



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

Well Name: Morrison-Luther Unit #2
Location: 4150' FSL & 85' FWL, Sec 05-T21S-R13W, Stafford County, Kansas
License Number: API: 15-185-23924 Region: Stafford County
Spud Date: 01/28/2015 Drilling Completed: 02/04/2015
Surface Coordinates: Lat: 38.2581457
Long: -98.7841303
Bottom Hole Vertical hole
Coordinates:
Ground Elevation (ft): 1896' K.B. Elevation (ft): 1904'
Logged Interval (ft): 2700' To: RTD Total Depth (ft): 3730'
Formation: Arbuckle at RTD
Type of Drilling Fluid: Chemical

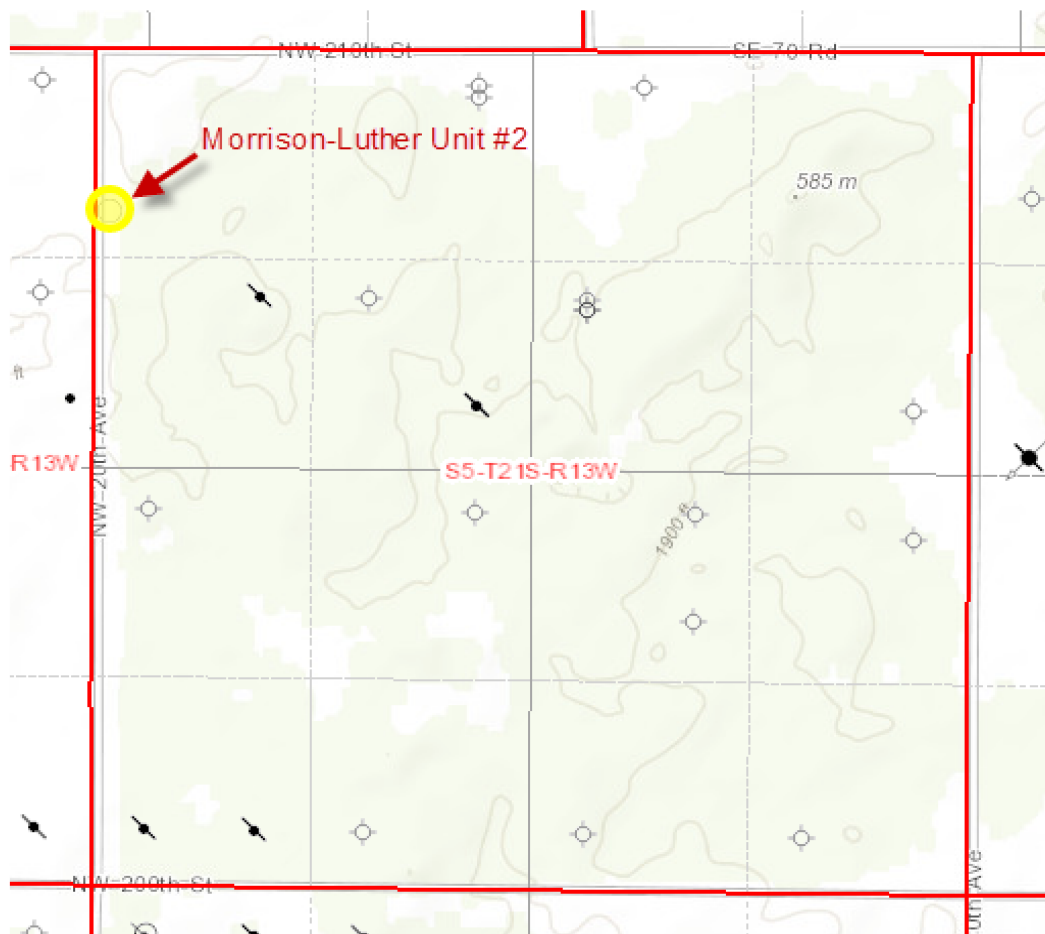
Printed by MUD.LOG from WellSight Systems 1-800-447-1534 www.WellSight.com

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 800' (KB) w/275 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 - Dennis Rector, 785-625-3531.

DST's by: Trilobite Testing, Inc. - Ken Swinney, 785-625-4778.

Logs by: Nabors (DIL, CN-CD, Sonic, Micro), Jason Cappellucci, 785-628-6395.

Gas Detector (Bloodhound System) by: Bluestem Environmental - Skip, 620-617-4091.

RTD= 3730', -1826'.

LTD= 3734', -1830'.

FORMATION TOPS

FORMATION	SAMPLE TOPS		LOG TOPS	
	Depth	Datum	Depth	Datum
Topeka	2826'	-922	2828'	-924
Queen Hill	3086'	-1182	3087'	-1183
Heebner Shale	3183'	-1279	3186'	-1282
Toronto	3204'	-1300	3206'	-1302
Douglas Shale	3221'	-1317	3222'	-1318
Brown LS	3299'	-1395	3301'	-1397
Lansing	3311'	-1407	3312'	-1408
Muncie Creek Shale	3428'	-1524	3431'	-1527
Stark Shale	3482'	-1578	3484'	-1580
Base KC	3516'	-1612	3518'	-1614
Arbuckle	3560'	-1656	3562'	-1658
RTD	3730'	-1826		
LTD			3734'	-1830

ROCK TYPES

LITHOLOGY

	Anhy
	Cht
	Coal
	Congl
	Dol
	Gyp
	Lmst
	Salt
	Shale
	Shcol
	Shgy
	Sltst

	Ss
	Carb sh
	Dol
	Dtd
	Gry sh
	Sandylms
	Shale
	Sltstn
	Shlyslts
	Sitysh
	Sdy dolo
	Silty dolo
	Shy dolo

Shaly ls

FOSSIL

	Algae
	Amph
	Belm
	Bioclst
	Brach
	Bryozoa
	Cephal
	Coral
	Crin
	Echin

	Fish
	Foram
	Fossil
	Gastro
	Oolite
	Ostra
	Pelec
	Pellet
	Pisolite
	Plant
	Strom
	Fuss
	Oomold

ACCESSORIES

MINERAL

- Anhy
- Arggrn
- Arg
- Bent
- Bit
- Brecfrag
- Calc
- Carb
- Chtdk
- Chtlt
- Dol
- Feldspar
- Ferrpel

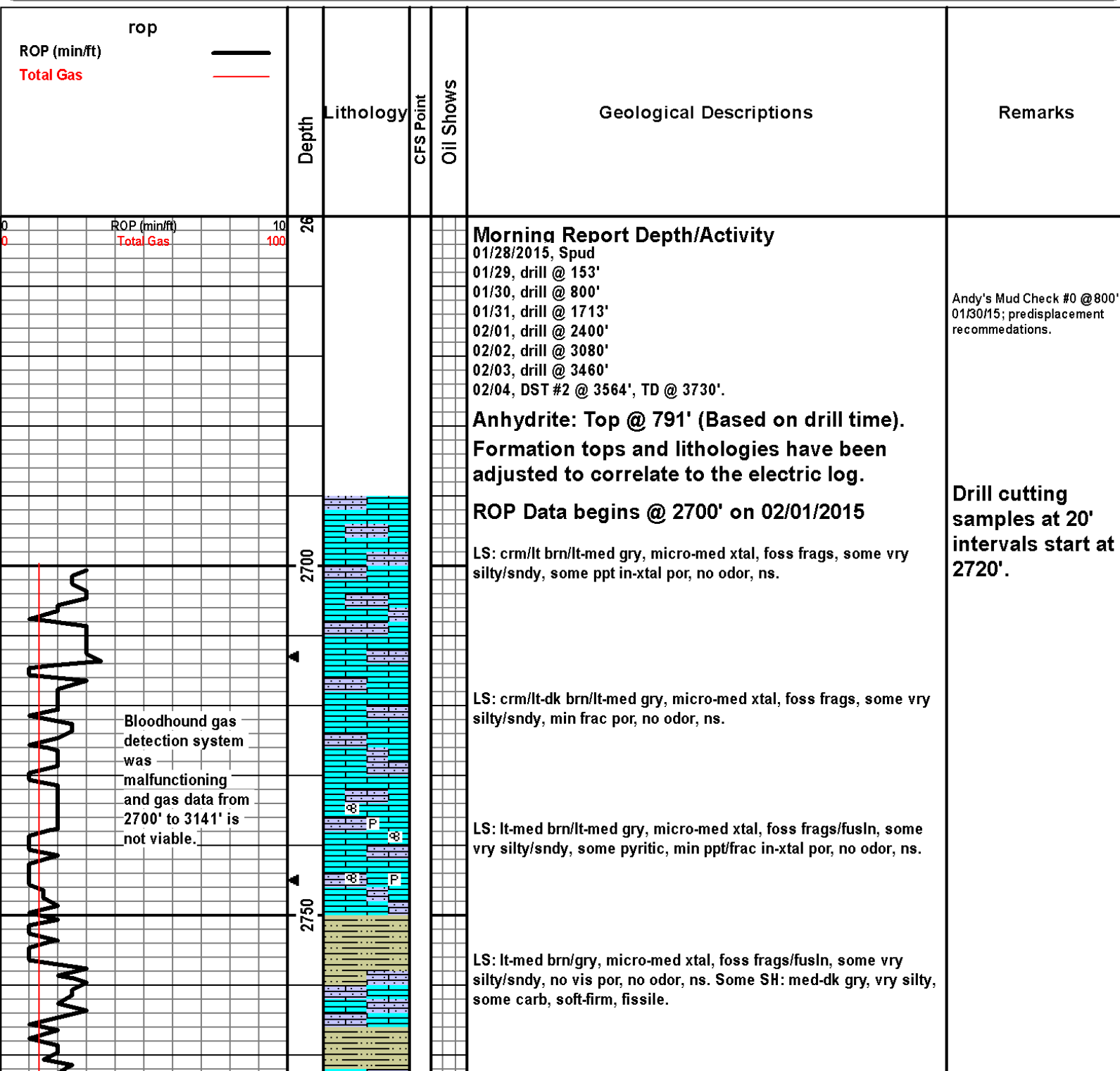
- Ferr
- Glau
- Gyp
- Hvymin
- Kaol
- Marl
- Minxl
- Nodule
- Phos
- Pyr
- Salt
- Sandy
- Silt
- Sil

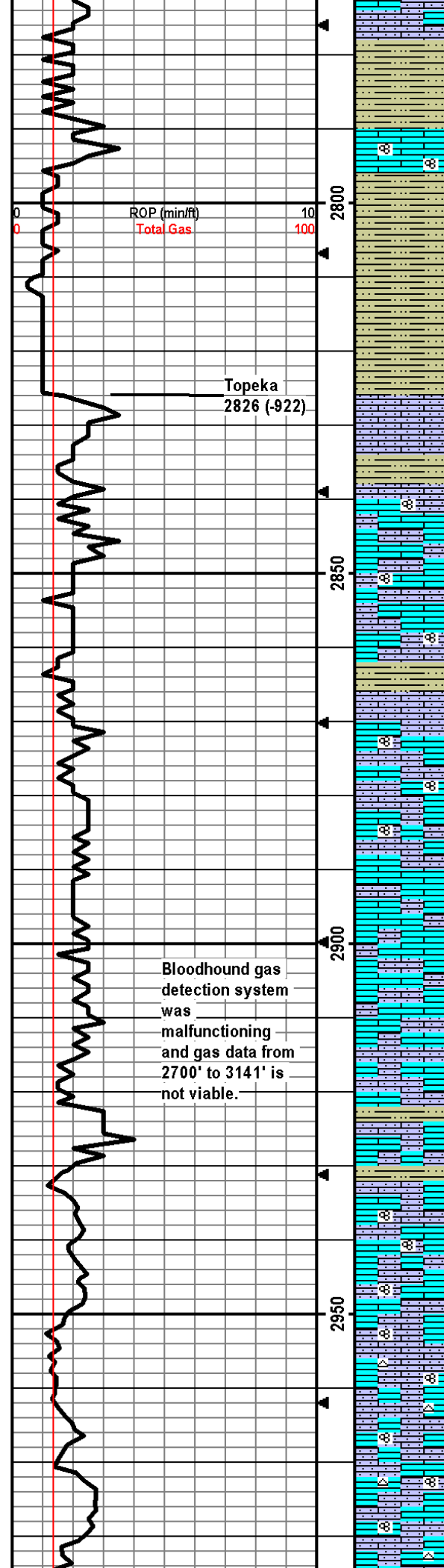
- Sulphur
- Tuff
- Chlorite
- Dol
- Sand
- Sltly

STRINGER

- Anhy
- Arg
- Bent
- Coal
- Dol
- Gyp

- Ls
- Mrst
- Sltstrg
- Ssstrg
- Carbsh
- Clystn
- Dol
- Grysh
- Gryslt
- Lms
- Sandylms
- Sh
- Sltstn





LS: crm/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 gry, silty, slt carb, soft, fissile.

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.

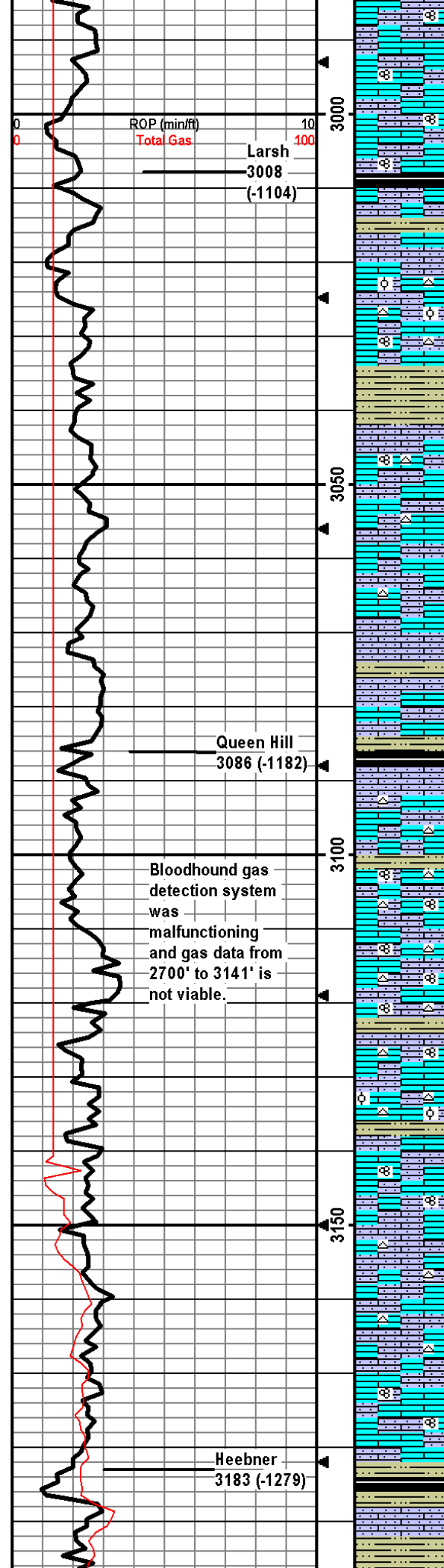
LS: crm/lt-med brn/gry, micro-med xtal, foss frags, vry silty/sndy, some frac por, no odor, ns. Some SH: lt-med gry, silty, soft-firm, fissile.

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.

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.

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

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

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

LS: crm/lt-med brn/lt-dk gry, micro-med xtal, foss frags/fusln, some vry silty, some chalky, min pyritic, min lt gry/lt brn chert, min frac por, no odor, ns. Some SH: lt-dk gry, slt silty, soft-firm.

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

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

LS: lt-med brn/gry, micro-med xtal, foss frags/dense ool, some silty/sndy, wht/lt gry chert, min frac por, no odor, ns. Some SH: med gry, slt carb, soft-firm.

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

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

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

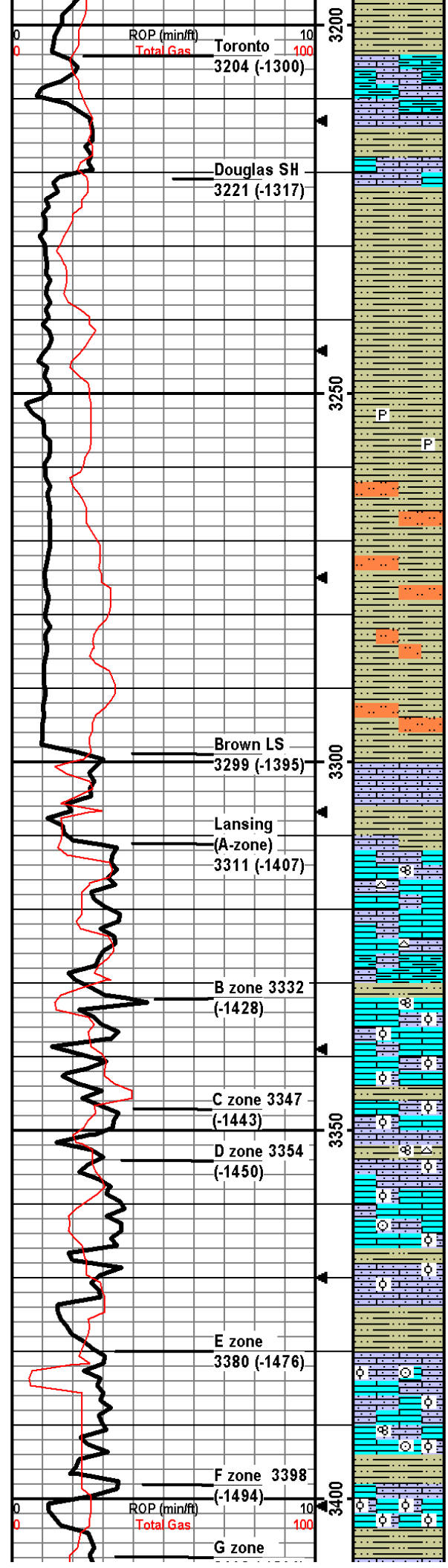
LS: crm/lt-med brn/gry, micro-fn xtal, some foss frags/fusln, silty/sndy, some chalky, some vry arg, min frac por, no odor, ns.

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

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

Andy's Mud Check #1 @
3093' 02/02/15 07:30am
wt vis pH chl
9.0 45 10.5 4000
Filt LCM
8.0 1

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



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

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

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

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

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

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

SH: as above w/some lt green-gry.

SH: as above w/some pyritic.

SH: lt-dk gry/blk/min red brn, slt carb, silty, firm, fissile; some Sltstn: lt gry, arg, slt carb, firm, friable, no odor, ns.

SH: lt-med gry/min dk gry, slt carb, silty, firm, fissile; some Sltstn as above, no odor, ns.

SH: same as above w/min Sltstn as above, no odor, ns.

SH: lt-med gry, silty, slt carb, firm, fissile; some Sltstn: lt gry, arg, slt carb, firm, friable, no odor, ns.

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

SH: lt-med gry, vry silty, slt carb, firm, fissile.

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

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

LS: crm/lt-med brn, micro-fn xtal, foss frags/fusln/ool, some silty, slt chalky, 12 pcs w/ppt-med in-xtal/in-ool por w/lt brn staining and fo, yel flor, no odor, gsfo.

LS: crm/lt-med brn/lt gry, micro-med xtal, foss frags/few ool pcs, some silty, slt chalky, 6 pcs in 30 min and 4 pcs in 60 min smpls w/ppt-med in-xtal/in-ool por, yel flor, no odor, sfo.

LS: crm/lt brn/med gry-brn, micro-med xtal, foss frags/ool, some silty/sndy, some vry chalky, 8 pcs w/ppt-crs in-xtal/in-ool por w/sfo, yel flor, no odor, ssfo; SH: med-dk gry, silty, carb, firm.

LS: crm/lt-med brn/lt gry, micro-med xtal, foss frags/min ool, some silty/sndy, some vry chalky, 4 pcs w/ppt-fn in-xtal por w/sfo, yel flor, no odor, ssfo.

LS: crm/lt-med brn/lt gry, micro-med xtal, foss frags/crin/dense ool, some silty/sndy, 1 pcs w/ppt-fn in-xtal por w/sfo, dull yel flor, no odor, ssfo.

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

SH: lt-med gry, some vry silty, slt carb, soft-firm, fissile.

LS: crm/lt brn/lt gry, micro-med xtal, foss frags/crin/dense ool, some silty/sndy, 3 pcs w/ppt-med in-xtal/in-ool por w/sfo, dul yel flor, no odor, ssfo.

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

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

LS: crm/lt brn, micro-med xtal, foss frags/ool, silty/sndy, ppt-med in-xtal/in-ool por and med-crs oo-castic por, 1 pcs in 30 min and 2 pcs in 60 min smpls w/in-xtal por w/sfo, no odor, ns.

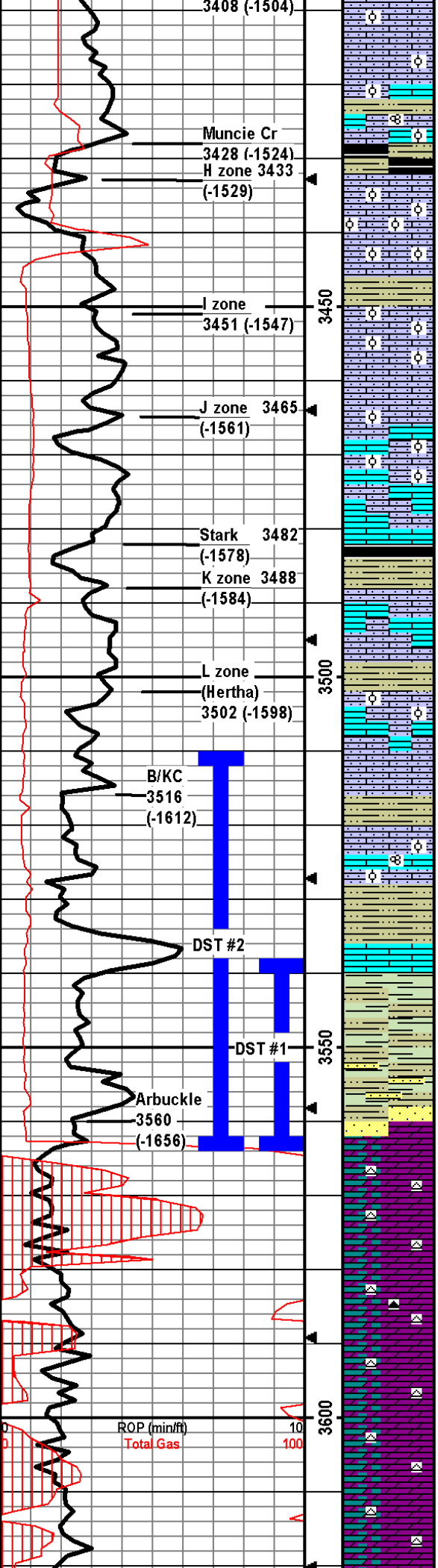
CFS @ 3330' 30"60"

CFS @ 3346' 30"60"

CFS @ 3375' 30"60"

CFS @ 3395' 30"60"

CFS @ 3405' 30"60"



LS: lt-brn/gry, micro-gry, micro-med xtal, some foss frags/ool, silty/sndy, some chalky, min ppt-fn in-xtal por med-crs oo-castic por, no odor, ns.

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

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

LS: crm/lt-med brn/gry, micro-med xtal, foss frags/abund ool, silty/sndy, some chalky, 2 pcs wfn-crs in-xtal/oo-castic por w/sfo, dul yel flor, slt odor, sfo.

LS: crm/lt brn, micro-med xtal, foss frags/ool, silty/sndy, 23 pcs in 30 min and 16 pcs in 60 min smpls w/fn-crs in-xtal/in-ool/oo-castic por, gd odor, yel flor, gsfo.

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

LS: crm/lt brn, micro-med xtal, foss frags/abund ool, silty/sndy, 17 pcs w/fn-crs in-xtal/in-ool/oo-castic por w/sfo, yel flor, cup odor, gsfo.

LS: same as above w/12 pcs w/sfo in 30 min and 10 pcs in 60 min smpls.

LS: crm/lt brn, micro-med xtal, foss frags/ool, some silty/sndy, 11 pcs w/fn-crs in-xtal/in-ool/oo-castic por w/sfo, yel flor, odor, gsfo.

LS: crm/lt brn, micro-fn xtal, no foss frags w/some ool pcs, some silty/sndy, 8 ool pcs w/fn-crs in-ool/oo-castic por, gd odor, dul yel flor, sfo.

SH: lt-dk gry/brn, silty, slt carb, firm, fissile.

LS: crm/lt brn, micro-fn xtal, min foss frags w/some abund ool pcs, some silty/sndy, 5 pcs in 30 min and 3 pcs in 60 min smpls w/fn-crs in-xtal/in-ool/oo-castic por w/sfo, slt cup odor, dul yel flor, sfo.

LS: crm/lt brn/lt brn-gry, micro-med, some foss frags/ool, some silty/sndy, some chalky, min ppt-fn in-xtal/frac por, 2 pcs w/ppt-fn por w/sfo, dul yel flor, no odor, ssfo.

LS: crm/lt-med brn/lt gry, micro-med xtal, min foss frags/ool, silty/sndy, 2 pcs w/fn-med in-ool/oo-castic por w/sfo, dul yel flor, no odor, ssfo.

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

LS: crm/lt brn, micro-med xtal, min foss frags/fusln w/dense abund ool pcs, some silty/sndy, some chalky, mostly dense w/17 pcs w/ppt-med por w/s blk tar oil, dul yel flor, no odor, sfo.

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

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

SH: lt-dk gry/lt gry-green/red brn/mustard yel, some silty, min glau, slt carb, firm, fissile; some LS w/blk tar oil, no odor.

SH as above w/min SS pcs; SS: gry w/blk flakes, v-f, sr-wr, friable, no odor, ns. Some LS pcs w/blk tar oil.

DOLO: crm/lt-med brn, micro-fn xtal, silty/sndy, ppt-fn w/some crs in-xtal por, approx 10-15% of smple w/sfo, yel flor, stg cup odor, vgsfo. 9 SS clusters: lt gry/lt brn, qtz, f-m, sr-wr, hard, friable, sfo, yel flor/cut, stg odor, vgsfo.

DOLO: crm/lt-med brn, micro-fn xtal, grainy/sndy, some lt gry chert, 40-50% of tray w/sfo, mostly ppt-fn w/some fn-crs in-xtal por w/sfo, yel flor, strg odor, vgsfo.

DOLO: crm/lt-med brn, micro-med xtal, grainy/sndy, lt gry/dk brn chert, aprx 40-50% of tray w/sfo, ppt-fn in-xtal por w/min med-crs, yel flor, strg odor, vgsfo.

DOLO: wht/crm/lt brn, micro-med xtal, grainy/sndy, min glau, wht/lt gry chert, aprx 40-50% of tray w/sfo, ppt-fn in-xtal por w/some med-crs, yel flor/cut, strg odor, vgsfo.

DOLO: same as above, w/approx 20-25% of tray w/sfo, good odor, vgsfo.

DOLO: same as above, approx 20-25% of tray w/sfo, oil above is brn, this smpl also has some blk oil, some fluid some tar, good odor, vgsfo.

CFS @ 3430'
30"60"

CFS @ 3448'
30"60"

CFS @ 3465'
30"60"

Andy's Mud Check #2 @
3482' 02/03/15 09:30am
wt vis pH chl
9.3 49 10.0 4000
Filt LCM
7.2 1/2

CFS @ 3490'
30"60"

CFS @ 3500'
30"60"

CFS @ 3518'
30"60"

**DST1) 3538-3564
Arbuckle**

First Arbuckle DST attempt:
Packer failure. Raised
packer seat area up hole and
used a SH packer for 2nd
DST attempt.

Andy's Mud Check #3 @
3564' 02/04/15 07:30am
wt vis pH chl
9.4 47 9.5 5000
Filt LCM
8.0 1

CFS @ 3564'
30"60"

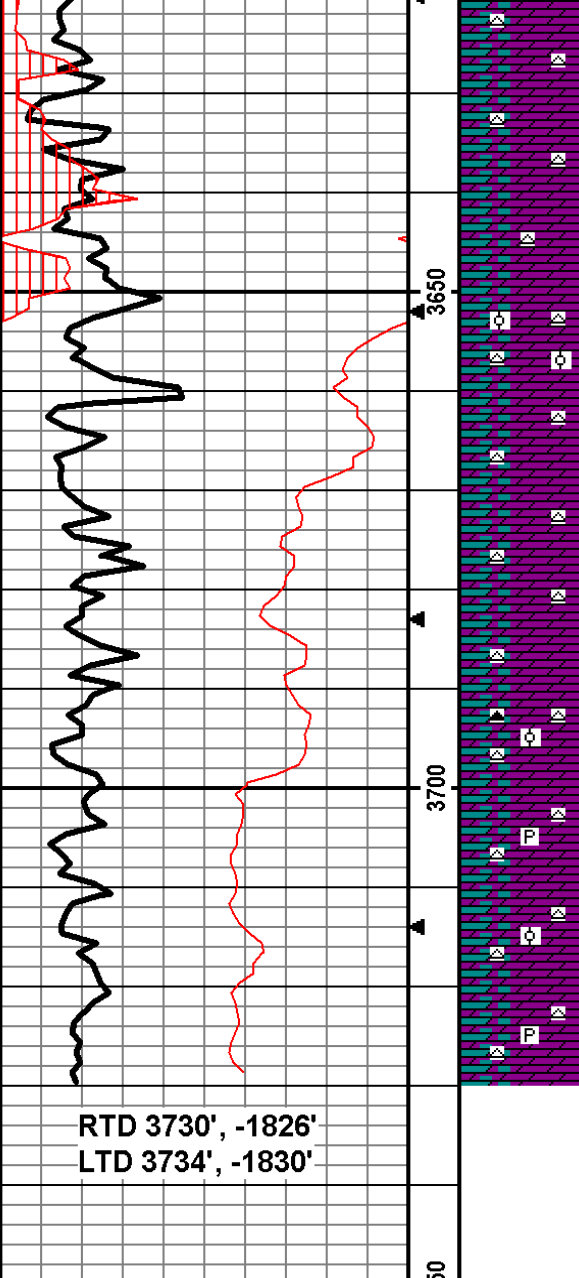
CFS @ 3579'
30"60"

CFS @ 3592'
30"60"

**DST2) 3510-3564
Arbuckle**

05/45/60/90
1st) weak surface blow built
to 1", weak surface BB died
in 15 min.
2nd) weak surface built to
2.75", no BB.

IFP 42-45#
ISIP 1035#
FFP 47-56#
FSIP 873#
HP 1767-1741#
Recvd: 15' O, 30' OCM
(5%O).



DOLO: same as above, approx 20-25% sfo, some blk fluid oil
some blk tar, gd odor, vgsfo.

DOLO: same as above w/some wht fn grained chalky friable Dolo,
oil show as above, 20-25% w/some brn and blk fluid and tar oil,
little stronger odor.

DOLO: crm/lt brn, micro-med xtal, grainy/sndy, min wht chert, apprx 20-25% of tray
w/sfo, fluid dk brn w/some blk fluid and blk tar, ppt-fn in-xtal por w/some med-crs,
good odor, vgsfo.

DOLO: same as above w/wht/lt brn ool Dolo w/wht ool chert, approx 20-25 of tray
w/sfo, fluid brn/blk w/some blk tar oil, por as above w/med-crs oo-castic por, good
odor, vgsfo.

DOLO: wht/crm/lt brn, micro-med xtal, grainy/sndy, some wht/lt gry/lt brn chert,
apprx 20-25% of tray w/sfo, oil dk brn and blk w/some blk tar, fn-med in-xtal por
w/some med-crs, gd odor, vgsfo.

DOLO: same as above, approx 20-25% of tray w/sfo, oil dk brn/blk
w/blk tar, gd odor, vgsfo.

DOLO: same as above w/approx 10-15% of tray w/sfo, oil show as
above, gd odor, vgsfo.

DOLO: same as above w/some med-crs oo-castic por, wht/lt
brn/dk gry chert w/some ool, approx 10-15% of tray w/sfo, gd odor,
vgsfo.

DOLO: crm/lt brn, micro-med xtal, grainy/sndy, wht/lt gry chert,
min pyritic, ppt-fn in-xtal por w/some med por, approx 5-10% of
tray w/sfo, gd odor, gsfo.

DOLO: crm/lt brn, micro-med xtal, grainy/sndy, wht/lt gry ool chert,
ppt-fn in-xtal por w/some med, 31 pcs w/sfo w/dk brn oil w/blk tar,
yel flor/cut, gd odor, gsfo.

DOLO: same as above, min pyritic, 29 pcs sfo, dk brn w/blk tar, gd
odor, gsfo.

TD @ 3730'.

CFS @ 3730'
30"60"