

GRAND MESA

OPERATING COMPANY

(316) 265-3000
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1700 N. WATERFRONT PARKWAY
BLDG. 600
WICHITA, KANSAS 67208-5514

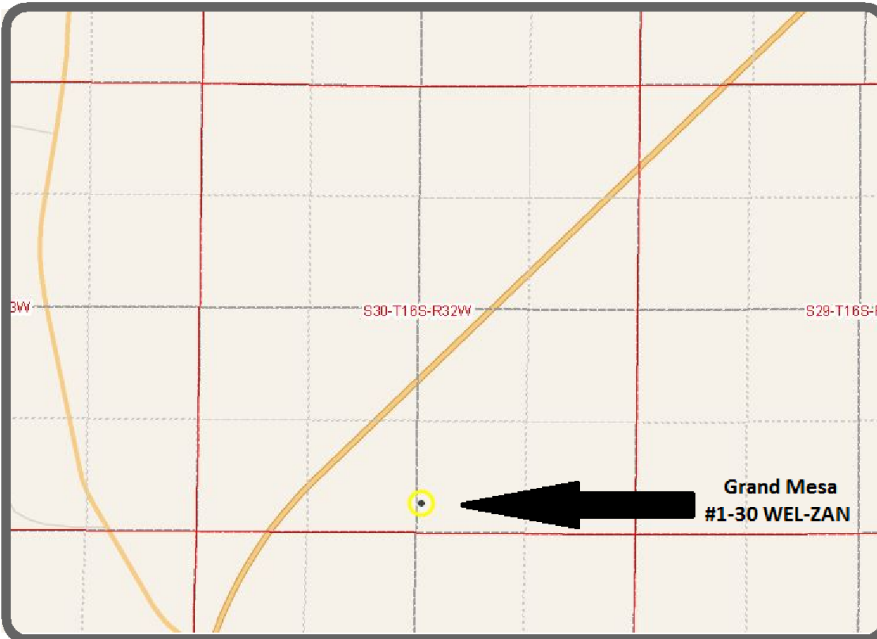
Scale 1:240 (5"=100') Imperial
Measured Depth Log

Well Name: #1-30 WEL-ZAN
Location: 330' FSL, 2502' FEL, SECTION 30-16S-32W
License Number: API: 15-171-20858
Spud Date: 11/30/2011
Surface Coordinates: LAT 38.6282967
LONG -100.8979283
Bottom Hole Coordinates: Vertical hole
Ground Elevation (ft): 2947' K.B. Elevation (ft): 2952'
Logged Interval (ft): 3600' To: RTD Total Depth (ft): 4800'
Formation: Spergen at RTD
Type of Drilling Fluid: Chemical
Region: Scott County
Drilling Completed: 12/11/2011

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

GEOLOGIST

Name: John Goldsmith
Company: John Goldsmith Wellsite Service
Address: 322 Greenwood Ct.
Cheney, KS 67025
316-640-0236



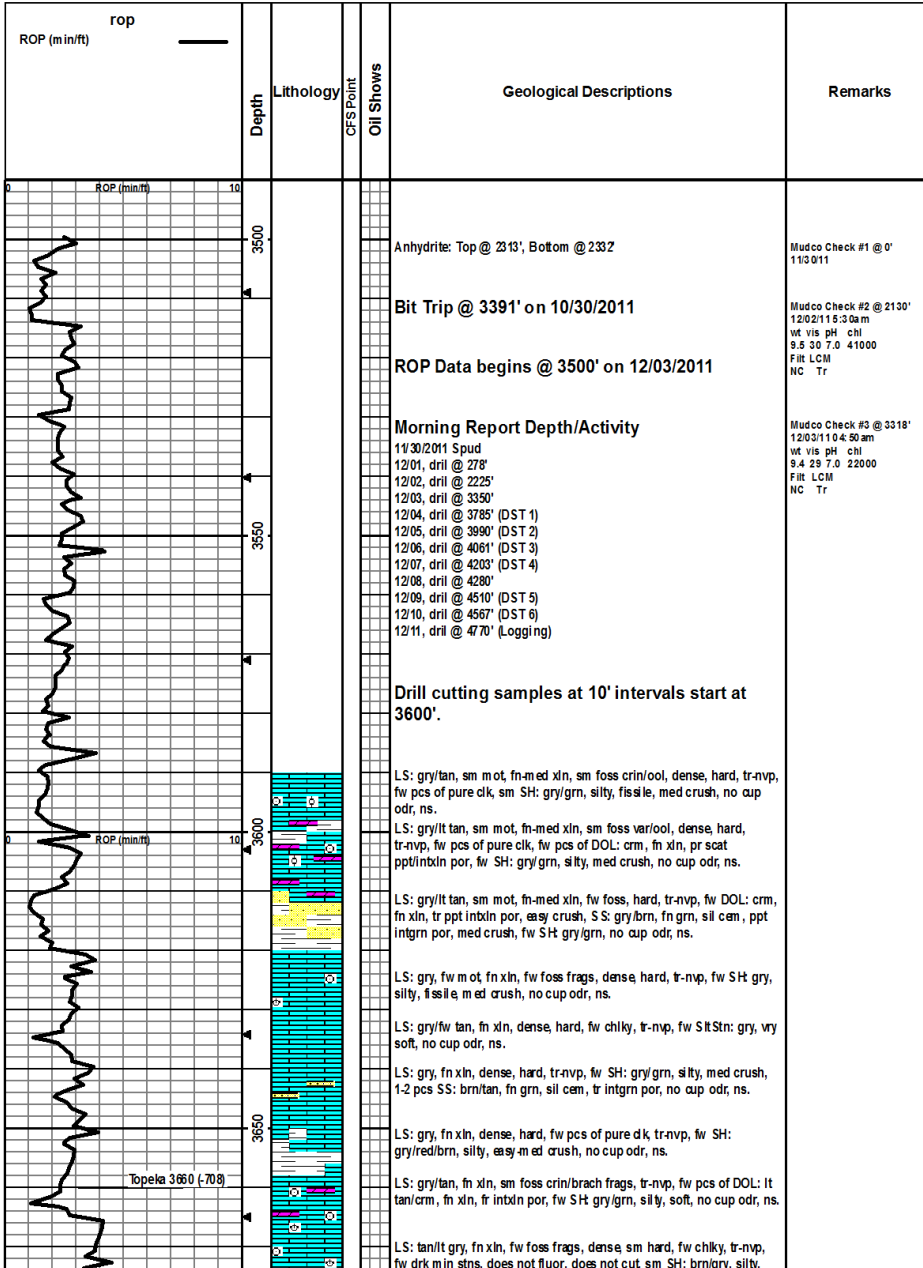
COMMENTS

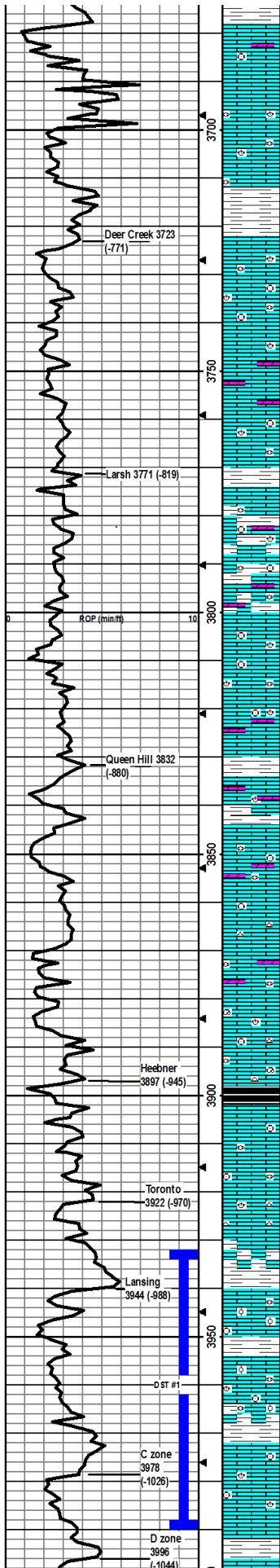
Contractor: Murfin Drilling Company Rig #24
Pusher: Tony Martin
Surface Casing: 6 joints of 8 5/8" set at 278'
Production Casing: No production casing installed, well was plugged.
Mud by: MudCo
DST's by: Tribolite Testing
Logs by: Weatherford (DIL, CN-CD, ML, CS)
RTD=4800'
LTD=4802'

FORMATION TOPS

FORMATION	SAMPLE TOPS		LOG TOPS	
	Depth	Datum	Depth	Datum
Queen Hill	3660'	-708	3658'	-706
Heebner Shale	3897'	-945	3897'	-945

Toronto	3922'	-970	3918'	-966
Lansing	3940'	-988	3940'	-988
Muncie Creek Shale	4113'	-1161	4113'	-1161
Stark Shale	4211'	-1259	4211'	-1259
Hushpuckney Shale	4252'	-1302	4252'	-1302
Marmaton	4327'	-1375	4327'	-1375
Upper Fort Scott	4430'	-1478	4430'	-1478
Little Osage Shale	4450'	-1498	4450'	-1498
Excello Shale	4468'	-1516	4467'	-1515
Johnson Zone	4540'	-1588	4541'	-1589
Morrow	4604'	-1652	4604'	-1652
Mississippian	4646'	-1694	4646'	-1694
RTD	4800'	-1848		
LTD			4802'	-1852





med crush, no cup odr, nsfo.

LS: gry/fw tan, fn xln, fw sandy, gritty, sm foss brach/crin/frags, tr-nvp, fw drk min stns, does not cut, 1-2 pcs of DOL: lt tan/crm, fn xln, fr intxln por, no cup odr, nsfo

LS: gry/tan, fn xln, sm gritty, sandy, dense, brittle, med crush, sm clk, tr-nvp, no cup odr, ns.

LS: tan, fn xln, sm v foss fuss/frags, dense, brittle, tr-nvp, sm SH: drk gry/gry, silty, fw soft, med crush, no cup odr, ns.

LS: gry/tan/sm drk gry, fn xln, sm foss brach/fuss, dense mostly uniform, sm drk min stns, does not fluor, does not cut, sm SH: gry/grn/blk, silty, sm waxy, fw carb, no cup odr, ns.

LS: gry/tan, fw mott, fn xln, sm foss brach/crin/fuss, dense, sm clk, tr intxln por, fw pcs of pure clk, abund SH: gry/grn, silty, med crush, fw pcs v soft SltStn, no cup odr, ns

LS: tan, fn xln, foss fuss/crin/brach, dense, brittle, mostly uniform, tr-nvp, fw pcs of pure clk, sm SH: gry/drk gry, silty, easy-med crush, no cup odr, ns

LS: gry/lt tan, fn xln, foss crin/fuss/frags, dense, clk, mostly uniform, pr intxln por, sm DOL: tan, fn xln, scat ppt intxln por, fw SH: gry/red-brn, silty, med crush, no cup odr, ns.

LS: tan, fn xln, foss fuss/frags, dense, mostly uniform, pr intxln por, abund DOL: tan, fn xln, scat ppt intxln por, no cup odr, ns.

LS: lt gry/tan, fn xln, foss frags, chiky, dense brittle, tr-nvp, fw drk min stns, does not cut, sm SH: gry/grn, silty, sm waxy, med crush, no cup odr, ns.

LS: lt tan, fn xln, foss frags/fuss, fw clk, dense brittle, tr-nvp, fw drk min stns, no cut, sm SH: gry, silty, med crush, no cup odr, ns.

LS: lt tan/gry, fn xln, sm foss frags, dense, tr-nvp, fw pcs of pure chl, fw pcs od DOL: tan, fn xln, scat ppt intxln por, sm SH: gry/red-brn, silty, med crush, no cup odr, ns.

LS: lt gry/tan, med xln, foss crin/brach/fuss, pr ppt intxln por, fw pcs pure chl, fw pcs DOL: tan, fn xln, pr ppt intxln por, sm SH: gry/grn, silty, sm waxy, med crush, no cup odr, ns.

LS: lt tan/crm, fn xln, foss brach/fuss/frags, rare ppt intxln por, dense brittle, no cup odr, ns.

LS: lt tan, fn-med xln, foss brach/crin, rare ool, dense, fw pcs pure chl, tr-nvp, no cup odr, ns.

LS: gry/lt tan, fn xln, foss crin/frags, brittle, tr rare ppt intxln por, 1-2 pcs of DOL: crm, fn xln, foss, fr ppt intxln por, fw SH: gry/red-brn, silty, no cup odr, ns.

LS: lt gry/lt tan, fn xln, sm foss, dense, fw chiky, tr-nvp, sm DOL: crm, fn xln, foss, dense, rare ppt intxln por, fw SH: gry/red-brn, silty, med crush, no cup odr, ns.

LS: lt tan, fn xln, dense, hard, tr-nvp, fw pcs of pure chl, abund SH: gry/drk gry, silty, fissile, med crush, no cup odr, ns.

LS: crm/lt tan, fn xln, foss fuss/crin/frags, dense, brittle, tr-nvp, fw pcs of pure chl, fw pcs of DOL: gry/lt brn, fn xln, pr ppt intxln por, hard, fw SH: gry/drk gry, silty, med crush, no cup odr, ns.

LS: gry, sm mott, fn xln, foss fuss/crin, hard, tr-nvp, fw pcs pure chl, fw Chert: gry, opaque sharp, fw SH: drk gry/gry, silty, med, crush, no cup odr, ns.

LS: lt tan/crm, fn xln, fw gritty, foss fuss/brach, brittle, fw chiky, rare ppt intxln por, sm DOL: gry/tan, fn xln, tr intxln por, no cup odr, ns.

LS: lt gry/tan, sm mott, fn xln, sm chiky, foss brach/gast, brittle, rare intfoss por, drk m in stn, does not fluor, does not cut, no cup odr, ns.

LS: lt gry/tan, fn xln, sm chiky, foss crin/gast, brittle, rare intfoss por, fw Chert: gry/opaque, sm SH: gry/grn/blk, silty, fissile, sm carb, no cup odr, ns.

LS: lt tan, fn xln, sm chiky, foss frags, pr ppt intxln por, sm SH: gry/drk gry, silty, fissile, fw carb, med crush, no cup odr, ns.

LS: lt tan/gry, fn xln, sm chiky, foss crin/fuss/frags, tr intxln/intfoss por, sm SH: gry/grn, silty, sm waxy, easy-med crush, no cup odr, ns.

LS: crm/lt tan, micro-fn xln, foss var, dense, brittle, pr ppt intfoss por, sfo, 4-6 pcs/tray, scat dul yd fluor, wk stream cut pal blu, drk dead oil stns, sm Chert: gry, sharp, v slight cup odr.

LS: fw pcs same as above, mostly lt tan, fn xln, sm foss frags, deanse, hard, tr rare intxln por, fw Chert crm/wht opaque fw SH: gry/grn, silty, med crush, no cup odr.

LS: lt tan/crm, micro-fn xln, foss var, fw ool, sm fr-gd intfoss/ool por, dense, dul yel/gold fluor, stream cut pal blu, v slight cup odr, fr sfo 4-6 pcs/tray, sm SH: gry/grn, silty, med crush.

LS: Much of the same as above, less pcs w/ sfo, more SH: gry/grn, silty, fissile, soft, v slight cup odr, sfo.

LS: lt tan/crm, fn xln, foss var, sm ool, mostly dense, fw pcs w/ fr intfoss/ool por, dul yd gold fluor, stream cut pal blu, sfo 3-4 pcs/tray, slight cup odr, abund SH: gry/grn, silty, sm waxy, med crush.

LS: 2 pcs Much like above, most likely from up hole, mostly tan, fn xln, foss brach/crin, sm ool, dense hard, tr-nvp, fw pcs of chl, abund SH: gry/grn, silty, sm waxy, easy-med crush, no cup odr.

LS: lt tan/crm, fn xln, foss brach/crin/frags, dense, fw ool, scat ppt-fr intxln/rare intfoss por, sfo, v slight cup odr, dul yel fluor, stream cut pal blu, 4-5 pcs/tray in 30" sm pl, 1-2 in 60" sm pl, fw patchy stns in drys.

SH: gry/grn/red-brn, silty, soft-med crush, no cup odr, ns.

LS: lt tan/crm, micro-fn xln, foss var, dense, sm hard, rare intxln por, sm

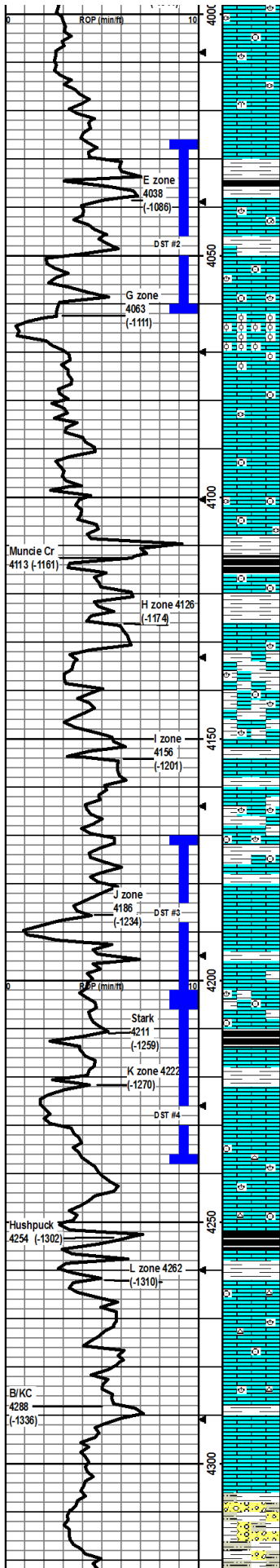
Mudco Check #4 @ 3728'
1204115:00am
wt vis pH chl
8.8 62 9.5 1800
Filt LCM
8.8 2

DST1) 3932-3990

30454560
1st) BOB in 5"
2nd) BOB in 10"
IFP 32-179#
ISIP 1118# FSP
FFP 178-333#
110 SF
HP 1941-1933#
Recvd: 556' W, 12.4' MCW

CFS @ 3990'
30" 60"

Mudco Check #5 @ 3990'



SH: gry/grn, silty, soft no cup odr, no fluor, ns.

LS: lt gry/tan, fn xln, sm foss, dense, hard, scat vug por, fw SH: gry/grn, soft, no cup odr, no fluor, no stns in drys, ns.

LS: tan, med-fn xln, dense, hard, fw pcs chiky, rare vug por, fw SH: gry/grn/red-brn, silty, med crush, no cup odr, ns.

LS: tan, fn-med xln, hard, sm pcs with rare vug por, mostly tr-nvp, sm SH: gry/drkr gry, silty fissile, med crush, no cup odr, ns.

LS: tan, med xln, hard, brittle, fw pcs ool, sm chiky, tr-nvp, abund SH: gry/red-brn, silty, med crush, no cup odr, ns.

LS: lt tan, fn xln, sm foss gast/brach, sm chiky, scat ppt intxn/rare vug por, fw dark spots of dead oil, stream pal blu out when crush, no cut w/o break, abund of SH: gry/drkr gry/blk, fissile, med crush, fw carb, no cup odr, nsfo.

LS: lt tan, fn xln, fw crs xln, sm foss crin/brach/var, sm v dense sm hard, sm pr intxn por, agn sm spotty stns, much like above in the 30" and 60" sm SH: gry/grn, silty, med crush, no cup odr, nsfo.

LS: drk tan, fn xln, profus oolcast, v gd oolcast por, dul yd fluor, no cut, ns.

LS: lt tan/lt gry, fn xln, sm profus oolcast w/ v gd oolcast por, mostly dense, chiky, tr-nvp, no cup odr, ns.

LS: crm/lt tan, micro xln, fw foss, dense, sm chiky, brittle, tr-pr intxn por, no cup odr, ns.

LS: lt tan, micro-fn xln, fw foss, dense, chiky, brittle, sm pure chik, tr-nvp, no cup odr, ns.

LS: lt tan, fn xln, foss fuss/crin/frags, mostly dense, brittle, rare tr-pr intfoss por, abund SH: gry/red-brn/gm/org, silty, med crush, no cup odr, ns.

SH: gry/grn/blk, silty, soft-med crush, sm carb, sm LS: crm/lt tn, micro-fn xln, sm foss var, sm chiky, dense, brittle, no cup odr, ns.

SH: gry/red-brn/org, silty, soft-med crush, sm LS: lt tan/gry, micro-fn xln, sm foss brach/fuss, dense, sm hard, fw chiky, rare tr of intfoss por/rare spotty intxn por, no cup odr, ns.

LS: lt tan, micro-fn xln, foss brach/frags, dense, brittle, sm chiky, tr-nvp, abund SH: gry/red-brn/gm, silty, soft, sm v soft much like Silstn, no cup odr, ns.

LS: lt tan, fn xln, foss frags, fw ool, brittle, sm chik pcs, pr intxn por, abund SH: gry/grn/red-brn, silty, med crush, no cup odr, ns.

SH: gry/grn/red-brn, silty, soft-med crush, fw LS: tan/gry, fn xln, foss var, tr ppt intxn/foss por, fw LS: lt tan, fn xln, oolcast, fr oolcast por, no cup odr, ns.

Sample return quality is bad, mostly SH: gry/grn/red-brn, silty, easy-med crush, sm LS: lt tan/crm, fn xln, sm foss, sm ool, sm dense, fw hard, most tr-nvp, fw with tr-pr intxn por, no cup odr, ns.

SH: gry/red-brn, silty, soft-med crush, sm LS: lt tan, fn xln, fw foss, sm desne, rare pr intxn por, no cup odr, ns.

LS: lt tan, micro-fn xln, sm oolcast, sm foss brach/frags, scat fr vuglsm v gd oolcast por, dul yd fluor, stream cut pal blu, fr-gd sfo in svrl pcs/try, gd cup odr.

30" smpl LS: much like above, fw less ps/try w/ sho, sm SH: gry/grn/brn, silty, med crush, fr sfo, 60" sm pl LS: only 3-4 pcs/tray w/ sho, mostly dense, w/ tr-nvp.

LS: lt tan, fn xln, fw foss crin/brach/frags, mostly dense, brittle, tr-nvp, abund SH: gry/drkr gry/blk, silty, med crush, fissile, sm carb, no cup odr, ns.

LS: tan, fn xln, foss crin/var, sm dense mostly hard, tr-nvp, sm SH: gry/brn/blk, silty, med crush, sm carb, no cup odr, ns.

LS: crm/lt tan, micro-fn xln, sm dense, gd intxn/rare fr vug por, dul yd fluor, stream cut pal blu, mostly drk oil little free oil on crush in water w/ fw gas bub, slight cup odr, rfo, mostly the same in 30" sm pl, w/ less cup odr, 60" sm pl had very fw pcs w/ sho and no cup odr.

LS: lt tan, fn xln, fw foss var, sm chiky, brittle, mostly uniform, tr of ppt por, sm Chert white, opaque, sharp, no cup odr, nsfo.

LS: lt tan, fn xln, foss fuss/crin, mostly uniform, fw chiky, scat pr intxn por, sm SH: gry/brn/blk, silty, med crush, fissile, sm carb, svrl pcs of Chert gry/pearl, trans, sharp, no cup odr, ns.

LS: tan/lt gry, fn xln, foss crin/brach, scat ppt intxn por, fw pcs with sm light string, wk dul yd fluor, slw cut blu when crush, v fw oil spts on crush in water, svrl pcs Chert: wht opaque, sharp, foss, no cup odr, vsfob, v fw lght patchy stns in drys.

LS: lt tan/crm, fn xln, sm foss var, mostly dense, rare ppt intxn por, fw pcs Chert: gry/wht, sharp, fw SH: gry/grn/brn, silty, fissile easy-med crush, no cup odr, ns.

LS: lt tan/lt gry, fn xln, fw foss var, mostly dense, pr intxn por, fw SH: gry/grn/brn, silty, sm fissile, easy-med crush, no cup odr, ns.

LS: lt tan, fn xln, sm chiky, mostly dense, brittle, pr ppt intxn por, abund of SH: gry/grn/brn, silty, fissile, easy-med crush, no cup odr, ns.

LS: lt tan, fn xln fw chiky, pr ppt intxn por, abund SH: gry/grn/brn, silty, fissile, easy-med crush, fw Silstn: gry, v soft, fw S: gry, fn gm, sil cem, med crush, sm glauc, no cup odr, ns.

Much of the same as above, sm LS: lt gry/lt tan, fn xln, most dense, sm ppt intxn por, sm Chert wht/gry, opaque, sharp, no cup odr, ns.

12/5/11 4:50 am
wt vis pH chl
9.0 57 10.0 2500
FIL LCM
8.8 3

DST2) 4026-4061
3045/4560
1st) BOB in 10"
2nd) BOB in 11"
IFP 23-168#
ISIP 1081#
FFP 169-320#
1076#
HP 2004-1957#
Recvd: 540' W

CFS @ 4061'
30"60"

Mudco Check #6 @ 4080'
12/6/11 11:30am
wt vis pH chl
9.1 59 9.5 3100
FIL LCM
9.8 5

DST3) 4171-4203
3030/3030
1st) Built to 1/2"
2nd) Weak surface died at 2"
IFP 17-21#
ISIP 1026#
FFP 22-24#
966#
HP 2075-2005#
Recvd: 5' Mud w/ oil specs

Stop to circulate to clean out hole. Return sample quality was bad.

Mudco Check #7 @ 4203'
12/7/11 11:30am
wt vis pH chl
9.2 56 10.0 3800
FIL LCM
8.8 6

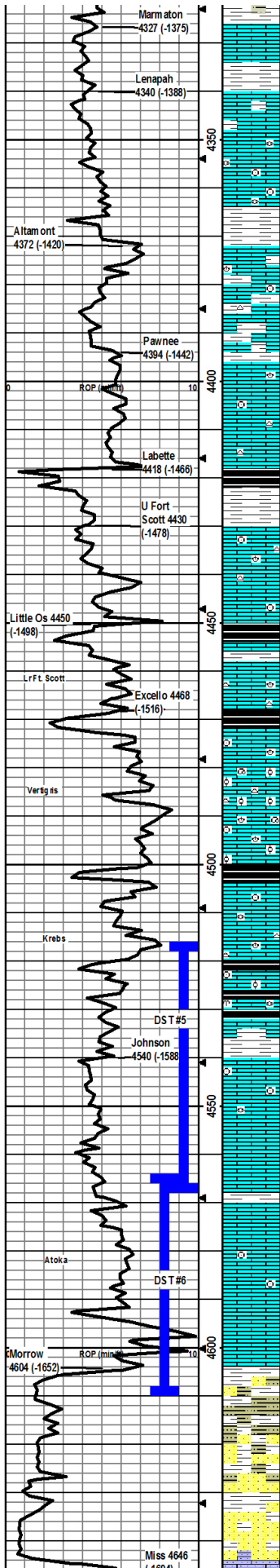
CFS @ 4203'
30"60"

CFS @ 4237'
30"60"

DST4) 4204-4237
3030/3030
1st) BOB in 5"
2nd) BOB in 5"
IFP 45-308#
ISIP 1126#
FFP 316-498#
1121#
HP 2123-2044#
Recvd: 750' of water, 2 60' of MCW

CFS @ 4314'
30"60"

Mudco Check #8 @ 4320'



LS: crm/lt tan, micro-fn xln, mostly dense, pr intxn por, 2-3 pcs with
 spotted vsfo, scat dul yel fluor, slw stream out pal blu, sm SH:
 gry/brn/grn, silty, fissile, soft, no cup odr.

SH: gry/grn/brn, silty, mostly fissile, med crush, fw LS: lt tan, fn xln,
 mostly dense, tr-nvp, no cup odr, ns.

SH: gry/grn/red-brn, silty, mostly soft, sm med crush, no cup odr, ns.

Mostly SH as above, sm LS: lt tan, fn xln, foss var, mostly dense
 brittle, tr ppt intfoss por, no cup odr, ns.

LS: tan/lt tan, fn-med xln, foss frags, dense, hard, tr-nvp, abund SH:
 gry/grn/red-brn, silty, sm waxy, easy-med crush, no cup odr, ns.

LS: crm/lt tan, micro-fn xln, dense, hard, tr-nvp, abund SH:
 gry/grn/red-brn, silty, soft, no cup odr, ns.

LS: lt tan, fn xln, sm foss crin/frags, mostly dense, tr-nvp, abund SH:
 gry/grn/red-brn, silty, easy-med crush, fw Chert: wht, opaque, sharp,
 no cup odr, ns.

LS: tan, fn xln, sm v foss var, sm dense/hard, tr-nvp, abund SH:
 mostly same as above, no cup odr, ns.

LS: lt tan, micro-fn xln, fw foss, mostly dense, tr-nvp, abund SH:
 gry/grn/red-brn, silty, med crush, no cup odr, ns.

LS: tan/lt gry, fn xln, dense, sm hard, tr-nvp, fw Chert: gry, sharp, no
 cup odr, ns.

SH: gry/grn/red-brn/bk, silty, fissile, med crush, sm carb, no cup odr,
 ns.

LS: tan/lt gry, fn xln, foss brach/crin/frags, tr ppt intxn por, abund SH:
 gry/red-brn, silty, sm fissile, easy-med crush, no cup odr, ns.

LS: tan/lt gry, fn-med xln, sm foss, sm hard, tr-nvp, sm SH:
 gry/red-brn, silty, soft, fw Chert: wht, trans, foss, no cup odr, ns.

LS: gry, fn xln, sm foss, fw chiky, sm flakey, tr-nvp, abund SH:
 gry/red-brn/bk, silty, sm carb, no cup odr, ns.

LS: tan/lt gry, fn-med xln, sm dense, sm flakey, scat pr intxn por, sm
 drk dead oil stns on 3-4 pcs, wk dul yel fluor, slw wk pal blu cut,
 abund SH: gry/grn/bk, silty, sm carb, med crush, no cup odr, nsfo.

LS: lt tan/lt gry, fn-med xln, sm foss var, fw chiky, sm scat ppt intxn
 por, fw pcs Chert wht, opaque, sharp, sm SH: gry/brn/bk, silty,
 fissile, med crush, no cup odr, ns.

LS: tan/lt gry, sm ool, fn-med xln, foss brach/gas/crin, scat pr intxn
 por, 1-2 pcs w/ v sm all oil spots, wk out pal blu, does not fluor well,
 vsfo, no cup odr, sm SH: gry/bk, silty, fissile, carb.

LS: tan/lt gry, fn-crst xln, profus foss gas/brach, sm ool, sm dense,
 rare pr intxn/intfoss por, sm Chert: gry, trans, foss, sm SH: gry/dkr
 gry, silty, med crush, no cup odr, ns.

LS: tan/lt gry, fn xln, foss frags/var, fw ool, sm flakey, sm pr intxn por,
 fw Chert: gry, trans, foss, sm SH: gry/bk, silty, fissile, sm carb, no
 cup odr, ns.

LS: lt tan, fn xln, foss frags/var, fw pcs flakey, mostly dense/brittle, fw
 pcs hard, rare ppt intxn por, fw pcs of pure chl, fw SH: gry/bk, silty,
 soft, fw carb, no cup odr, ns.

LS: lt gry/lt tan, fn xln, fw foss frags, dense, mostly uniform, hard,
 tr-nvp, fw pcs Chert: gry, foss, sharp, no cup odr, ns.

LS: lt tan, fn xln, sm foss crin/ool, sm chiky, tr-nvp, sm SH:
 gry/brn/bk, silty, med crush, sm fissile, sm carb, no cup odr, ns.

LS: crm/lt tan, fn xln, fw foss frags, mostly dense, sm chiky, pr ppt
 intxn por, abund SH: gry/grn, silty, fissile, med crush, no cup odr, ns.

LS: lt tan, fn xln, foss crin/var/frags, sm dense, rare ppt intxn por, 2 v
 small pcs w/ lght stning, scat dul yel fluor, wk slw stream out pal blu,
 abund SH: gry/grn/brn, silty, easy-med crush, no cup odr, vsfo.

LS: lt tan, fn xln, mostly dense, sm pr-fr ppt intxn por, fw v sm all pcs
 w/ sfo, scat dul yel fluor, stream out pal blu, sm SH: gry/brn, silty,
 fissile, easy-med crush, no cup odr, vsfo.

30" smpl LS: same as above, only had 2-3 v small pcs w/ vsfo, 60"
 LS: much as above, only 2 small pcs w/ sfo, abund of SH: gry/grn,
 silty, easy-med crush, no cup odr.

LS: tan/lt grn, micro-fn xln, mostly dense, scat pr intxn/rare vug var,
 vsfo in 4-6 pcs/try, difficult to break out of porosity, drk dead oil, scat
 dul yel fluor, wk slw out pal blu, no cup odr.

LS: lt tan, micro-fn xln, foss crin/var, bit of pr ppt intxn por, fw spts
 of patchy stns, dul fluor, no cut, no sfo, no cup odr.

LS: lt tan/gry, fn xln, tr-nvp, brittle scat fr ppt intxn por, fw w/ ppt
 spts fo, no cup odr, fw stns, wk cut, scat dul yel fluor.

LS: drk tan/gry, micro-xln, dense, hard, nvp, sm LS: crm/lt tan, fn xln,
 fr intxn por, brittle svl stained pcs, fw pcs w/ fny drops of fo, wk
 fluor, wk cut, vsfo, faint cup odr.

30" smpl LS: much of the same as above, only 1-2 pcs with stning, 60"
 smpl had nsfo, abund SH: gry/grn, silty, easy-med crush.

SH: gry/dkr gry, silty, fissile, med crush, SS: lt gry/gry, fn grn, sub
 rnd, sil cem, fw glauc, no cup odr, ns.

SS: wht/tan, fn grn, sub rnd, sil cem, sm w/ tiny blk specs, possibly
 dead oil, no cup odr, no fluor, no cut, fw SH: gry/lt gry, v silty, sm v
 soft, nsfo.

SS: wht/tan, fn grn, sub rnd, sil cem, tiny blk specs, possibly dead oil
 no cup odr, no fluor, no cut, sm SH: gry/dkr gry, silty, fissile, med
 crush, nsfo.

LS: wht, fn xln, brittle, sandy, gritty, well sorted, pr intgrn por, sm drk

wt vis pH chl
 9.1 46 10.5 3000
 FIT LCM
 7.2 4

Return Samples were bad,
 stopped to circ to clean up
 samples.

Mudco Check #9 @ 4530'
 12/9/11 9:40 am
 wt vis pH chl
 9.3 57 10.5 3400
 FIT LCM
 7.2 5

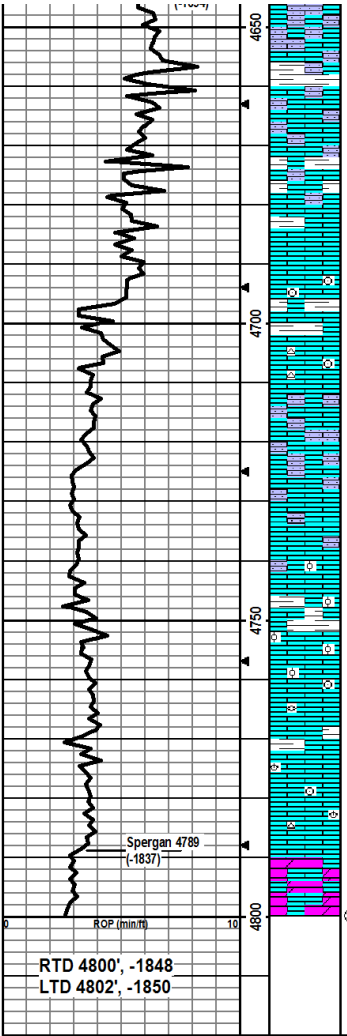
DST5) 4518-4567
 30454560
 1st) Built to 1"
 2nd) Wk surface
 I/P 19-23#
 ISIP 73#
 FFP 19-24# F SIP 61#
 HP 2286-2228#
 Recvd: 5' Mud w/ oil s cum

CFS @ 4567'
 30" 60"

DST6) 4565-4609
 30456090
 1st) Built to 1"
 2nd) Built to 114"
 I/P 19-20#
 ISIP 30#
 FFP 20-20# F SIP 29#
 HP 2280-2214#
 Recvd: 1' OSM

CFS @ 4609'
 30" 60"

MudcoCheck #10 @ 4609'
 12/10/11 7:30 am
 wt vis pH chl
 9.3 52 10.0 4200
 FIT LCM
 7.2 5



min stns, no fluor, no cut, sm sh: gry/grn, silty, sm sort, med crush, no cup odr, ns

LS: wht, fn xln, brittle, sandy, gritty, well sorted, pr intgrn por, sm LS: lt tan, micro-fn xln, dense, hard, tr-nvp, abund of SH: gry/grn/brn, silty, sm fissile, easy-med crush, no cup odr, ns.

LS: tan, fn xln, dense, brittle, tr-nvp, 2 tiny pcs w/ possible lght string, no fluor, did not cut, sm LS: wht, fn xln, gritty/sandy, pr inbkn por, no cup odr, nsfo.

LS: tan, micro-fn xln, dense, brittle, mostly uniform, tr-nvp, fw pcs w/ drk m in stns, does not fluor, does not cut, fw SH: gry/grn, silty, fissile, easy-med crush, no cup odr, ns

LS lt tan, fn xln, dense, brittle, mostly uniform, tr-nvp, fw pcs pure chl, sm SH: gry/grn, silty, fissile, easy-med crush, no cup odr, ns.

LS: crm/lt tan, micro-fn xln, fw foss frags, dense, brittle, tr-nvp, fw pcs chl, v fw pcs of SH: gry/grn, silty, soft, no cup odr, ns.

LS: crm/lt tan, fn xln, mostly dense, brittle, sm pcs w/ tr-pr inbkn por, fw drk m in stns, no cut, no fluor, fw Chert: white, opaque, sharp, fw SH: gry/brn, silty, soft, no cup odr, ns.

LS: wht, fn xln, sandy, gritty, glauc, rounded clusters, pr intgrn por, fw LS: lt tan, fn xln, dense, hard, tr-nvp, no cup odr, ns.

LS: wht/gry, fn xln, sandy gritty, pr intgrn por, small blk spts of min stns, no fluor, no cut, fw LS: lt tan, fn xln, dense, tr-nvp, sm SH: gry/grn, silty, soft, no cup odr, ns.

LS: crm/lt tan, micro-fn xln, dense, brittle, tr-nvp, fw LS: wht/gry, fn xln, sandy, pr intgrn por, fw SH: gry/grn, silty, soft, no cup odr, ns.

LS: lt tan, micro xln, fw foss/ool, dense, brittle, tr-nvp, fw LS: wht/gry, fn xln, gritty, pr intgrn por, sm SH: gry/grn, silty, med crush, no cup odr, ns.

LS: tan, fn xln, fw crs xln, sm foss/ool, fw dense, brittle, tr-nvp, fw SH: gry/grn, silty, fissile, soft, no cup odr, ns.

LS: crm/lt tan, micro-fn xln, sm foss frags, sm dense, brittle, tr-nvp, fw SH: gry/grn, silty, soft, no cup odr, ns.

LS: lt tan, fn xln, fw foss frags, sm dense, mostly brittle, tr-nvp, fw SH: gry/grn, fissile, easy crush, no cup odr, ns.

LS: lt tan, fn xln, fw foss brach/frags, brittle, pr inbkn por, fw pcs Chert: wht, opaque, sharp, no cup odr, ns.

DOL: lt pink, fn xln, semi-trans, fr-gd inbkn por, med crush, no fluor, no cut, sm LS: lt tan, fn xln, fw foss frags, brittle, tr-nvp, no cup odr, ns.

Driller adjusted more weight on the bit

MudcoCheck #11 @ 4710'
 12/11/11 8:20am
 wt vis pH chl
 9.5 57 9.5 4400
 Filt LCM
 8.8 5

CFS @ 4800'
 30"/60"