

GRAND MESA

OPERATING COMPANY

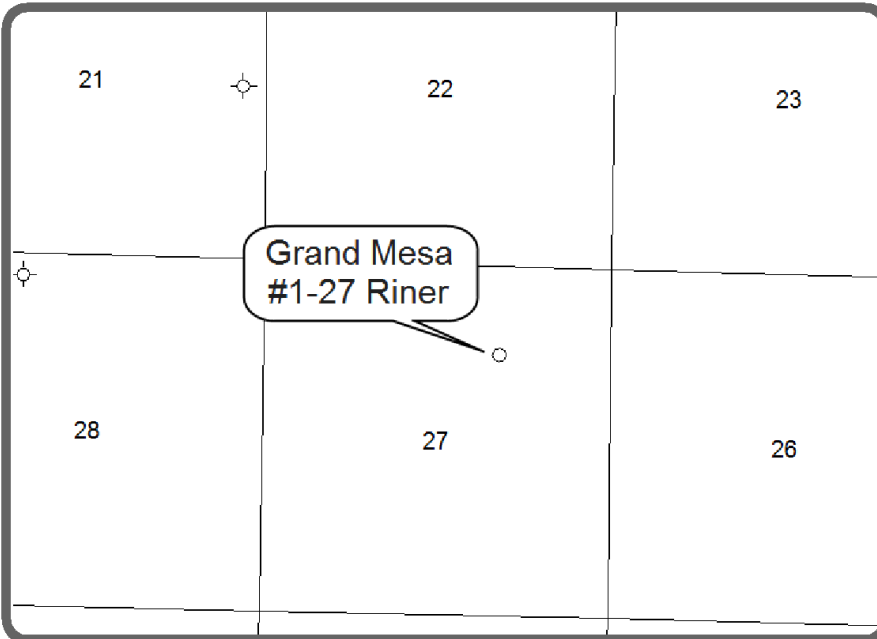
(316) 265-3000
FAX: (316) 265-3455

1700 N. WATERFRONT PARKWAY
BLDG. 600
WICHITA, KANSAS 67208-5514

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

Well Name: 1-27 RINER
Location: 1333'FNL, 1672'FEL 27-16S-33W, Scott County, Kansas
License Number: API: 15-171-20853
Spud Date: 11-9-2011
Surface Coordinates: Lat: 38.637855 726969
Long: -100.949745 1300229
Bottom Hole Coordinates: Vertical hole
Ground Elevation (ft): 3032' K.B. Elevation (ft): 3037'
Logged Interval (ft): 3600' To: RTD Total Depth (ft): 4830'
Formation: Mississippian at RTD
Type of Drilling Fluid: Chemical
Region: Wildcat
Drilling Completed: 11-24-2011

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



GEOLOGIST

Name: Steven P. Carl
Company: Grand Mesa Operating Company
Address: 1700 N. Waterfront Parkway, Bldg 600
Wichita, Kansas 67206
316-256-3000

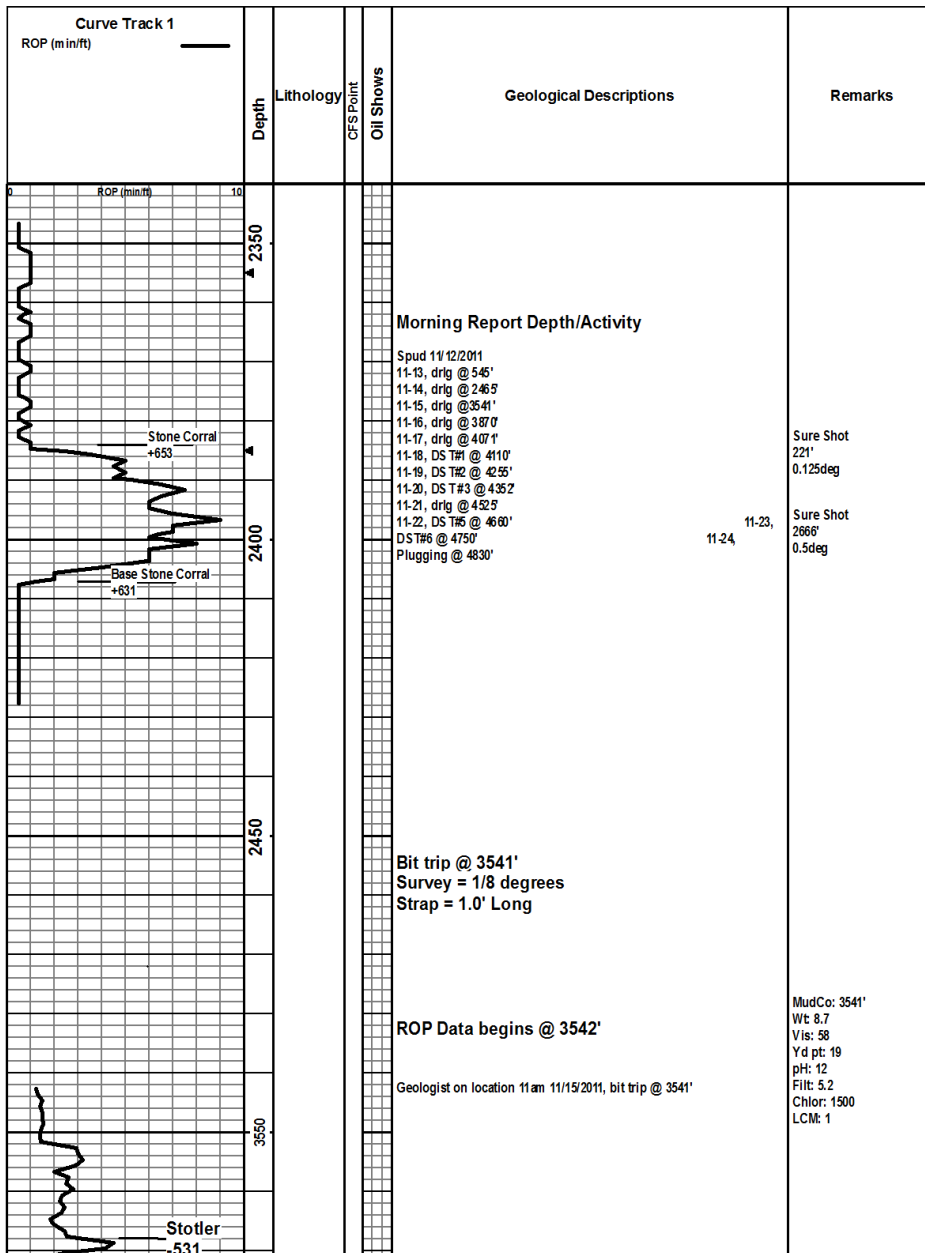
COMMENTS

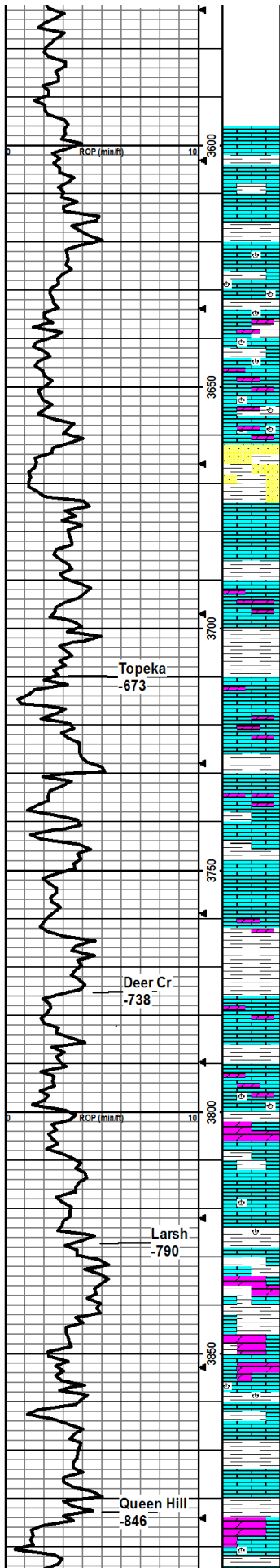
Contractor: Murfin Drilling Company Rig #24
Pusher: Tony Martin
Surface Casing: 8 5/8ths at 221'
Production Casing: None set
Mud by: MudCo
DST's by: Tribolite Testing
Logs by: Weatherford (DIL, CN-CD, ML)
RTD= 4830'
LTD= 4834'
All significant shows of oil were evaluated with Drillstem Tests and found to be non-commercial. This well was plugged 11-24-2011.

FORMATION TOPS

FORMATION	SAMPLE TOPS		LOG TOPS	
	Depth	Datum	Depth	Datum
Stone Corral	2384'	+653	2386'	+651

B/Stone Corral	2406'	+631	2404'	+633
Heebner Shale	3945'	-908	3946'	-909
Lansing	3987'	-950	3989'	-952
Muncie Creek Shale	4165'	-1128	4166'	-1129
Stark Shale	4256'	-1219	4258'	-1221
Hushpuckney Shale	4302'	-1265	4303'	-1266
Marmaton	4378'	-1341	4377'	-1340
Upper Fort Scott	4485'	-1448	4485'	-1448
Little Osage Shale	4506'	-1469	4506'	-1469
Excello Shale	4523'	-1486	4523'	-1486
Johnson Zone	4599'	-1562	4601'	-1564
Morrow	4664'	-1627	4666'	-1629
Mississippian	4713'	-1676	4715'	-1678
RTD	4830'	-1793		
LTD			4834'	-1797





10 ft. Samples begin at 3600

LS-tan, mottled, fn xln, sm crs xln, foss-bryz/crin/brach, mealy, sm chalky, scat fr int xln por, scat flake gilsonite str, brt blu fluor when cut, few pcs DOLO-tan, fn xln, no por, nso, no cup odr.

LS-Mostly tan as above, sm LS-drk gry, m ed-crs xln, profus foss-various, dense, nvp, few pc SS-tt blu, vln gm, dense, nvp, ns, no cup odr, decr gilsonite flakes.

LS-mostly med gry, sm fn xln, sm m ed-crs xln, foss-crin/ bryz, m ostly dense/hard/brittle, few pcs w/pr int xln por, flake gilsonite str, decring in 3640sm pl, blu fluor when cut, no cup odr, nso, sm soft gry SH, sm DOLO-wht/crm, fn xln, nvp, ns.

LS-tan/gry, med xln, foss as above, sm LS-wdrk gry, arg, abund DOLO-crm, fn xln, scat fr int xln/pp por, no cup odr, ns.

LS-as above, infux of LS-wht, fn xln, dense, nvp, incr DOLO as above, scat pp por, no cup odr, ns.

Mix of several LS's as above, mostly tan, mottled, v-foss- various, sm DOLO as above, sm SH-gry, waxy, no cup odr, ns.

predom LS-med tan, mottled, fn xln, foss, scat int xln por, few flakes gilsonite, abund DOLO-tan, fn xln, fr int xln/pp por, infux pure chalk, sm LS-drk gry, fn xln, dense, hard, foss, nvp, abund S S-brn, fn gm, hard clus, nvp, no cup odr, ns.

LS-drk gry, fn xln, dense, hard, silty foss, sm chalk, nvp, no cup odr, ns.

LS-drk gry, fn xln, dense, hard, grainy/silty, chalk as above, abund DOLO-tan/crm, fn xln, fr-gd pp/vug por, no cup odr, nvp, ns.

predom LS-drk gry as above, sm foss/ool, mostly dense/ hard, nvp, no cup odr, ns.

LS and DOLO as above. No change.

Predom LS-drk gry, fn xln, grainy, rare foss, abund DOLO as above, scat pr-fr pp por, no cup odr, ns.

LS-drk gry, fn xln, grainy, dense/hard, nvp, ns, infux of pure chalk, DOLO as above, no cup odr, ns.

Mostly drk gry LS as above, incr foss-various, decr DOLO, no cup odr, ns.

LS-drk-med gry, fn xln, sm v-foss-fus, sm dense/uniform, infux LS-med tan, fn xln, dense, mostly uniform, few drk min (does not cut) filled frac and pr int xln, por, no cup odr, ns.

LS-mostly lt tan, fn xln, dense, sm foss/mealy, few spots drk m in str (cuts pale blu), pr int xln por, nso, abund DOLO, lt tan, fn xln, sm dense/uniform, sm w/fr vug por, SH-drk-med gry, sm silty, no cup odr, ns.

LS/DOLO/SH as above, no change.

LS-tan, fn xln, sm crs xln, mostly uniform, sm v-foss-fus/ brach/crin, scat mealy texture w/fr int xln por, abund DOLO-tan, fn xln, mostly dense w/nvp, sm scat fr pp por, SH-gry, sm silty, no cup odr, ns.

Mostly DOLO-tan, fn xln, mealy texture w/fr int xln/pp por, abund foss-unid'able, SH-gry, foss-soft/muddy/silty, no cup odr, ns.

LS-tan, fn xln, foss, chalky, easy crush, spots drk min (does not cut), SH-gry, sm silty, no cup odr, ns.

Mix of several LS's-med-drk gry, fn xln, dense/hard, rare foss-crin/fus/brach, nvp, LS-tan, fn xln, foss, chalky, easy crush, scat pr int xln, por, SH-drk gry, sm silty, no cup odr, ns.

Mix as above, infux DOLO-tan, fn xln, dense, nvp, no cup odr, ns.

LS-med-tan, crs xln, foss/mealy-fus/crin, fr int xln por, chalky, ns, LS-drk gry, fn xln, mostly uniform, sm foss, dense, nvp, DOLO-tan, fn xln, dense, SH-gry/silty, no cup odr, ns.

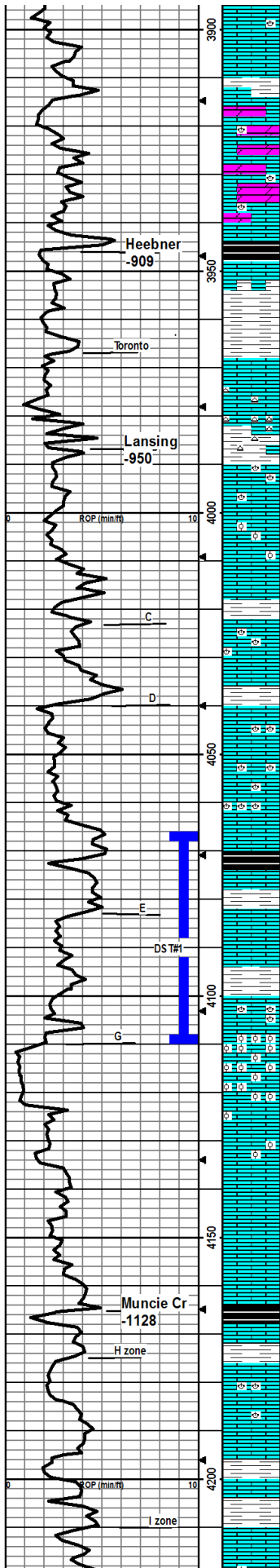
LS-tt gry/crm, vln xln, dense/brittle, foss-fus/crin/alg, nvp, ns, abund chalk, decr LS-gry as above, decr DOLO as above, decr SH-as above, no cup odr, ns.

LS-med tan, med xln, grainy, foss, chalky, dense, med crush, nvp, no cup odr, ns.

LS-gry, fn xln, dense, sm grainy, hard/brittle, nvp, no cup odr, ns.

LS-gry, fn xln, dense/hard, nvp, abund chalk, no cup odr, ns.

LS-med tan/gry, fn xln, v-foss-fus/crin, dense, hard, abund pure chalk,



DOL-ory/tan, fn xln, scat pr vug por, hard, no cup odr, ns.

no returns while stuck

LS-It tan, med-crs xln, foss-various, mostly dense/hard mealy in part, sm dolomitic, scat pr-fr int xln por, spotty sho drk fo in m ost por, wk to no bleed on break, gold fluor, wk streaming cut, fr cup odr (due to spotting 60bbbls crude).

LS-gry/lt tan, fn xln, mostly dense, stily foss-brach, stily chalky matrix in part, DOL- as above, decr in sho from above, rare pp por, int cup odr.

LS-It gry/crm, fn xln, stily chalky matrix, foss-gas/crin, several pcs per tray w/fr int foss por, ss drk fo in most por, wk to no bleed, sit cup odr.

SH-blk, carb, fissile, brittle, few pcs in 3960smpl, incr in 3970smpl.

LS-med tan, micro xln, vdense, hard, brittle, nvp, ns.

SH-gry/brn, sm silty.

LS-gry/med tan, mottled, med xln, foss-various, dense-stily chalky, sm pure chalk, nvp, ns, few pcs CHERT-milky, opaque, no cup odr.

LS-med-It tan, mostly fn xln, dense/hard, stily foss, w/nvp, rare fr pp/int foss por w/fr sfo (1-3 pcs/tray), fr bleed on break, no gas bub, gold fluor, sm dd oil stn, abund CHERT-crm/yel, opaque, sharp vnt cup odr.

LS-mostly gry, fn xln, dense, sm mottled w/drck m in, few pcs LS-crm, micro xln, ool, packed ool w/calcite filled int ool por, scat pr int ool por, rare (1-2 pcs/tray) w/fr int xln por, ss drk fo, abund chalk, few pcs chert, no cup odr, sm m in fluor, ns.

LS-crm/lt gry, fn xln, dense med crush, sm chalk mostly uniform, few foss-brach, rare ool in dense matrix, nvp, no cup odr, ns.

SH-med-drk gry, waxy to stily silty, brittle.

LS-crm, vln xln, dense, rare foss-crin/gas, hard, abund chalk, few pcs ool w/chalky matrix, easy crush, sm CHERT, rare (1-2pcs/tray) fr int xln/foss por, spotty sho drk fo, gd yel/gold fluor, int cup odr.

SH-gry.

LS-It tan, med xln, some dense/uniform, sm v foss-fus/ crin/brach, stily chalky, rare pr int foss por, rare (1-2pcs per tray) w/fr sho med brn fo, yel fluor, patchy lt brn stn in drys, no cup odr, ns.

LS-gry-It tan, fn xln, mostly dense/uniform, foss-fus/ various, ool in part, rare pr int xln/foss por, vs drk fo, no fluor.

SH-blk, carb, fissile.

LS-gry/tan, micro-fn xln, mostly uniform, sm foss-brach, ool in part, few pcs pr int xln/ool por, vs sfo in few pcs/tray, sm dd oil stn, gold fluor, fr sat in few pcs in drys.

LS-same as above, decr show.

SH-It gry, stily, soft, waxy.

LS-It gry/crm, fn xln, mostly dense/brittle, foss-brach/crin, few pcs pr int xln por, vs sfo.

LS-drk tan/brn, fn xln, profus ooc, vgd ooc por, dul gold fluor, wk pale blu cut, nsfo.

LS-tan, fn xln, ooc as above, ns.

LS-drk tan, fn xln, ool/ooc, rare foss, still carrying vgd ooc por, easy crush, sm LS-crm, fn xln, dense/hard, w/nvp, no cup odr, ns.

LS-It tan/crm, fn xln, dense/brittle, nvp, no cup odr, ns.

LS-It gry/crm, fn xln, dense, uniform, rare foss, rare ool, abund chalk, nvp, no cup odr, ns.

SH-drk blk, carb, sm gry, grainy/silty in part, hard/brittle.

LS-gry, fn xln, foss, dense, hard, nvp, ns.

SH-gry, firm.

LS-gry, fn xln, mostly dense/uniform, few foss-brach/crin, sm chalky matrix, rare pr int xln por, vt brn stn in few pcs/ tray in drys, cuts wk pale blu, sm pure chalk, few pcs CHERT-milky, transl, no cup odr, nsfo in wet smpl.

SH-blk/gry.

SH-gry, CONGL-It grn.

LS-brn, vln xln, foss-brach/crin, hard/brittle, dense, nvp, CHERTtan, no cup odr, ns.

STUCK IN HOLE @ 3914', 9:30am 11/16/2011. Spotted 60bbbl crude. Back to drilling at 4:45pm.

MudCo: 3915'
Wt: 8.9
Vis: 62
Yd pt: 36
pH: 11
Filt: 6.8
Chlor: 3800
LCM: 2

Circ 60m in

MudCo: 4070'
Wt: 9.0
Vis: 74
Yd pt: 26
pH: 11
Filt: 4.8
Chlor: 5000
LCM: 2

STUCK IN HOLE @ 3971', 3:18am 11/17/2011. Spotted 60bbbl crude. Back to drilling at 9:36pm.

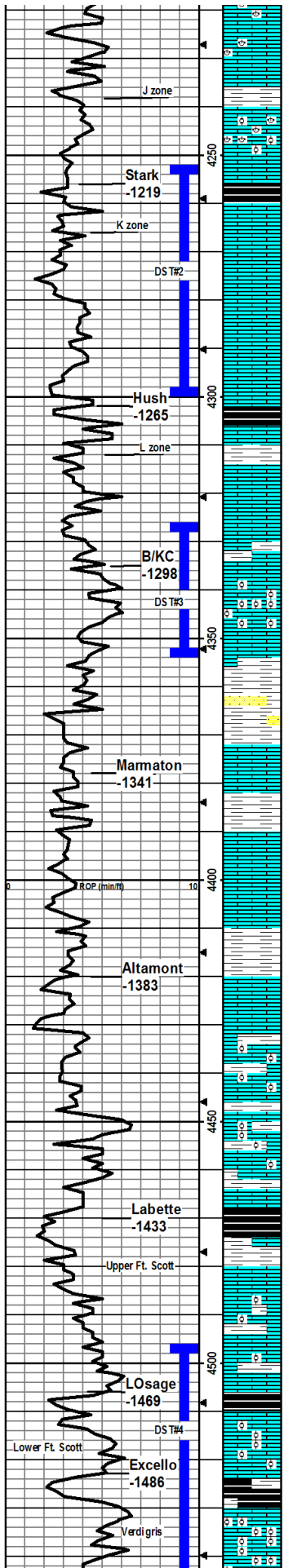
Circ 60m in

All wet samples carry a faint petroleum odor due to mixing crude into the mud system.

Circ 60m in

DST#1, E-Fzn 30-45-30-45 4067-4110 Rec: 1080ft MCW Chlor: 34k ppm IFFP: 35-394# FFP: 308-521# SIP: 1105-1106#

MudCo: 4110'
Wt: 8.6
Vis: 70
Yd pt: 16
pH: 10
Filt: 4.8
Chlor: 6000
LCM: 3



LS-tan/gy, fn xln, dense, hard, foss-bryz, rare pr-fr int xln por, sm
CHERT-gy, transl, no cup odr, ns.

LS-drk tan/brn, fn xln, uniform, dense, nvp, ns.

LS-tan, micro-fn xln, dense, uniform, nvp, sm LS-tan, micro xln,
ool/foss-brach/gas, dense, nvp, sm CHERT-gy, opaque, no cup odr,
ns.

SH-blk, carb, flood in 4280 sm pl.

LS-drk tan, med xln, uniform, gd int xln por, sat w/drk fro, slow to
move out of por on break, many pcs/tray, fnt cup odr, good odr on
break, wk gold fluor, im med stream ing out, fr sfo, fr-gd sat of med brn
stn in drys.

LS-tan/crm, fn xln, mostly uniform, sm foss, few pcs per tray w/pr in
xln por, sm int foss por, fnt cup odr, ss drk fo.

LS-crm, fn xln, mostyl uniform, sm foss, sm chalky, decr por, decr
sho, fnt cup odr.

SH-blk, carb, flood in 4320 sm pl.

LS-drk tan/brn, fn xln, brittle, nvp, ns.

SH-lt gry, v soft m uddy.

LS-med tan/gy, fn xln, uniform, vdense/hard, nvp, no cup odr, ns.

LS-med gry, fn xln, uniform, vdense/hard, nvp, no cup odr, ns.

SH-gry.

LS-gry, fn xln as above, in flux LS-med tan, profus ool, vdense, calc
filled int ool por, scat pr int xln/ool por, no fluor, nsfo, rare spotty lt
brn stn in drys, cut wk blu.

LS-lt tan, crs xln, foss-brach/crin, v dense/hard, decr ool/foss, decr
por, no cup odr, no fluor, ns.

4370 sample is a mix of LS's and SH's from trip, no value.

SH's, mostly gry, sm silty/sandy, few clusters SS-vn grn, arg, nvp, no
cup odr, ns.

LS-drk tan/gy, fn xln, rare foss-crin, vdense/hard, nvp, no cup odr, ns.

SH-lt to med gry, sm silty, pyritic.

LS-lt gry, crs xln, foss-various, few ool, silty chalky matrix, nvp, no
cup odr, ns.

Mix of SH's, brt red to brn, sm silty, sm LS- as above, no cup odr, ns.

4430smpl predom mix of SH's as above, few pcs LS-crm, fn xln,
uniform, dense to silty chalky, nvp, no cup odr, ns.

4440smpl predom SH's as above, sand sized frags of LS-crm, fn xln,
several pcs/tray w/pr int xln por, silt trace fo, no cup odr, no fluor, wk
blu cut.

LS-lt tan/crm/gy, fn xln, mostyl uniform, sm foss-crin/ various, all
dense, nvp, no cup odr, no fluor, ns.

LS-crm, micro-fn xln, ool, brittle, calc filled int ool por, few pcs
CHERT, nvp, no cup odr, ns.

LS-crm, fn xln, uniform, few pcs ool/foss-bryz, dense brittle, sm
chalky, few pcs CHERT-gy, transl, nvp, no cup odr, ns.

LS-crm, fn xln, uniform, few pcs ool, sm chalky matrix, nvp, no cup
odr, ns.

SH-blk carb, SH-gry/red/brn, sm pl is predom SH, LS- as above.

LS-tan, fn xln, mostly uniform, rare foss-bryz/various, on pc in two
trays w/pr int xln por, vslt trace fo, no cup odr, no fluor.

LS-crm, sm gry, fn med xln, foss-various, sm grainy/ool, dense/hard,
few pcs CHERT-milky, nvp, no cup odr, ns.

SH-blk, fissile, brittle, carb, flood in 4515smpl, SH-gry/brn/red, sm
silty, pyritic.

LS-crm/tan, micro xln, foss/ool, fr-gd int foss por, easy crush, fr sho
drk fo in all por, bleed oil and gas bub on break, no cup odr, wk gold
fluor, immediate streaming cut drk sat stn in drys.

SH-blk, carb, flood in 4540smpl.

LS-drk tan, micro xln, profus ool/pis, most int ool por filled w/ calcite,
few pcs/tray w/ scat pr int ool por, vs sfo, no cup odr.

MudCo: 4258'
Wt: 8.9
Vis: 65
Yd pt: 17
pH: 9.0
Flit: 4.8
Chlor: 6200
LCM: 4

DST#2
K zone
30-45-45-60
4252-4300'
Rec: 420 ft MCW
Chlor: 45k ppm
IFP: 27-116#
FFP: 120-206#
SIP: 1143-1135#

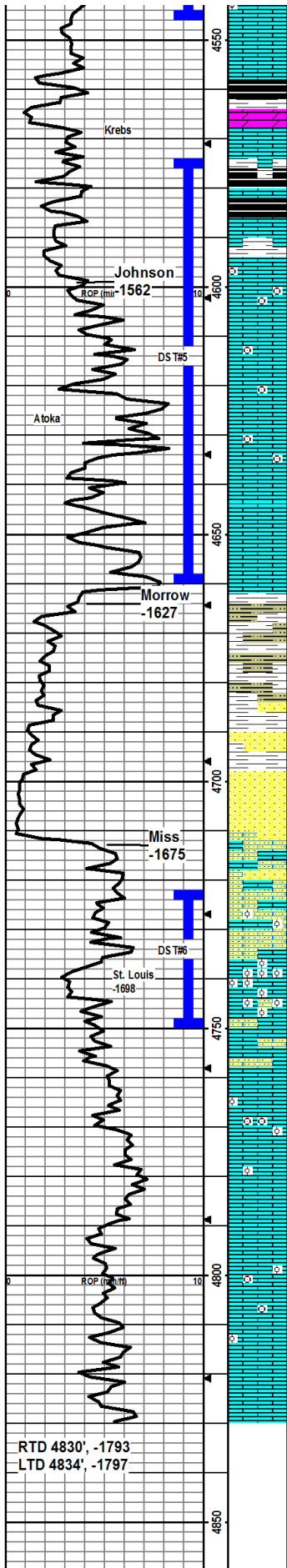
Sure Shot
4300'
0.75deg

DST#3,
Pleasanton
30-30-30-30
4331-4353'
Rec: 3 ft Mud
IFP: 29-22#
FFP: 21-20#
SIP: 478-599#

NOTE:
There is very light
staining in all of the dry
samples due to having
spotted crude oil on
bottom in an effort to
"un-stick" the drill
string.

MudCo: 4352'
Wt: 9.1
Vis: 76
Yd pt: 18
pH: 8.5
Flit: 8.8
Chlor: 8500
LCM: 3

DST#4,
Ft. Scott
Verdigris
20-20-20-20
4496-4546'
Rec: 10 ft OCM
25% Oil
IFP: 23-24#
FFP: 27-28#



LS-tan, ool as above, decr show.

4560smp, predom SH's, trip trash.

SH-blk, carb.

DOLO-wht, med xln, sucrosic, brittle, easy crush, pr int xln por, no odr, no fluor, ns.

LS-med gry, vfn xln, wdense/hard, rare pr int xln/pp por, wssfo, will not break out of por, no cup odr, no fluor, 4590 smp is mostly SH-blk/gry/red/brn.

SH-blk, SH's as above, few pcs LS-wht, fn xln, chalky, nvp, no cup odr, ns.

LS-tt tan, micro xln, wdense/hard/brittle, few pcs/tray w/ rare gd vug por, vugs are lined w/ calcite rhombs and appear to be trace fossils (burrows?) approx 0.2m in diameter, residue of drk brn fr oil trapped in xts, no cup odr, wk gold fluor, wk strmg cut.

LS-tt tan, fn xln, mostly uniform, mostly dense, sm chalky matrix, rare pr int xln por, wssfo, will not break out of por, no cup odr, no fluor.

LS-med tan/gry, vfn-fn xln, dense, rare pr int xln por as above, vnsfo in few pcs per tray, diff to break out of por, no cup odr, no fluor.

LS-predom drk-tt tan, vfn xln, brittle, uniform, sm LS-crm, crs xln, vfoss-coral/various, abund fr int xln/foss por, fr sfo in most por, fr bleed on break, no gas bub, abund frac faces w/trc free oil and sheen along face, wk gold fluor, gd strmg cut, fnt cup odr.

LS- mostly as above, decr show lith, no cup odr.

LS-tt tan/gry, fn xln, mostly uniform/dense/brittle, sm LS-crm, fn xln, uniform, w/chalky matrix. nvp, no cup odr, ns.

SH-predom med gry, sm silty congl, no cup odr, ns.

SH-as above, MUDSTN-tt gry, very soft/silky, few SS clusters-drk gry, vfn grn, well srted, arg, few loose grns, no cup odr, no fluor, no cut, ns.

Predom SH's, as above, few clust SS-wht/lt blu-vfn grn, well srted, glauc, sm vfrable, sm hard clust, rare clust SS-fn-m d grn, fry well srted, sub ang-sub round, clr qtz grains, fr int grn por, no cup odr, no fluor, no cut, ns.

SS-wht/tan, fn grn, well srted, no eff on acid, v-friable to firm rounded clusters, rare clust SS-m d grn, friable, tiny blk specks (dd oil?), no cup odr, no fluor, no cut, nsfo.

LS-wht, fn xln, v sandy, fn grn, well srted, nvp, no cup odr, ns.

Sample predom SH-mostly gry, silty, sm SS clusters as above, sm LS-v sandy as above, few pcs LS-wht, fn xln, sandy, ool, no cup odr, ns.

LS-crm, m d xln, ool, v brittle, easy crush, nvp, few pcs LS-tan, fn xln, dense, pr pp por, vnsfo on break, no cup odr, wk pale blu cut.

LS-wht/lt gry, crs xln, chalky, nvp, no cup odr, ns.

LS-med tan, crs xln, foss-crin, sm w/ chalky matrix, hard, dense, nvp, ns.

LS-med tan, crs xln, foss-crin, incr chalk, hard, dense, LS-tt tan, fn xln, hard, brittle, dense, nvp, ns.

LS-tt tan/crm, crs xln, foss-crin, sm silty ool, chalky matrix, flaky to hard/brittle, nvp, ns.

LS-crm, crs xln, grainy, chalky, rare ool, nvp, no cup odr, ns.

LS-wht/crm, crs xln, grainy, chalky, rare ool, foss-crin, nvp, no cup odr, ns.

LS-wht, crs xln, as above, rare ool, few chip CHERT-gry, opaque, fresh, nvp, no cup odr, ns.

No change.

Mostly LS as above, rare ool in dense matrix, nvp, no cup odr, ns.

SIP: 145-53#

MudCo: 4546'
Wt: 9.1
Vis: 52
Yd pt: 18
pH: 10
Flit: 8.0
Chlor: 5000
LCM: 4

DST#5,
Johnson
Atoka
20-20-20-20
4574-4660'
Rec: 5' OSM
IFP: 26-29#
FFP: 31-33#
SIP: 827-803#

MudCo: 4660
Wt: 9.0
Vis: 59
Yd pt: 17
pH: 10
Flit: 7.2
Chlor: 5800
LCM: 4

Vis: 64
Wt: 9.2

Carrying much SH sluff
from upper Morrow

DST#6,
St. Louis
45-30-30-30
4722-4750'
Rec: 15' OSM
IFP: 25-31#
FFP: 29-28#
SIP: 875-871#

MudCo: 4750'
Wt: 9.2
Vis: 64
Yd pt: 23
pH: 9.5
Flit: 9.6
Chlor: 6500
LCM: 4

Sure Shot
4830'
0.5deg

RTD 4830', -1793
LTD 4834', -1797