



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

Well Name: Morrison-Luther Unit #1
Location: 2980' FSL & 140' FEL, Sec 06-T21S-R13W, Stafford County, Kansas
License Number: API: 15-185-23877 Region: Stafford County
Spud Date: 06/17/2014 Drilling Completed: 06/27/2014
Surface Coordinates: Lat: 38.2549405
Long: -98.7849519
Bottom Hole Vertical hole
Coordinates:
Ground Elevation (ft): 1900' K.B. Elevation (ft): 1908'
Logged Interval (ft): 2700' To: RTD Total Depth (ft): 3730'
Formation: Arbuckle at RTD
Type of Drilling Fluid: Chemical

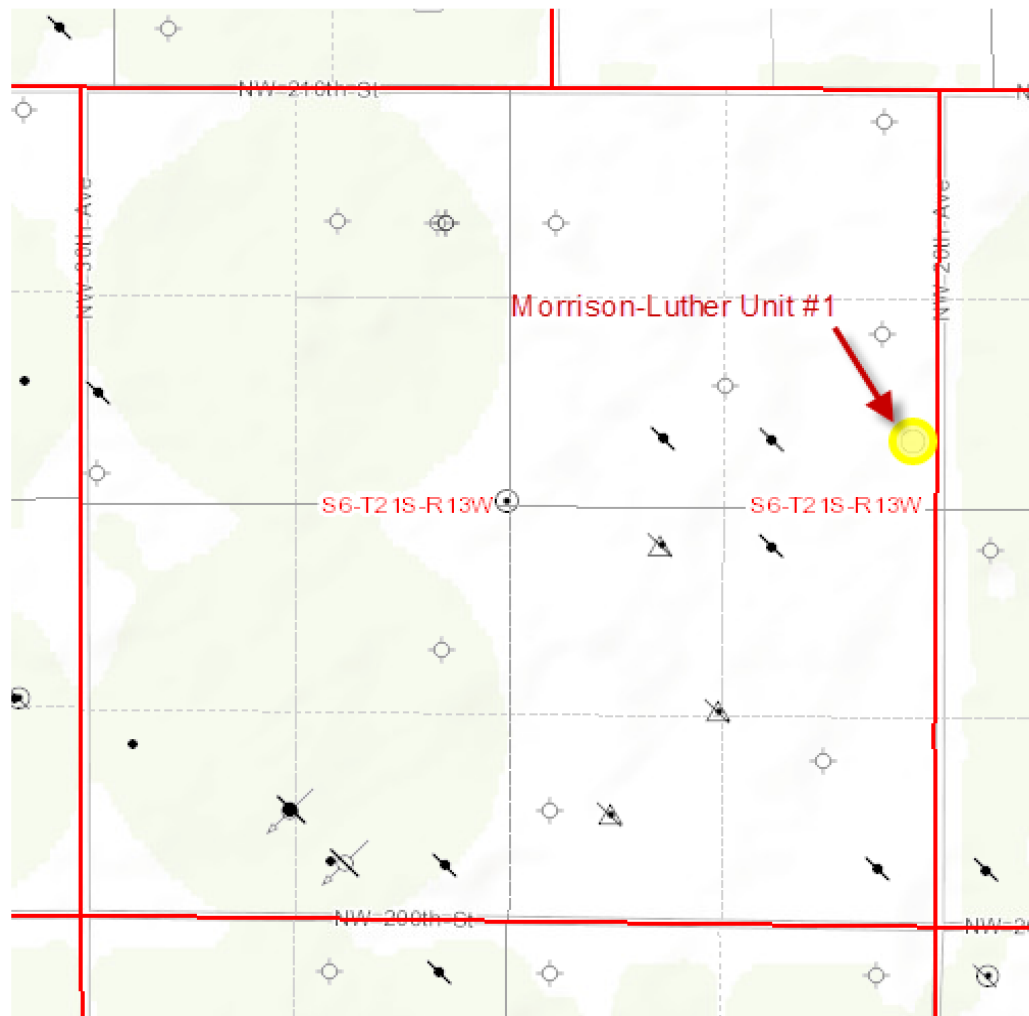
Printed by MUD.LOG from WellSight Systems 1-800-447-1534 www.WellSight.com

OPERATOR

Company: YOUNGER ENERGY COMPANY
Address: 9415 E. Harry Street, Suite 403, Bldg. 400
Wichita, KS 67207-5083
316-681-2542

GEOLOGIST

Name: Kent R. Matson
Company: Matson Geological Services, LLC
Address: 33300 W. 15th Street S.
Garden Plain, Kansas 67050
316-644-1975



COMMENTS

Prospect/Consulting Geologist: Debra FitzGerald, 316-619-7008.

Drilling Contractor: Duke Drilling Company Rig #2.

Tool Pusher: Dion Vasquez, 620-793-0840.

Surface Casing: 8 5/8" set at 810' (KB) w/225 sx cement.

Production Casing: Based on field observations of drill cuttings, DST results and electric log review, production casing (5.5") was installed to further evaluate potential oil production.

Mud by: Andy's Mud.

DST's by: Superior Testers Enterprises - Jared Scheck.

Logs by: Pioneer Energy Services (DIL w/SP, CN-CD, Sonic, Micro, Fracfinder).

RTD= 3730', -1822'.

LTD= 3730', -1822'.

06/24, DST #4 @ 3450'
 06/25, DST #6 @ 3490'
 06/26, drill @ 3580'
 06/27, DST #9 @ 3660', TD @3730'.

Anhydrite: Top @ 795', Bottom @ 807'

Andy's Mud Check #2 @
 2675' 06/20/14 01:20pm
 wt vis pH chl
 8.6 65 11 3000
 Filt LCM
 7.6 2

ROP Data begins @ 2700' on 06/20/2014

Drill cutting
 samples at 20'
 intervals start at
 2700'.

LS: crm/lt brn/lt-med gry, micro-med xtal, foss frags, some vry silty/sndy, some ppt in-xtal por, no odor, ns.

LS: crm/lt-dk brn/lt-med gry, micro-med xtal, foss frags, some vry silty/sndy, min frac por, no odor, ns.

LS: lt-med brn/lt-med gry, micro-med xtal, foss frags/fusln, some vry silty/sndy, some pyritic, min ppt/frac in-xtal por, no odor, ns.

LS: lt-med brn/gry, micro-med xtal, foss frags/fusln, some vry silty/sndy, no vis por, no odor, ns. Some SH: med-dk gry, vry silty, some carb, soft-firm, fissile.

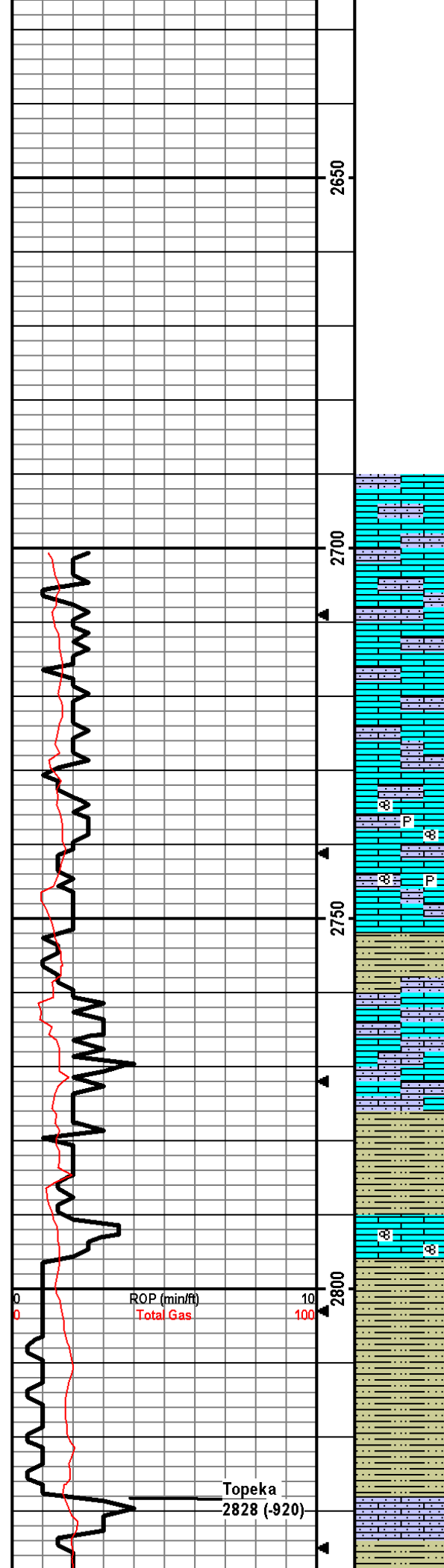
LS: crm/lt brn/lt-med gry, micro-med xtal, foss frags, some vry silty/sndy, min frac por, no odor, ns. SH: med-dk gry, silty, some carb, soft-firm, fissile.

LS: crm/lt brn/gry, micro-med xtal, foss frags/fusln, silty/sndy, min frac por, no odor, ns. SH: lt-med gry, vry silty, some carb, soft, firm, fissile.

SH: med-dk gry/dk red brn, silty, some carb, firm, fissile.

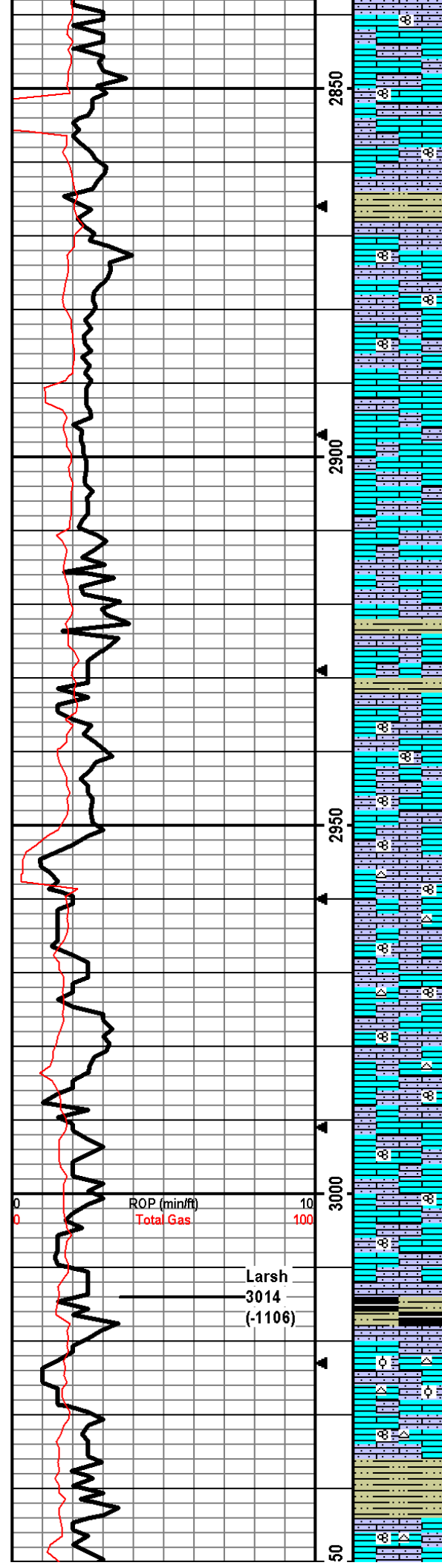
LS: lt-dk brn/lt-med gry, micro-fn xtal, min foss frags, vry silty/sndy, no vis por, no odor, ns.

SH: lt-med arv. silty. slt carb. soft. fissile.



ROP (min/ft)
 Total Gas

Topeka
 2828 (-920)



LS: lt-med brn/lt-med gry, micro-fn xtal w/some 2ndry xtal, foss frags/fusln, some vry silty/sndy, min frac por, no odor, ns.

SH: med gry, vry silty/sndy, firm, fissile.

LS: lt brn/lt-med gry, micro-med xtal, foss frags/fusln, vry silty/sndy, some chalky, min frac por, no odor, ns.

LS: crm/lt-med brn/gry, micro-med xtal, foss frags, vry silty/sndy, some frac por, no odor, ns. Some SH: lt-med gry, silty, soft-firm, fissile.

LS: lt-med brn/lt-med gry, micro-fn xtal, min foss frags, vry silty, some chalky, some frac por, no odor, ns. Some SH: med gry/red brn, vry silty, carb, soft-firm, fissile.

LS: crm/lt brn/lt-med gry, micro-med xtal, foss frags/fusln, vry silty/sndy, some frac por, no odor, ns.

LS: crm/lt-med brn/lt-med gry, micro-med xtal, foss frags/fusln, vry silty/sndy, some chalky, some lt brn chert, min frac por, no odor, ns.

LS: crm/lt brn/gry, micro-med xtal, foss frags/fusln, some vry silty/sndy, some chalky, some lt brn chert, some ppt-fn in-xtal por, no odor, ns.

LS: lt brn/lt gry, micro-fn xtal, foss frags/fusln, vry silty/sndy, min ppt in-xtal/frac por, no odor ns.

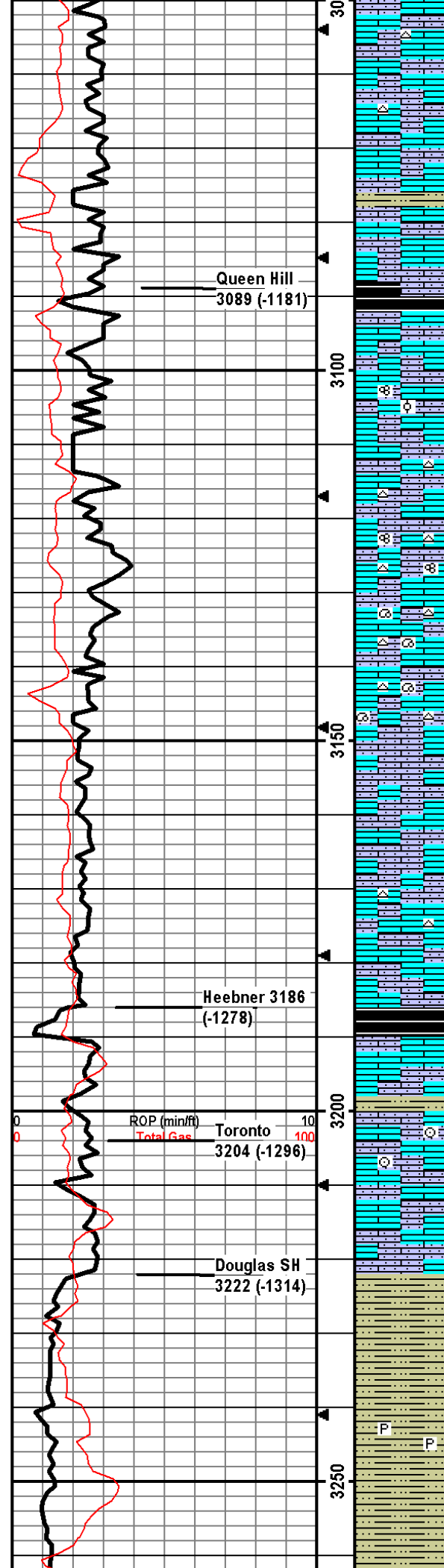
SH: med-dk gry, some silty, some slt carb, firm, fissile.

LS: lt brn/lt-med gry, micro-med xtal, foss frags/dense ool, vry silty/sndy, some chalky, some gry/lt brn chert, min ppt in-xtal/frac por, no odor, ns.

LS: crm/lt brn/lt gry, micro-med xtal, foss frags/fusln, some silty/sndy, some chalky, some lt brn/gry chert, min frac por, no odor, ns. SH lt-med gry, silty, carb, soft-firm, fissile.

ROP (min/ft)
Total Gas

Larsh
3014
(-1106)



LS: crm/lt brn/lt gry, micro-fn xtal, vry silty/sndy, foss frags, some chalky, some brn chert, some frac por, no odor, ns.

LS: lt-med brn/lt-med gry, micro-med xtal, foss frags, some vry silty/sndy, some ppt in-xtal por, no odor, ns. Some SH: med gry, silty, firm, fissile.

SH: med-dk gry/blk, silty, slt carb, firm, fissile.

LS: lt-med brn/gry, micro-med xtal, foss frags, some silty/sndy, some chalky, min frac por, no odor, ns.

LS: crm/lt brn/lt gry, micro-fn xtal, foss frags/fusln/min dense ool, grainy, some silty/sndy, some chalky, min frac por, no odor, ns.

LS: lt-med brn/some lt gry, micro-fn xtal, min foss frags, some vry silty, some lt brn/lt gry chert, min frac por, no odor, ns.

LS: crm/lt brn/lt gry, micro-med xtal w/some crs, foss frags/fusln, some silty/sndy, some lt gry chert, min frac por, no odor, ns.

LS: lt brn/lt gry, micro-med xtal, foss frags/gastro, some silty/sndy, min wht chert, min frac por, no odor, ns.

LS: lt-med brn/gry, micro-med xtal, foss frags/fusln, some silty/sndy, wht/lt gry chert, min frac por, no odor, ns.

LS: crm/lt-med brn/gry, micro-med xtal, foss frags, vry silty/sndy, some micaceous, some chalky, min ppt in-xtal por, no odor, ns.

LS: crm/lt-med brn/gry, micro-fn xtal, foss frags, vry silty/sndy, min frac por, no odor, ns.

LS: lt-med brn, micro-fn xtal, some foss frags, some silty/sndy, some lt brn chert, min frac por, no odor, ns.

LS: crm/lt brn, micro-fn xtal, some foss frags, silty, some chalky, min frac por, no odor, ns.

SH: med-dk gry/blk, silty, slt carb, firm, fissile.

LS: lt-med brn/gry, micro-med xtal, foss frags, some silty, some chalky, min frac por, no odor, ns.

LS: crm/lt brn, micro-med xtal, foss frags/crin, some silty, min frac por, no odor, ns. Some SH: med-dk gry, silty, carb, soft-firm, fissile.

LS: crm/lt brn/lt brnsh gry, micro-fn xtal, min foss frags, silty, some chalky, min frac por, no odor, ns.

SH: lt-med gry/dk bry/red brn, silty, some carb, soft-firm, fissile.

SH: same as above.

SH: med-dk gry/dk red brn, vry silty, carb, pyritic, firm, fissile

SH: med-dk gry/red brn/green-gry, some vry silty, soft-firm, fissile.

Drill cutting samples at 10' intervals start at 3100'.

DST1) 3327-3348 Lansing B-zone

3045/6090
1st) strg blow built to BOB in 40 sec and gas to surface in 15 min, BB to BOB.
2nd) strg blow built to BOB in 20 sec, BB.
IFP 49-54#
ISIP 1091#
FFP 47-55#
FSIP 1088#
HP 1639-1609#
Recvd: 50' mud; 3262' GIP.

DST2) 3385-3410 Lansing E&F-zones

3045/6090
1st) strg blow built to BOB in 3.5 min, BB to w/in 3 inches from BOB.
2nd) strg blow built to BOB in 2 min, BB to BOB.
IFP 56-88#
ISIP 911#
FFP 110-167#
FSIP 903#

HP 1667-1629#
Recvd: 540' oil; 300' GIP.

Andy's Mud Check #3 @
3291' 06/21/14 01:20pm
wt vis pH chl
9.1 45 10 4000
Filt LCM
9.2 2

DST3) 3412-3430
Lansing G-zone
3045/3030
1st) weak surface blow steady thru-out, no BB.
2nd) vry weak surge did not build, no BB.
IFP 35-34#
ISIP 35#
FFP 35-34#
FSIP 36#
HP 1677-1650#
Recvd: no fluid.

CFS @ 3330'
30"60"

CFS @ 3348'
30"60"

Andy's Mud Check #4 @
3348' 06/22/14 08:00am
wt vis pH chl
9.2 48 9.5 4000
Filt LCM
7.2 2.5

CFS @ 3370'
30"60"

CFS @ 3390'
30"60"

CFS @ 3410'
30"60"

Andy's Mud Check #5 @
3430' 06/23/14 08:30am
wt vis pH chl
9.0 48 9.5 5000
Filt LCM
8 2

CFS @ 3430'
30"60"

DST4) 3428-3450
Lansing H-zone
3045/6090
1st) strg blow built to BOB in 3.5 min, had BB.
2nd) strg blow built to BOB in 2 min, BB to w/in 4 inches from BOB.
IFP 50-63#
ISIP 650#
FFP 73-98#
FSIP 727#
HP 1694-1616#
Recvd: 160' water cut oil (10% water, 90% Oil); 600' GIP.
CFS @ 3465'
30"60"

SH: same as above.

SH: same as above.

SH: same as above w/some lt gry SStn, vf-f, pred qtz, hard, friable, no odor, ns.

SH/SStn mix as above, no odor, ns.

LS: crm/lt brn/gry, micro-fn xtal, foss frags, silty, min frac por, no odor, ns.

LS: crm/lt-med brn/gry, micro-fn xtal, foss frags/fusln, some silty, min frac por, no odor, ns.

LS: crm/lt-med brn, micro-fn xtal, foss frags, some silty, some chalky, min frac por, no odor, ns.

LS: crm/lt brn, micro-fn xtal, foss frags/crin, some silty, 2 pcs w/ppt-fn in-xtal por w/lt brn staining, yel flor/crush cut, no odor, slt show.

LS: crm/lt brn, micro-med xtal, foss frags/few ool pcs, some silty, 15 pcs in 30 min and 8 pcs in 60 min smpls w/ppt-med in-xtal/in-ool por, yel flor/cut, cup odor, gsfo.

SH: med-dk gry/blk, silty, carb, soft-firm.

LS: crm/lt-med brn, micro-med xtal, foss frags/fusln, some silty/sndy, min lt brn chert, 1 pcs w/ppt-fn in-xtal por w/sfo, yel flor/cut, no odor, ssfo.

LS: crm/lt brn/some gry mottling, micro-med xtal, foss frags/fusln/crim, some silty/sndy, some chalky, min lt brn/wht chert, 1 pce in 30 min and 1 pce in 60 min smpls w/ppt-fn in-xtal por w/sfo, yel flor/cut, no odor, ssfo.

LS: crm/lt brn/lt gry, micro-med xtal, foss frags/fusln/crin/brac/dense ool, some silty/sndy, 8 pcs w/ppt-med in-xtal/ool por w/sfo, dull yel flor/cut, cup odor, sfo.

SH: med-dk gry, silty, slt carb, soft-firm, fissile.

LS: crm/lt-med brn, micro-med xtal, foss frags/fusln/crin/some dense ool, some silty/sndy, 7 pcs in 30 min and none in 60 min smpls w/ppt-fn in-xtal por w/sfo, dul yel flor/cut, crush odor, sfo.

LS: crm/lt-med brn, micro-med xtal, foss frags/fusln/crin/ool, some silty-sndy, 27 pcs w/ppt-med in-xtal/in-ool/min oo-castic por w/sfo, yel flor/cut, gd odor, gsfo.

LS: crm/lt-med brn/gry, micro-med xtal, foss frags/crin/ool, some silty/sndy, 36 pcs in 30 min and 26 pcs in 60 min smpls w/ppt-med in-xtal/in-ool/min oo-castic por w/sfo, yel flor/cut, gd cup odor, gsfo.

LS: crm/lt brn w/some dk brn frac fill, micro-med xtal, some foss frags/ool, some silty/sndy, min wht/lt brn chert, 7 pcs w/ppt-med in-xtal/oo-castic por w/sfo, dul yel flor/cut, cup odor, sfo.

LS: crm/lt brn/lt gry, micro-med xtal, some foss frags/min ool, silty/sndy, some wht/lt brn chert, 3 pcs in 30 min and 1 pcs in 60 min smpls w/ppt-crs in-xtal/oo-castic por w/sfo, dul yel flor/cut, slt odor, sfo.

SH: lt-med gry, some silty, slt carb, slt pyritic, soft-firm, fissile, 3 pcs LS w/sfo assume from above.

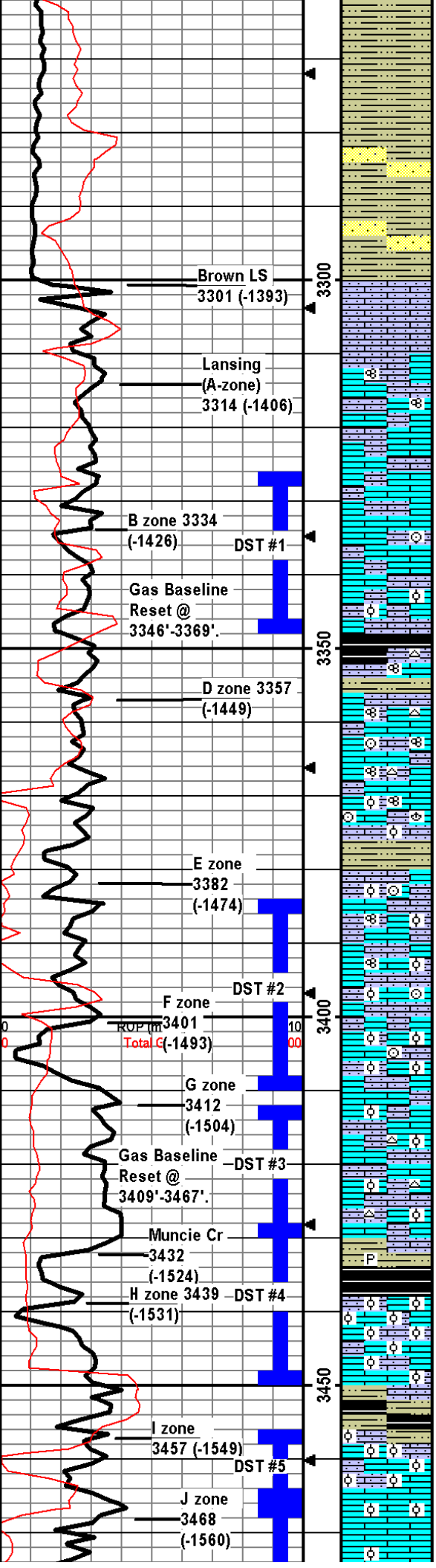
SH: dk gry/blk, some silty, carb, firm, fissile.

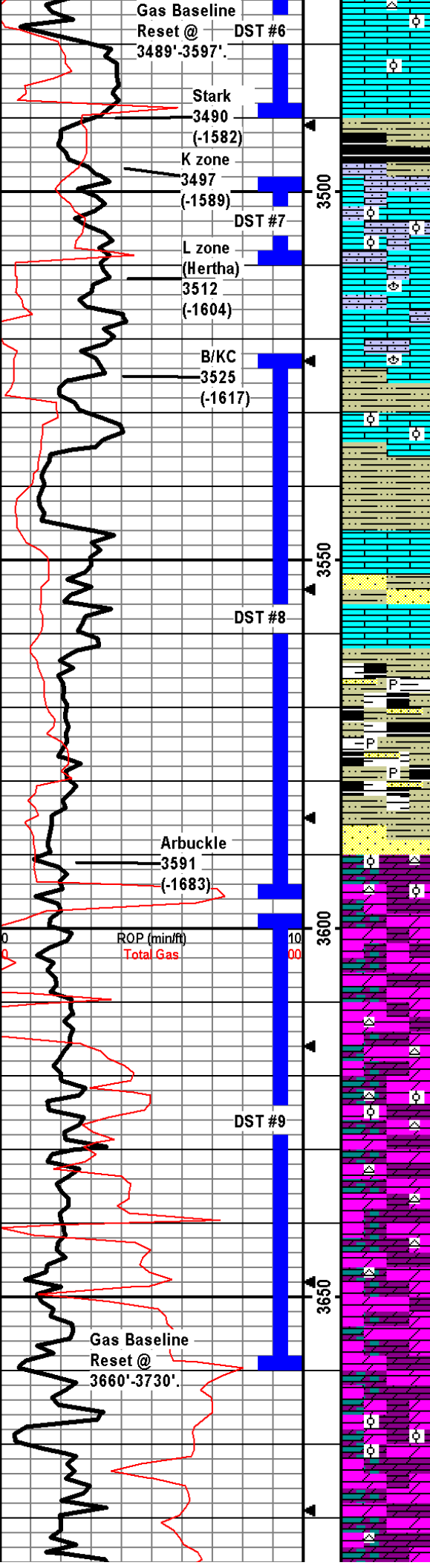
LS: crm/lt brn w/min med-dk brn, micro-med xtal, foss frags/abund ool, some silty/sndy, some chalky, 29 pcs in 30 min and 18 pcs in 60 min smpls w/fn-crs/vug in-xtal/oo-castic por w/sfo, dul yel flor/cut, strg odor, gsfo.

SH: med-dk gry/greenish gry, some silty, carb, firm, fissile.

LS: crm/lt brn, micro-med xtal, foss frags/abund ool, some silty/sndy, 31 pcs in 30 min and 19 pcs in 60 min smpls w/fn-med in-xtal/in-ool/oo-castic por w/sfo, yel flor/cut, cup odor, gsfo.

LS: crm/lt-dk brn, micro-fn xtal, foss frags/some ool pcs, min brn





chert, 21 pcs w/fn-med in-xtal/in-ool/some oo-castic por w/sfo, yel flor/cut, odor, gsfo.

LS: crm/lt gryish crm, micro xtal w/some fn xtal, no foss frags w/min dense ool pcs, 8 pcs in 30 min w/lt-dk brn some ool w/sfo, slt odor, 8 pcs in 60 min w/fn-med in-xtal/in-ool/oo-castic por w/s dk brn oil.

SH: med-dk gry/blk/greenish gry/min red brn/brn, silty, some carb, firm, fissile.

LS: crm/lt brn/lt gry, micro-med xtal, min foss frags w/some abund ool pcs, some silty/sndy, 11 pcs in 30 min and 6 pcs in 60 min smpls w/fn-med in-xtal/in-ool por w/sfo, slt cup odor, yel flor/cut, sfo.

LS: crm/lt brn/lt gry, micro-med, some foss frags/brac, min silty/sndy pcs, some chalky, min frac por, no odor, ns.

SH: med-dk gry, dk red brn, silty, slt carb, firm, fissile.

LS: crm/lt brn, micro-med xtal, min foss frags w/few dense abund ool pcs, some silty/sndy, some chalky, mostly dense w/2 pcs w/ppt-fn por w/sfo, yel flor/cut, no odor, ssfo.

SH: med-dk gry/dk red brn, silty, carb, firm, fissile.

LS: crm, micro-med xtal, min foss frags, 8 pcs w/ppt-med por w/sfo, yel flor/cut, slt odor, sfo.

SH/SS mix: SH is lt-dk gry/green-gry/dk red brn, some silty, carb, firm, fissile; SS is gry-dk gry, qtz, vf-m, sr-wr, friable, 7 SS clusters w/sfo, yel flor, slt odor, sfo.

LS: crm-lt brn, micro-med xtal, min foss frags, 16 pcs wfn-crs in-xtal por w/sfo, yel flor/cut, slt odor, gsfo.

SH: lt-dk gry/green-gry/dk red brn/min mustard yel, silty-sndy, some carb, some pyritic, soft-firm, fissile; few SS cluster, wht/lt gry/dk gry, f-crs, sr-wr, clay matrix, friable; few SS pcs w/sfo assumed from above, slt odor.

SS: gry/med-dk brn, f-crs, sr-wr, hard, friable, 10-15% of tray w/sfo, yel flor/cut, strg odor, vgsfo.

DOLO: crm, micro-med xtal, some ool, grainy/sndy, wht chert, approx 10-15% of tray w/fn-med in-xtal por w/sfo, yel flor/cut, strg cup odor, vgsfo.

DOLO: crm/lt brn, micro-fn xtal, grainy/sndy, 10-15% of tray w/f-med w/some crs in-xtal por w/sfo, yel flor, strg odor, vgsfo.

DOLO: crm/lt brn, micro-med xtal, grainy/sndy, opaque lt gry/dk brn chert, appr 20-25% of tray w/fn-med in-xtal por w/sfo, yel flor/cut, strg cup odor, vgsfo.

DOLO: wht/crm/lt brn, micro-crs xtal, grainy/sndy, some ool, wht/lt gry opaque chert, appr 20-25% of tray w/fn-med in-xtal por w/sfo, yel flor/cut, strg cup odor, vgsfo.

DOLO: same as above, minus ool, w/approx 20-25% of tray w/sfo; some oil is thick blk tar texture.

DOLO: same as above w/increase in blk tar oil, 20-25% of tray w/sfo.

DOLO: wht/crm/lt brn, micro-med w/some crs xtal, grainy/sndy, appr 30-40% of tray w/sfo, oil dk brn and blk, dul yel flor, strg odor, vgsfo.

DOLO: crm/lt-med brn, micro-med xtal, grainy/sndy, some ool, appr 30-40% of tray w/sfo, oil dk brn w/some blk tar, fn-med in-xtal por w/some oo-castic por, strg odor, vgsfo.

DOLO: wht/crm/lt brn, micro-med xtal, grainy/sndy, some ool, appr 20-25% of try w/sfo, oil dk brn w/some blk tar, fn-med in-xtal por w/some oo-castic por, strg odor, vgsfo.

DOLO: crm/lt brn, micro-med xtal, grainy/sndy, some wht chert, nnt.fn in-xtal por 8 pcs w/sfo w/blk brn oil w/blk tar yel flor slt

Andy's Mud Check #0 @ 3450' 06/24/14 09:00am
wt vis pH chl
9.0 46 9.5 5000
Filt LCM
8.2 1.5
CFS @ 3490'
30"60"

Andy's Mud Check #7 @ 3490' 06/25/14 07:30am
wt vis pH chl
9.1 51 9.5 5000
Filt LCM
8 1.5
CFS @ 3510'
30"60"

DST5) 3457-3465 Lansing I-zone
30/45/60/90
1st) weak blow built to 9 inches, vry weak surface BB.
2nd) fair blow built to BOB in 13 min, 1 inch BB.
IFP 31-33#
ISIP 622#
FFP 32-39#
FSIP 697#
HP 1690-1660#
Recvd: 40' mud cut oil (40% mud, 60% Oil); 380' GIP.

DST6) 3467-3490 Lansing J-zone
30/45/60/90
1st) strg blow built to BOB in 45 sec, BOB BB.
2nd) strg blow built to BOB in 3 min, had BB.
IFP 67-163#
ISIP 679#
FFP 179-321#
FSIP 639#
HP 1709-1687#
Recvd: 1140' gassy oil (30% gas, 70% oil); 2327' GIP.
CFS @ 3580', 3595', 3610';
30"60"

DST7) 3499-3510 Lansing K-zone
30/45/30/30
1st) vry weak surface blow steady thru-out, no BB.
2nd) vry weak surge did not build, no BB.
IFP 32-37#
ISIP 1042#
FFP 36-37#
FSIP 1026#
HP 1722-1652#
Recvd: 4' mud.
CFS @ 3640'
30"60"

Andy's Mud Check #8 @ 3585' 06/26/14 07:30am
wt vis pH chl
9.1 53 9.5 4800
Filt LCM
7.2 1.5
CFS @ 3660'
30"60"

Andy's Mud Check #9 @ 3660' 06/27/14 07:30am
wt vis pH chl
9.1 51 9 5000
Filt LCM
8 1

DST8) 3523-3595 Arbuckle
30/45/60/90

ppt in in xtal por, a few w/lt brn or wht tan, yet no, slt odor, sfo.

DOLO: same as above w/3 pcs sfo, slt odor, sfo.

DOLO: wht/crm/lt brn, micro-med xtal, grainy/sndy, wht chert, ppt-fn in-xtal por, few pcs w/sfo assume from above, slt crush odor also from above.

DOLO: as above, no odor, ns.

DOLO: crm/lt brn, micro-med xtal, grainy/sndy, wht chert, ppt-fn w/min med in-xtal por, no odor, ns.

TD @ 3730'.

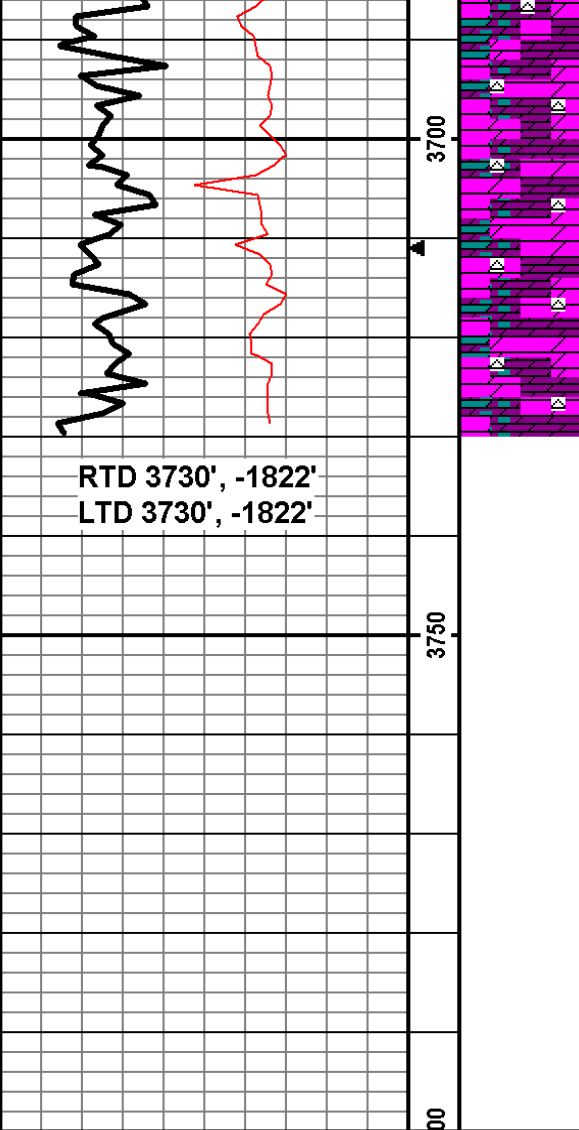
1st) fair blow built to 7", vry weak BB.
2nd) fair blow build to BOB in 45 min, vry weak BB.
IFP 67-76#
ISIP 1115#
FFP 79-95#
FSIP 1147#
HP 1779-1676#
Recvd: 60' OM (50% O), 30' GOM (15% G, 25% O), 180' GIP.

DST9) 3598-3660

Arbuckle

30456090
1st) strg blow built to BOB in 1.5 min, no BB.
2nd) strg blow build to BOB in 1.5 min, no BB.
IFP 693-1116#
ISIP 1243#
FFP 1155-1247#
FSIP 1254#
HP 1815-1747#
Recvd: 2460' Oil spotted MW (1% O, 10% mud, 89% water).

CFS @ 3730'
30" / 60"
Cir 1.5 hrs total to clean hole.



RTD 3730', -1822'
LTD 3730', -1822'