, n. odor (4810 spl)

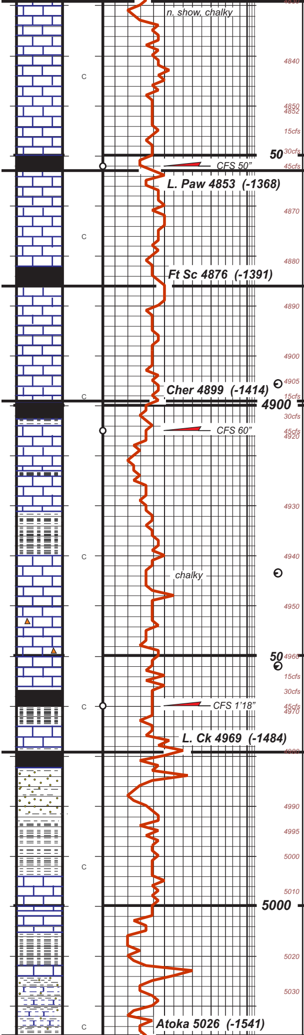
Sh; drk, strong vcol most red-brn, drk gry, some grn & blk.

Temp: 143°F
Chlorides MUD: 500 PPM
DST: NA

Rw = NA

Both shut-in curves broken over

Mud Check at 4725 during DST:
vis: 50 wt: 9.4 Chlor: 750
LCM: 4# Ph: 10.0 WL: 8.8



(4819-30) Ls; most lt.gry, micro-vfnxln, dns, pr por, NS, some bf, micro-mdgrdxln, soft, foss, subool, mealy txt, pr IXLN por, NS, n. flor, n. stn, scat chalk, crm/wht, soft, pr por, NS, n. flor, n. stn, intvl has no odor (4840 spl)

Ls; sharp incr med gry-drk gry, microxln, comp, dns, sharp, crinkl’d text, n. vis por, NS, n. flor, stn, or odor, decr chalk.

Ls; most md-dk.gry-gry/dk.brn, microxln-vfnxln, most comp dns, sharp, shaly IP, crinkl’d-sli.mealy txt, n. vis por, NS, n. flor, n. stn, n. odor.

Sh; drk gry, abund blk, carb IP. (45” cfs)

Ls; most md-dk.gry, micro-fnxln, crinkl’d-mly txt, dns, NS, some crm-gry, microxln, s. chalky, pr vis por, NS, n. flor, n. stn, n. odor

Ls; becom crm-lt.gry, microxln, dns, pr por, NS, still abund md.gry-dk.gry, AA, micro-fnxln, dns, crinkl’d txt, some sharp, pr vis por, NS, n. flor, n. stn, n. odor

Sh; drk gry, blk, carb, rd, grn.

Ls; crm-md.gry, mott tan/brn, micro-mdgrdxln, s. foss, dns, occ mly-rgh txt, pr por, NS, some dk.gry, micro-fnxln, dns, NS, scat crm-bf chalk, pr IXLN por, NS, n. flor, stn, or odor. Ls; most crm-md.gry, s. foss, subool, dns, scat mly txt, pr por, incr tan-gry/brn, micro-mdxln, pr IXLN por, NS, occ crm chalk, NS, trc Cht; tan, transluc, fresh, NS, n. flor, n. stn, n. odor Ls; crm-md.gry-brn, mott, dns, mealy txt IP, OA pr por, trc pcs (2 tot) blk stn (asphltic) NSFO, n. flor, v.wk cut, scat crm chalk, pr por, NS, intvl has n. odor (15” and 30” cfs)

Sh; dk gry, abund rd-brn, grn, some blk, carb, (30” cfs) scat Ls; most bf-tan/brn, micro-mdxln, s. foss, dns, shrp, pr por, NS, n. flor, n. stn, n. odor (45” cfs)

Ls; most crm-bf-tan, mott IP, micro-fnxln, occ mdgrdxln, pr por, NS, 25% chalk, crm-wht, pr-scat fr IXLN por, NS, n. flor, n. stn, n. odor (4930 spl)

Ls; most crm-lt.gry-brn, micro-mdxln, s. foss, sharp IP, most dns, crinkl’d text, pr por, NS, n. flor, n. stn, n. odor. (4940 spl)

Sh;, most red-brn, drk gry, blk, carb, some grn (4940 spl).

(4930-37) Ls; crm-buff, some crm-md.gry, micro-fnxln, most dns, 1/10 chalky, soft, scat pr-fr IXLN por, rare pcs (2-3 tray) spkl’d blk stn, SSFO (microdroplets w/ brk), n. flor?, fr ribbon cut w/o brk, same crush’d, n. odor. (4950 spl)

(4937-44) Sh; shrp incr rd-brn, blk, carb, some grn, pyritic (4944-50 Ls; crm-buff, some crm-md.gry, micro-fnxln, most dns, decr chalk, n. vis por, NS, n. stn, scat Cht; gry-smoky, transluc, fresh, n. vis por, NS, n. flor, n. stn, n. odor

Ls; crm-tan-gry, microxln, most dns, shrp IP, scat cht; smokey, AA, OA pr vis por, NS, n. flor, stn, or odor (15” cfs)

Sh; shrp incr rd-brn, blk, carb, some grn. (30” & 45” cfs)

Ls; crm-tan-gry, AA, micro-fnxln, comp, dns, crinkl’d txt, pr vis por, NS, n. flor, n. stn, n. odor

Sh; strong vcol red-brn, blk, carb, grn, dk.gry, platy.

Sd; crm-bf-gry-clr, vfn-crsgrd, pr sort, subang-rdd qtz, s. friab most cln, pr-fr IG por, NS, n. flor, n. stn, n. odor (4990 spl) Sd; crm-gry-clr, AA, vfn-crsgrd, s.glauc, pr.sort, qtz, brittle-friab, fr IG por, NS, n. flor, n. stn, n. odor, incr sh, drk.gry, vcol grn-gry (4995 spl)

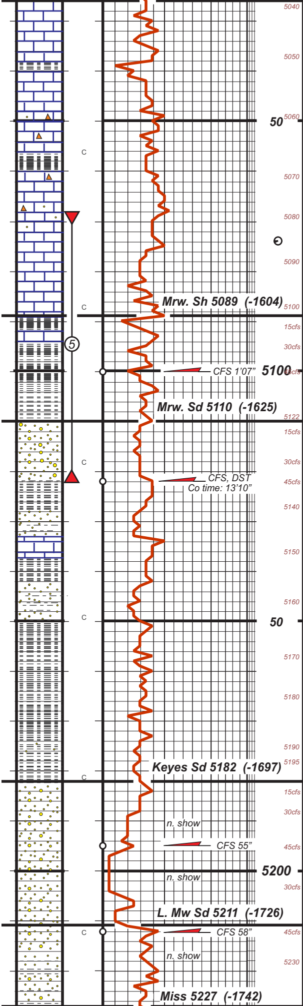
Sh; shrp incr rd-brn, blk, carb, some grn. (30” & 45” cfs)

Ls; crm-bf-gry, micro-fnxln, most dns, pr por, NS, n. flor, n. stn, n. odor. (5010 spl)

Ls; most lt-md.gry, some tan, brn, mott, micro-mdgrdxln, dns, pr vis por, NS, scat Cht; crm, smoky, transluc, fresh, n. por, NS, n. flor, n. stn, n. odor, abund Sh; rd-brn, pl.grn, n. clean sand. (5020 spl)

Limy Sh; drk.gry, blk, red, grn, abund rework’d Ls, tan, brn, crm, md.gry, micro-fnxln, occ mdxln, chalky IP, most dns, pr vis por, trc (1 pcs tray) NSFO, spkl’d blk asphaltic stn, wk-fr ribbon cut w/o brk, same crush’d, scat Sd; clr-lt.gry, AA, md-crs grd, glassy, subang-ang, qtz, n. odor (5030 & 5040 spls)

Mud Check at 4968:
vis: 62 wt: 9.4 Chlor: 500
LCM: 1# Ph: 10.5 WL: 8.8



Ls; crm-bf-lt.gry, scat pl grn, most micro-fnxln, few pcs fn-mdxln, s. foss, chalky IP, most dns, pr vis por, NS, n. flor, n. stn, n. odor, abund dk. vcol Sh; rd-brn, maroon, purple, blk.

Ls; crm-bf-lt.gry, micro-fnxln, dns, pr por, NS, n. flor, n. stn, trc Cht; tan, transluc, fresh, shrp, n. por, NS, still abund Sh, drk red-brn, gry, grn, blk, spl has n. odor (5070 spl)

Ls; crm-bf, some gry, occ pl. grn, most micro-v fnxln, scat fn-mdxln, pr por, NS, scat Cht; tan, milky, smoky, transluc, fresh, n. vis por, n. flor, n. stn, n. odor.

Ls; crm-bf, some gry/brn, AA, incr cryptoxln, pr por, NS, scat cht, lt.tan-yellow, transluc, fresh, NS, n. flor, n. stn, n. odor, some Sh; drk.gry, red-brn, maroon, dk.grn-gry

Ls; crm-md.gry-drk.gry, mott IP, crypto-mdxln, pr por, sli. foss, crinkl'd-mealy txt, few pcs chalky, pr IXLN por, NSFO, spkld blk asphalt stn, wk cut, trc Sd; gry-grn, vfn-fngrd, qtz, semi friab, pr por, NS, n. flor, n. stn, n. odor. (5090 spl)

Ls; crm-buff, some lt.gry, micro-fnxln, chalky, softer, most pr vis por, scat pcs chalk w/weath txt, NSFO, n. flor, trc (1 pc) spkl'd blk stn, wk cut, fr halo, n. odor (5100 spl)

Sh; drk, vcol, abund red-brn, some grn, blk, scat Ls; crm-bf-gry, AA, micro-fnxln, pr IXLN por, NS, n. od. (15" & 30" cfs)

Sh; most drk, strong vcol, gry, blk, grn, purple, rd-brn

Sh; most drk, strong vcol, gry, blk, grn, purple, rd-brn, scat Ls chips, v. small, gry/brn, microxln, comp, dns, n. vis por, NS, no clean sand, n. odor. (5122 spl)

(5110-22) Sd; crm-clr-wht, most fn-v.crsgrd qtz, fr-gd IG por, some qtz points in clusters, friab, scat pcs w/blk stn? (n. cut), s. chalky, abund free grns in tray bottom, (cobble size 3-5 mm) well rdd-fractured, frosted IP, NSFO, n. flor, n. cut, n. odor (15", 30", and 45" cfs)

Sh; drk, vcol, AA, scat Ls chips, AA, few pcs silty Sd; lt.gry, vfngrd, pr IG por, soft, NS, n. stn, n. odor.

Sdy Sh; drk, strong vcol AA, 25% Sd; crm-gry-tan, vfn-fngrd, s.friab IP, OA pr IG por NS, n. flor, n. stn, n. cut, n. od. (5150)

Ls; md.gry-dk.gry-brn, crinkl'd txt, s. foss, dns pr por, NS, n. flor, . stn, shaly, drk, strong vcol, intvl has n. odor (5150 spl)

Sdy Sh; drk.gry, strong vcol, 15% Sd; bry-clr, vfn-fngrd, glassy, brittle-s. friab, pr IG por, s. pyritic, NS n. flor, n. stn, n. odor (5160 spl)

Sh; drk.gry, blk, platy, some grn, brn, n. clean sd, n. odor.

Sh; drk.gry, flood blk, dk gry/grn, pyritic IP, n. cln sd, n. od.

Sh; drk.gry, blk, incr gry/grn, scat silty Sd; lt.gry, silty-vfngrd, soft, pr vis por, NS, n. clean sand, n. odor (5190 & 5195 spl)

(5182-84) Sd, wht, crm, clr, pl. grn, vfn-fngrd, pr-fr sort, ang-subrdd qtz, s.mica, brittle-friab, fr IG, NS, n. flor, stn, or odor

(5184-88) Sd; 1/2 crm-clr, 1/2 pl.grn, spkl'd grn (glauc) fn-mdgrd, friab, subang, fr-gd IG por, NS, n. flor, n stn, n. odor. (30" cfs)

(5188-95) Sd; crm-clr-pl.grn, spkl'd grn (glauc) md-crsgrd, friab, subang, most gd IG por, NS, n. flor, n stn, n. odor. (30" cfs)

(5195-5204) Sd, wht-crrm-grn-clr, spkl'd grn, fn-crsgrd, v.glauc, friab, suband-rdd, fr-gd IG, NSFO, n. flor, scat pcs blk gilson edge stn, (n. cut) n. odor, abund crs free grns in tray (30" cfs)

Sd, AA, wht-crrm-clr, glauc, fn-crsgrd, scat gilson stn, n. odor, abund crs free grns, incr Sh; dk gry, grn-gry, blk, platy. (45" cfs)

(5211-16) Sd, wht, crm, clr, spkl'd grn & blk, md-v.crsgrd, fr sort, ang-rdd, qtz, glauc, silica cem, most brittle-friab, glassy IP, fr-gd IG, NS, trc gilson. stn, n. cut, abund crs-v.crs free qtz grains in tray bottom (5230 and 5240 spls)

DST (5) 5068'- 5122'

15-30-30-60

Blow: strong, BOB in 35 seconds on IFP,
no blowback on ISIP;
strong, BOB in 105 seconds on FFP,
no blowback on FSIP

140' Mud
(0% gas, 0% oil, 100% mud, 0% wtr)
190' WCM
(0% gas, 0% oil, 63% mud, 37% wtr)
250' MCW
(0% gas, 0% oil, 8% mud, 92% wtr)
2075' SMCW
(0% gas, 0% oil, 3% mud, 97% wtr)
2655' Total Fluid

IHP:	2600	FFP:	1147-1197
IFP:	1114-1193	FSIP:	1204
ISIP:	1193	FHP:	2560

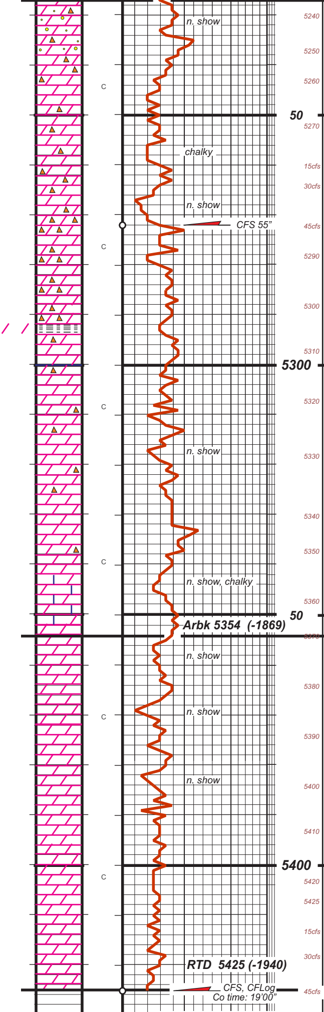
Temp: 172°F

Chlorides MUD: 500 PPM
DST: 13,000 PPM

Rw = 0.781 Ohms @ 43.6°F

Both shut-in curves broken over

Mud Check at 5122 after DST:
vis: 67 wt: 9.3 Chlor: 700
LCM: 4.0# Ph: 10.5 WL: 7.6



Dolo; lt-gry-crm, vfn-fnxln, subsucr, softer, pr IXLN por, NS, scat Cht; crm-spkld gry, foss, devit, pr-fr weath por, NS, 20% sd; AA, mdgrd-v.crsgrd, NS, n. flor, stn, or odor (5240 spl)

Dolo; lt.gry-crm, AA, vfn-fnxln, subsucr, pr IXLN por, NS, dull mnrl flor, n. oil flor, n. stn, incr Cht; crm-gry, foss, devit & por AA, NS, n. stn, n. odor, Shaly; md-dk.gry, platy, blk (5250 spl)

Dolo; lt.gry-crm, AA, vfn-fnxln, subsucr, pr-fr IXLN por, NS, n. flor, n. stn, incr Cht; crm-gry, AA foss, devit & por AA, NS, n. flor, n. stn, n. odor, Shaly; md-dk.gry, platy, blk (5250 spl)

Dolo; lt.gry-crm, AA, vfn-fnxln, fr IXLN por, NS, n. oil flor, n. stn, decr Cht; AA, n. flor, n. stn, n. odor (5260 & 5270 spls)

(5255-64) Dolo; lt.gry-crm, AA, vfn-fnxln, fr IXLN por, NS, incr chalky IP, wht, soft, NS, 10% Cht; crm-wht, devit, foss, opaq, pr-fr weath por, NS, n. flor, n. stn, n. odor, (15" & 30" cfs)

(5264-72) Dolo; lt-gry-crm, AA, vfn-fnxln, fr IXLN por, NS, chalky IP, wht, soft, NS, 20% Cht; crm-wht, devit, foss, opaq, pr-fr weath por, some fresh, NS, n. flor, n. stn, n. odor, (45" cfs)

(5278-80) Chty Dolo; crm-bf, spkld grn, vfn-mdxln, s. glauc, becom dns, pr por, NS, n. oil flor, n. stn, 10% Cht; crm-wht, foss, spicul, opaq, ½ sharp, ½ fr subtrip por, NSFO, n. flor, n. stn, n. odor (5290 spl)

(5280-92) Chty Dolo; bf-tan, spkld grn, sl. glauc, vfn-mdxln, pr por, NS, n. flor, n. stn, 30% Cht; crm-milky, AA, foss spicul opaq-transluc, ½ subtrip-weath por AA, NS, ½ sharp, pr por, n. odor (5300 spl)

(5294-5300) Dolo; tan, dk.brn, vfn-fnxln, chalky, subsucr txt, scat pr-fr IXLN por, NS, n. flor, n. stn, 5% Cht; gry-brn, foss, transluc, n.por, NS, n. odor, some dk. vcol shale (5310 spl)

(5300-5207) Dolo; tan-dk.brn, vfn-fnxln, s. glauc, chalky most subsuc-s.gran txt, scat fr IXLN por, NS, 5% Cht; drk brn, transluc, fresh, NS, flor, n. stn, n. odor (5320 spl)

Dolo; bf-tan-brn, AA, vfn-fnxln, mostly dns, scat pr-fr IXLN por, NS, n. flor, n. stn, scat Cht; crm-milky, AA, NS, scat chlk, NS, n. flor, n. stn, n. odor (5330 spl)

Dolo; 1/3 dk.gry-brn, vfn-fngrdxln, subsucr txt, dns, pr por, 2/3 bf-tan, vfn-fngrdxln, sucr-gran txt, scat gd IXLN por, NS, incr chalk, crm, micro-vfnxln, soft, pr IXLN por, NS, n. flor, n. stn, n. odor (5340 spl)

Dolo; most dk.gry-brn, AA, vfn-fngrdxln, subsucr txt, some shrp, most dns, pr vis por, NS, n. flor, n. stn, some gry/tan, vfnxln, pr vis por, NS, n. odor (5350 spl)

Limy Dolo; crm-lt.tan, most vfn-fngrdxln, most subsucr txt, sli. foss, subool, soft IP, chalky, pr-scat fr IXLN por, NS, n. flor, n. stn, n. od. (5360 spl)

Limy Dolo; crm-lt.tan, AA, most subsucr txt, s. foss, subool, pr por, NS, n. stn, n. odor, incr Sh; grn, blk, platy. (5370 spl)

Dolo; dk.gry brn, fn-mdgrdxln, sucr-gd rhomb txt, most dns, pr por, 1/3 fr-v.gd IXLN and gd-xcel vug por, NS, n. oil flor, n. stn, n. cut, n. odor (5380 spl)

Dolo; dk.gry brn, fn-crsgrdxln, sucr-rhombic txt, most dns, 1/5 fr-v.gd IXLN, rhombic, and vug por, NS, n. oil flor, n. stn, n. cut, n. odor (5390 spl)

Dolo; most dk.gry brn, some crm-md.gry, fn-mdgrdxln, sucr-rhombic txt, AA, 1/4 fr-gd IXLN, rhomb & vug por, NS, n. oil flor, n. stn, n. cut, n. odor (5400 and 5410 spl)

Dolo; most crm-wht, v. spkl'd grn & blk inclusions, (glauc & phosphate?) vfn-crsgrdxln, scat gd sucr-rhombic txt, 1/10 pr-fr IG and scat fr IXLN por, NS, n. flor, n. stn, n. odor (5410 and 5420 spls)

Dolo; 2/3 crm-wht, heavily spkl'd w/grn & blk inclusions, AA, vfn-crsgrdxln, pyritic IP, scat gd sucr-rhombic txt, 10% pr-fr IG & IXLN por, NS, 1/3 crm-lt.gry-bf, vfn-fngrdxln, mly-s.gran, scat pr IXLN por, NS, n. flor, n. stn, n. odor.

Dolo; most crm-lt.gry-tan, vfn-fngrdxln, mealy-sli.gran txt, becom dns, sharp, scat pr IXLN por, NS, 1/5 crm-wht, AA, hvy spkl'd grn & blk AA, por AA, NS, n. flor, n. stn, n. odor, incr dk. vcol Shales, platy. (30" and 45" cfs)

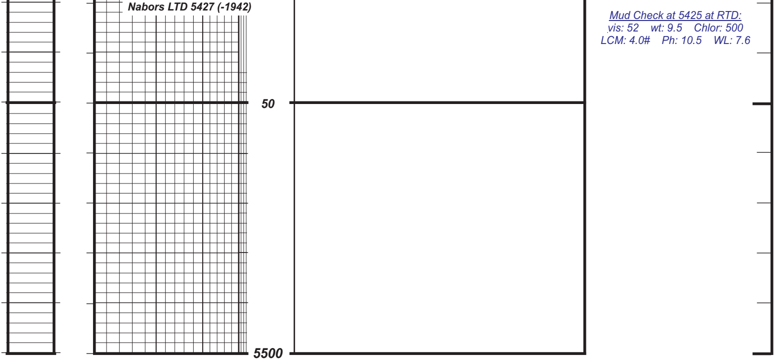
Reduce bit wt to 36K

Reduce bit wt to 32-34K

Increase bit wt to 36K

Increase bit wt to 40-42K

5425' RTD reached
8:10 A.M. 11-7-2015



Mud Check at 5425 at RTD:
vis: 52 wt: 9.5 Chlor: 500
LCM: 4.0# Ph: 10.5 WL: 7.6

COMPANY & WELL	Coral Prod #24-33D Rath-Newman			ELEVATIONS	
LOCATION	870' FSL, 1410' FWL, SW/4			KB	3485'
SEC	33	TWSP	1s	RGE	41w
COUNTY	Cheyenne	STATE	Kansas	GL	3476'

Chart for DST (1) Tarkio zones

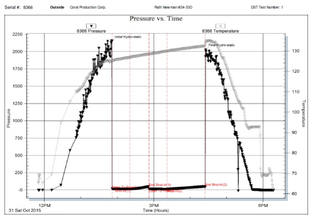


Chart for DST (2) Topeka through Oread zones

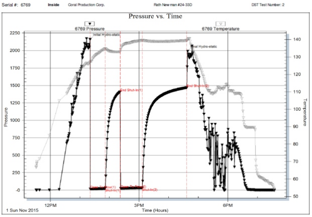


Chart for DST (3) Lansing A and D zones

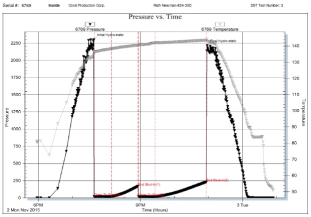
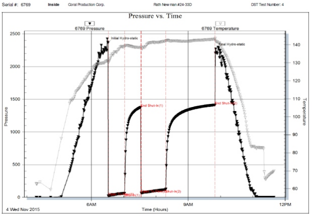
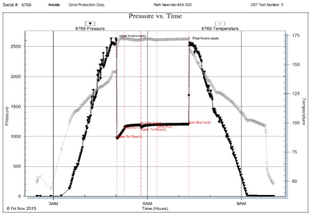


Chart for DST (4) Lansing H through L zones



Chart for DST (5) Atoka and Morrow Sand