

GRAND MESA

OPERATING COMPANY

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

1700 N. WATERFRONT PARKWAY
BLDG. 600
WICHITA, KANSAS 67206-5514

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

Well Name: 1-22 BSB Unit
Location: 1140' FSL 110' FEL Sec 22-19s-23w
License Number: 15-135-25820
Spud Date: 11/28/2014
Surface Coordinates: 38.381261 -99.843138
Region: NESS County, KS
Drilling Completed: 12/5/2014

Bottom Hole Vertical
Coordinates:
Ground Elevation (ft): 2269 K.B. Elevation (ft): 2278
Logged Interval (ft): 3460 To: 4561 Total Depth (ft): 4561
Formation: Mississippian
Type of Drilling Fluid: Mud-Co Chemical

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

OPERATOR

Company: Grand Mesa Operating Company
Address: 1700 N. Waterfront Pkwy, Bldg 600
Wichita Kansas, 67206

Comments

Contractor: DUKE RIG #4

Mud: Mud-Co
Testing: Diamond testing
Logging: Weatherford

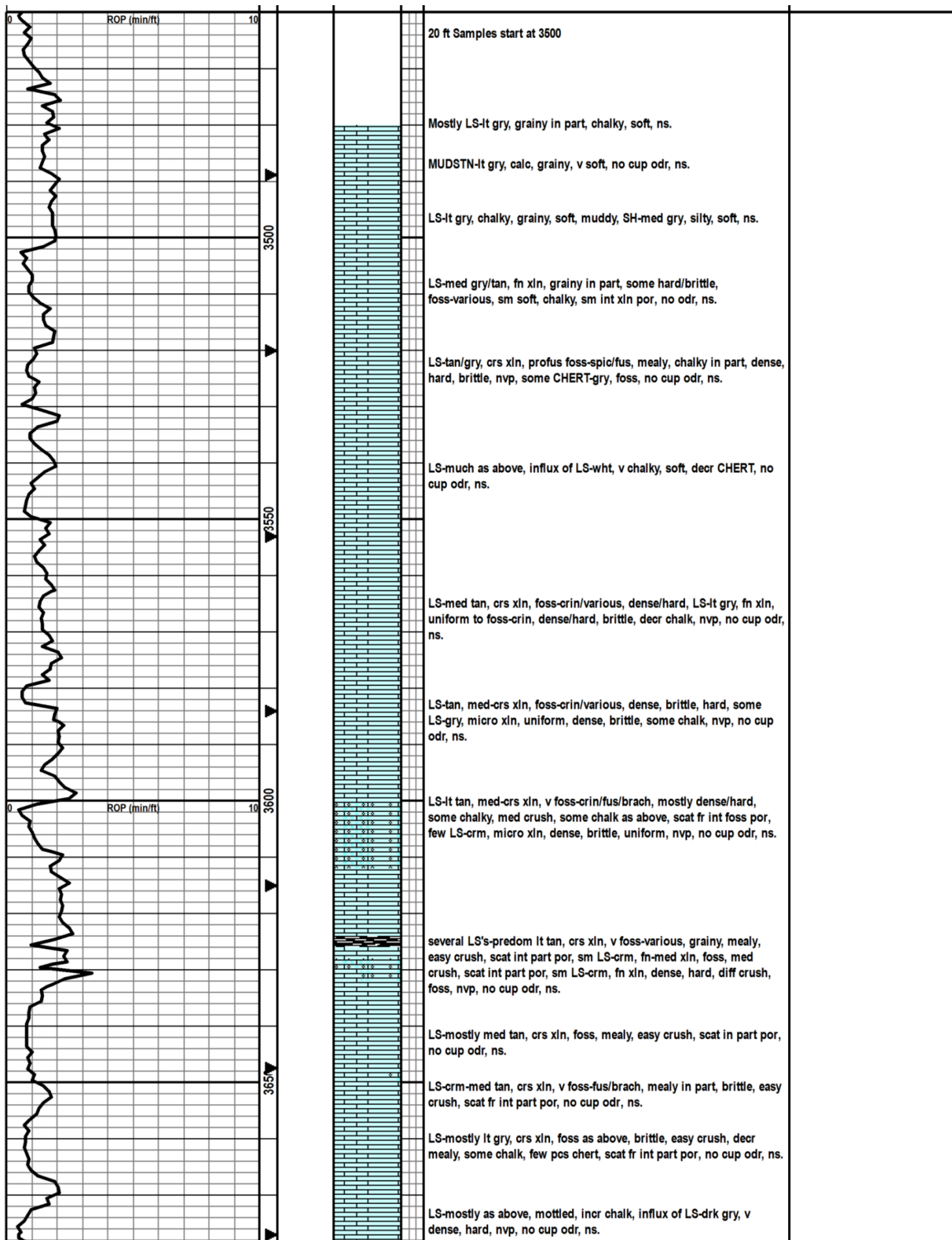
LTD - 4558ft
RTD - 4561ft

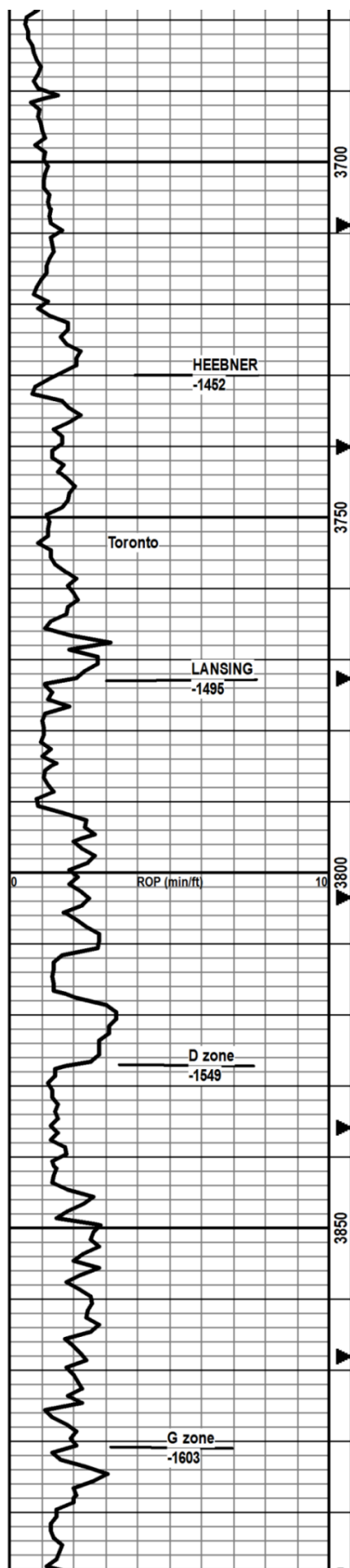
Operator ran 5 1/2 inch casing to further test the Ft. Scott, Krebs, and Cherokee sand.

Geologist

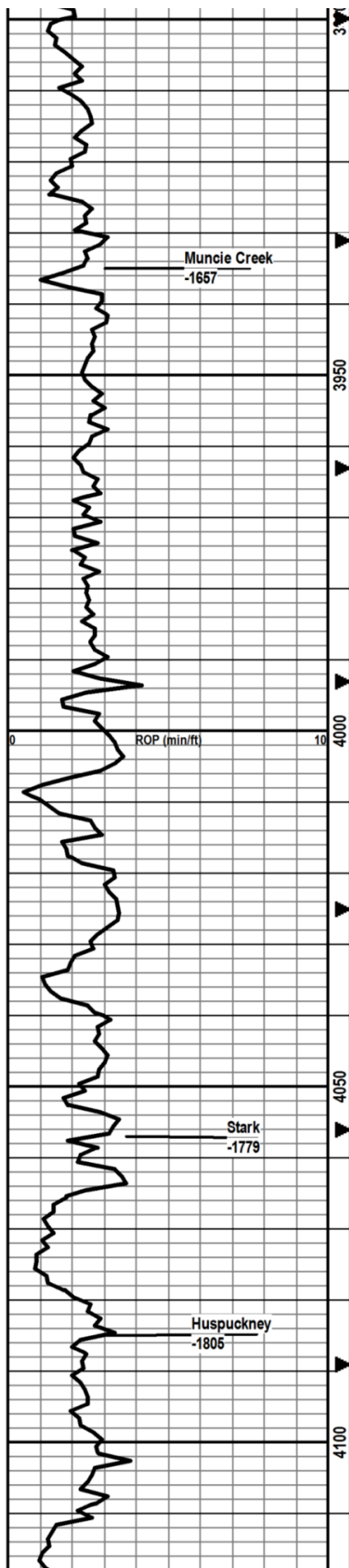
Steve Carl
Grand Mesa Op. Co.

Curve Track 1		Depth	DST Interval	Lithology	Oil/Gas Show	Geological Descriptions	Other info.
ROP (min/ft)							



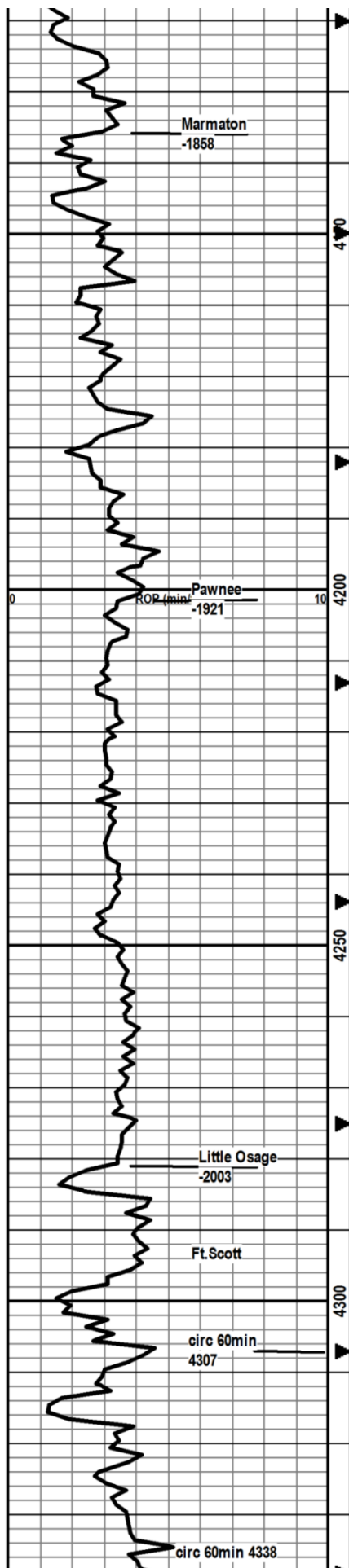


LS-as above, few pcs ooc, no cup odr, ns.
LS-lt tan, crs xln, v foss, few pcs profus ooc, gd vug por, no cup odr, ns.
LS-med-lt tan, ooc, brittle, easy crush, gd vug por, no cup odr, no fluor, ns.
DOLO-lt tan, fn xln, mod eff, gd vug por, no cup odr, no fluor, ns.
LS-med-lt tan, fn xln, grainy, decr foss, hard, diff crush, nvp, no cup odr, ns.
SH-blk, carb, blocky, brittle.
MUDSTN-lt gry, v soft, uniform.
LS-tan-gry, fn xln, grainy, foss, abun pure chalk, rare pp por, no cup odr, ns.
LS-crm, fn xln, grainy, mostly uniform, some dolomitic, scat fr pp/vug por, SH-gry, soft-firm, no cup odr, ns.
LS-predom lt gry, fn xln, dense, hard, nvp, no cup odr, ns.
LS-as above, influx pure chalk, v soft, cup water is a chalky red color.
LS-crm, fn-med xln, mostly uniform, sm foss, few dolomitic, abund pure chalk, no cup odr, ns.
LS-crm-lt gry, fn xln, mostly uniform, rare foss, brittle, med crush, rare chert, rare pr int part por, no cup odr, ns.
SH-gry, grainy, firm.
LS-crm, fn xln, v chalky, some chert, some LS-crm, micro xln, uniform, dense, brittle, nvp, no cup odr, ns.
LS-lt gry/crm, fn xln, mostly uniform, brittle, nvp, no cup odr, ns.
LS-med gry, crs xln, mottled, foss-crin/brach, dense, nvp, no cup odr, ns.
LS-crm, fn xln, foss-as above, few pcs profus ool, nvp, no cup odr, ns.
LS-as above, incr ool, dense, nvp, no cup odr, ns.
DOLO-lt tan, fn xln, uniform, dense, nvp, no cup odr, ns.
LS-crm, crs xln, ooc/foss, abun chalk, abun milky chert, few pcs DOLO as above, no cup odr, ns.



LS-as above, influx, DOLO-lt tan, fn xln, dense, nvp, no cup odr, ns.
LS- predeom lt tan/gry, vfn xln, uniform, dense, hard, rare foss-various, rare pp/vug por, no cup odr, ns.
LS-lt tan, fn xln, mostly uniform, dense, hard, sm chalk, sm chert, SH-drk gry, silty, no cup odr, ns.
SH-gry/grn, soft/muddy to firm/brittle, silty, few pcs SH-blk, carb, LS-as above, no cup odr, ns.
LS-lt tan/crm, fn xln, mostly uniform, some foss, abund milky sharp chert, some chalk, no cup odr, ns.
LS-no change. abund sharp chert.
LS-med-lt tan, fn xln, mostly uniform, dense, hard, sm foss/ool, sm sharp milky foss chert, few pcs chalk, nvp, no cup odr, ns.
LS-no change, SH-gry.
LS-crm, fn-med xln, dense, brittle, nvp, sm LS-crm, ool, sparry, dense, brittle, nvp, abund chalk, decr chert, no cup odr, ns.
LS-as above, SH-med gry, silty, no cup odr, ns.
LS-gry/crm, fn xln, densly pkd ool, w/calcite filled int ool por, sm profus ooc, w vgd vug por, no cup odr, even yel mineral fluor, ns.
SH-gray/red/brn/maroon, silty, blocky, waxy.
LS-lt gry, fn-med xln, foss, ool, chalky, sm ooc, w gd vug por, sm LS-brn, micro xln, hard, brittle, sparry, foss, nvp, no cup odr, ns.
LS-crm, vfn xln, sm uniform, sm ool/foss, sparry, calcite filled int foss por, dense, brittle, nvp, no cup odr, ns.
SH-blk carb, few pcs in 4070smpl.
LS-brn, fn xln, dense, hard, uniform, nvp, no cup odr, no fluor, ns.
LS-crm/gry, med xln, foss in part, v chalky, easy crush, nvp, abund chert-gry, transl, foss, sm DOLO-lt tan, fn xln, dense, nvp, no cup odr, ns.
SH-blk, carb, present in 4100smpl. blocky.
LS-brn, micro xln, v dense, hard, brittle, rare foss, nvp, ns. SH-gry, waxy to silty.
LS-mostly crm, vfn xln, dense, sparry, foss-various, nvp, sm DOLO-lt tan/crm, fn xln, dense, nvp, no cup odr, ns.
MUDSTN-blu/gry, muddy, v soft, sm SH-gry, silty, fiss, no cup odr, ns.

Mud-Co
4031'
12/02/2014
wt: 8.9
vis: 51
Chlor: 3800
LCM: 1

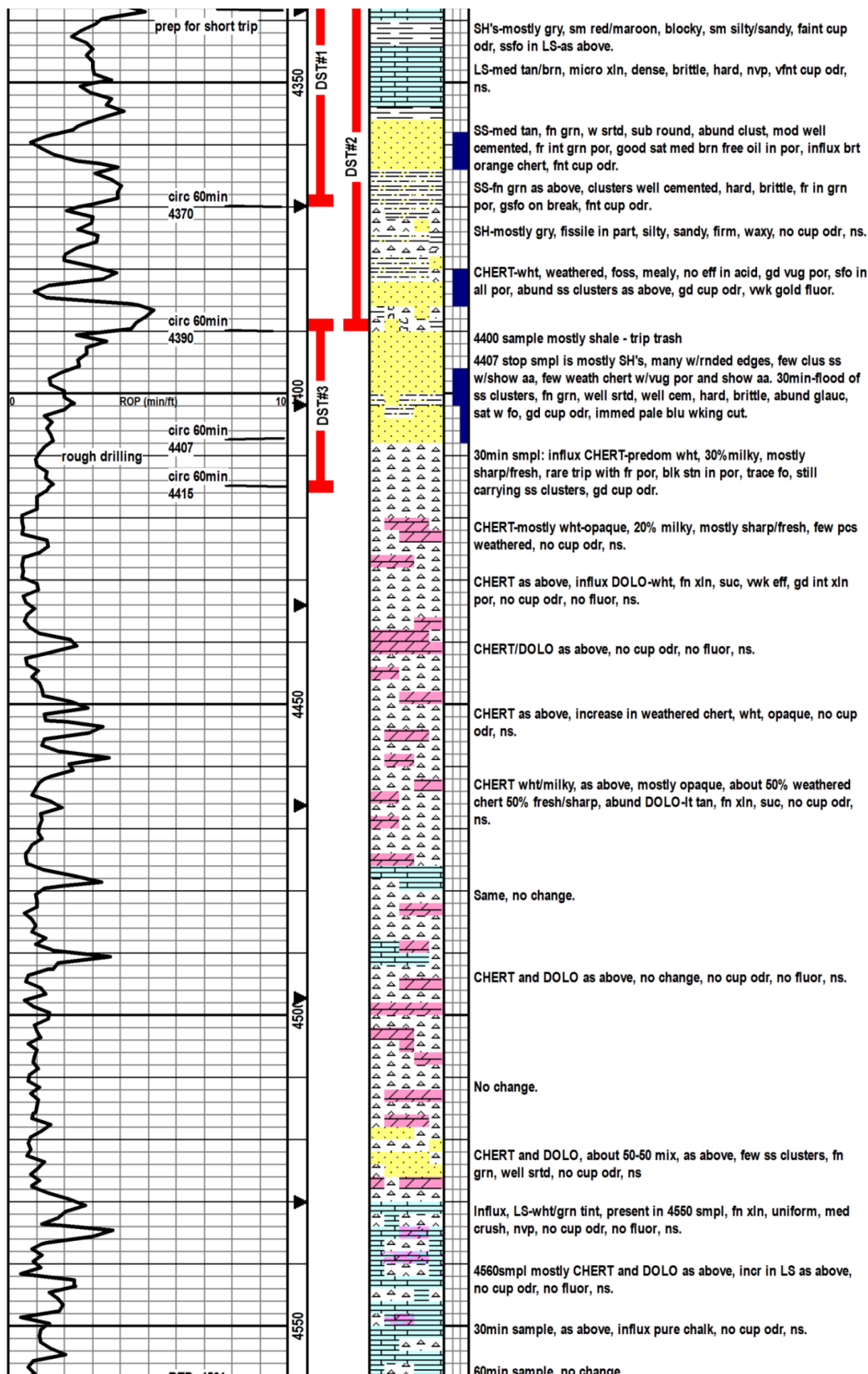


LS-lt tan, crs xln, foss, mealy, med crush, scat int part por, no cup odr, ns.
SH-gry, silty, some red, blocky, no cup odr, ns.
LS-lt tan, vfn xln, mostly uniform, sm ool/foss, sparry, dense, hard, nvp, no cup odr, ns.
SH-med-drk gry, silty, some sandy, no cup odr, ns.
LS-crm, micro xln, sparry, ool/foss-crin/fus, dense, brittle, nvp, no cup odr, ns.
LS-crm, fn-med xln, mostly uniform, sm chalk, few pcs chert-milky, ool, nvp, no cup odr, ns.
LS-crm as above, no change, decr chalk, decr chert, SH-gry/red, silty/sandy in part, no cup odr, ns.
LS-med gry, fn-med xln, grainy in part, mostly uniform, dense, hard, tough, nvp, LS-crm as above, mostly uniform, sm foss-small brach/fus, rare chalk, nvp, no cup odr, ns.
LS-drk-med tan, fn xln, grainy, uniform, shaley, nvp, no cup odr, ns.
LS-crm, vfn xln, mostly uniform, dense, sm chalk, few DOLO, nvp, no cup odr, ns.
LS-crm, fn xln, sm grainy, mostly uniform, sparry, dense, brittle, sm chalky, rare foss, nvp, no cup odr, ns.
No change
LS-mostly as above, influx of LS-med tan, fn xln, sandy, dense, hard, nvp, no cup odr, ns.
LS-crm, vfn xln, sparry in part, sm sandy, dense, hard, nvp, no cup odr, ns.
LS-as above, darker tan, incr sandy, nvp, no cup odr, ns.
LS-drk gry/blk, fn xln, vig eff in acid, silty, grainy, shaley, med crush, nvp, SH-various, gry/brn/red, silty, sandy in part, mostly brittle and blocky, no cup odr, ns.
SH-blk, carb, flood in 4290 sample, no cup odr, ns.
LS-tan, predom fn xln, sparry, dense, brittle, patchy pr int xln por, drk oil locked in por, sm LS-crm, crs xln, w abund fr int xln/pp por, fr sho v lt brn free oil in all por, bleed o&g on break, brt yel fluor, pale blu streaming cut, patchy lt brn stn in drys, fr cup odr.
30 min: much as above, decr sho, influx of chalk, sm milky chert, fr cup odr. 60min: as above, incr sho, many pcs per tray, brt yel fluor, good cup odr.
SH-blk, carb. LS-lt tan/crm, mostly fn xln, dense, brittle, few pcs/tray LS-crm, crs xln, fr in xln por, fr sfo, faint cup odr.
LS-lt tan, vfn xln, mosity uniform, few pcs foss, scat pr int foss/int part por w/sfo. ques cup odr.
LS-mostly as above, ~10pcs/tray LS-micro xln, vdense, vhard, fr vug por, fsfo, oil is darker brown than the show above. brt yel fluor, good cup odr.

Mud-Co
4390'
12/4/2014
wt: 9.45
vis: 56
Chlor: 4600
LCM: 1

DST#1
4331'-4370'
Cher SS
30-45-60-90
Rec:
TF: 490'
270' GIP
175' GO
API: 35deg
315' GSMCO
IFP: 10-77#
BOB 15mins
ISIP: 1297#
FFP: 82-186#
BOB 14mins
FSIP: 1287#
BHT: 122deg

Short trip at

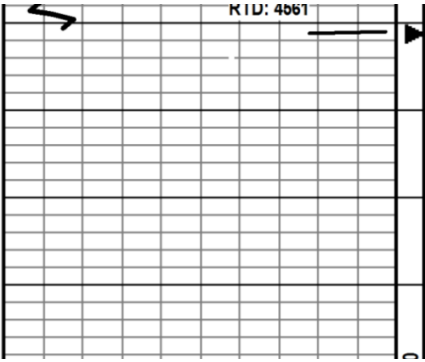


4338'

DST#2
4332'-4390'
Cher SS/Chert
30-45-60-90
Rec:
TF: 695'
440' GIP
315' GO
API: 37deg
255' GSMCO
125'GHMCO
IFP: 12-116#
BOB 9 1/2mins
ISIP: 1294#
FFP: 126-262#
BOB 11mins
FSIP: 1285#
BHT: 121

DST#3
4388'-4415'
Cher SS
30-45-60-90
Rec:
TF: 1142'
2' CO
250' SOHMCW 4% Oil
760' SOMCW 4% Oil
65' Water
60' SMCW
IFP: 16-210#
BOB 8mins
ISIP: 1361#
FFP: 216-523#
BOB 9mins
FSIP: 1363#
CHLOR: 23kppm

Mud-Co
4463
12/05/2014
wt: 9.2
vis: 51
Chlor: 7300
LCM: 1



TD reached at 12:50pm
Dec 5 2014