

# LITHOLOGY STRIP LOG

## WellSight Systems

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

Well Name: Rosenberger #2-29  
Location: 1625' FSL & 805' FEL, Sec. 29-T27S-R18W, Kiowa Co., KS.  
Licence Number: 15-097-21788-00-00  
Spud Date: 3/18/2014  
Surface Coordinates: 1625' FSL & 805' FEL, Sec. 29-T27S-R18W  
Region: Einsel  
Drilling Completed: 3/26/2014

Bottom Hole Same as above  
Coordinates:  
Ground Elevation (ft): 2204' K.B. Elevation (ft): 2217'  
Logged Interval (ft): 3900' To: 4832' Total Depth (ft): 4832'  
Formation: Kinderhook at Total Depth  
Type of Drilling Fluid: Freshwater/Gel to 3294'; Chemical Gel 3294' to 4832'

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### OPERATOR

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### GEOLOGIST

Name: Jon D. Christensen  
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### Cores

None Taken

## DSTs

**DST #1(Lansing 'A' ) 4204' - 4220'(Corrected Depths to Log) Test Times 15"-45"-15"-45" IFP Weak 0.5" Blow, FFP No Blow, no Blowback on SI's; REC: 5' Drilling Mud, no shows, no water; IFP 19-21#, ISIP 1343#, FFP 21-22#, FSIP 1279#, IHP 2075#, FHP 2065#, BHT 111 Deg. F.**

**DST #2(K.C. 'I' zone) 4400' - 4420'(Corrected Depths to Log)Test Times 15"-45"-45"-90" IFP Fair to Strong Blow BOB/10 Min., 0.5" Blowback on ISI, FFP Strong Blow BOB/19 Sec., no Gas to Surface; REC: 1210' Gas in Pipe, 62' GOCM(12%G, 6%O, 82%M), no Water; IFP 19-26#, ISIP 1099#, FFP 29-46#, FSIP 1331# and building, IHP 2201#, FHP 2146#, BHT 116 Deg. F.**

**DST #3(K.C. 'J' zone) 4442' - 4458'(Corrected Depths to Log) Test Times 15"-45"-45"-90" IFP Strong Blow BOB/45 Sec., FFP Strong Blow Gas to Surface in 23 Min., Gauged 7.0 MCFG/45"(5# on 0.125" Choke), BOB Blowback on FSI; REC: 70' CGO(21%G, 79%O, API 41.2 Deg.), 185' GMCO(52%G, 40%O, 8%M), 105' SW, CI 111,000, Mud 4000; IFP 40-70#, ISIP 1244#, FFP 70-148#, FSIP 1240#, IHP 2168#, FHP 2105#, BHT 119 Deg. F.**

**DST #4(Miss. Chert) 4742' - 4798'(Corrected Depths to Log) Test Times 15"-45"-40"-120" IFP Strong Blow Gas to Surface in 4 Min. Gauged Maximum 1.284 MMCFG(68# on a 0.75" Choke), FFP Gauged Gas throughout, No Blowback on FSI; REC: 120' CGO(26%G, 74%O, API 33.8 Deg.), 360' GMCO(66%G, 24%O, 10%M), 125' GOCM(25%G, 15%O, 60%M), No Water; IFP 251-313#, ISIP 1493#, FFP 301-379#, FSIP 1501#, IHP 2303#, FHP 2290#, BHT 120 Deg. F.**

## Comments

3/18/14 MIRU Sterling Drilling Rig #5 Spud at 9:00 PM; 3/19/14 TD. 641' - CCH for Surface Casing; 3/20/14 TD. 712' - Rig repairs; 3/21/14 Drilling at 2800'; 3/22/14 Drilling at 3835'; 3/23/14 TD. 4224' - TOH with DST #1; 3/24/14 TD. 4424' - DST #2; 3/25/14 Drilling at 4505'; 3/26/14 TD. 4802' - CCH for DST #4; 3/27/14 RTD. 4832', LTD. 4828', Logging well; 3/28/14 RTD. 4832' - Production Casing Set.

Set new 8 5/8"(23#) Surface Casing at 636' with 350 sacks of cement(Basic Energy Services). Cement did Circulate. PD. at 12:00 Noon 3/19/14.

Set new 5 1/2"(15.5#) Production Casing at 4826' with 220 sx. of "Loeb Blend" Cement(Basic Energy Services). PD. at 5:15 AM. on 3/28/14.

Surveys: 1.25 Deg. at 712'(Bit Trip); 0.50 Deg. at 3294'(TOH for Repairs); 0.50 Deg. at 4224'(DST #1); 0.75 Deg. at 4424'(DST #2); 0.75 Deg. at 4802'(DST #4).

Pipe Strap at 3294'(TOH for Repairs): Strap 0.19' Short to the Board, no correction made to the Board.

After review of the Halliburton Logs, DST data, and positive indications of commercial amounts of recoverable hydrocarbons, the operator elected to set new 5 1/2" Production Casing for completion in the Mississippian Chert and Kansas City 'I' and 'J' zones.

LOG TOPS: Chase 2440(-223), Stotler Lmst. 3391(-1174), Howard 3598(-1381), Heebner Shale 4040(-1823), Toronto 4058(-1841), Brown Lmst. 4194(-1977), Lansing 'A' 4202(-1985), Lansing/KC 'H' 4363(-2146), KC 'I' 4409(-2192), KC 'J' 4449(-2232), Stark Shale 4497(-2280), Hertha 4554(-2337), Base Kansas City 4586(-2369), Marmaton 4632(-2415), Pawnee 4678(-2461), Cherokee Shale 4718(-2501), Miss. Chert 4778(-2561), Kinderhook Shale 4811(-2594).

NOTE: This log was shifted upward by 4' to 5' for correlation purposes with the Halliburton Logs.

## ROCK TYPES

 Anhy  Bent  Brec  Cht	 Clyst  Coal  Congl  Dol	 Gyp  Igne  Lmst  Meta	 Mrlst  Salt  Shale  Shcol	 Shgy  Sltst  Ss  Till
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### ACCESSORIES

- MINERAL**
- Anhy
  - Arggrn
  - Arg
  - Bent
  - Bit
  - Breclfrag
  - Calc
  - Carb
  - Chtdk
  - Chtlt
  - Dol
  - Feldspar
  - Ferrpel
  - Ferr
  - Glau

- Gyp
- Hvymin
- Kaol
- Marl
- Minxl
- Nodule
- Phos
- Pyr
- Salt
- Sandy
- Silt
- Sil
- Sulphur
- Tuff

- FOSSIL**
- Algae
  - Amph
  - Belm
  - Bioclst
  - Brach
  - Bryozoa
  - Cephal
  - Coral
  - Crin
  - Echin
  - Fish
  - Foram
  - Fossil
  - Gastro
  - Oolite

- Ostra
- Pelec
- Pellet
- Pisolite
- Plant
- Strom

- STRINGER**
- Anhy
  - Arg
  - Bent
  - Coal
  - Dol
  - Gyp
  - Ls
  - Mrst

- Sltstrg
- Ssstrg

- TEXTURE**
- Boundst
  - Chalky
  - Cryxln
  - Earthy
  - Finexln
  - Grainst
  - Lithogr
  - Microxln
  - Mudst
  - Packst
  - Wackest

### OTHER SYMBOLS

- POROSITY**
- Earthy
  - Fenest
  - Fracture
  - Inter
  - Moldic
  - Organic
  - Pinpoint

- Vuggy
- SORTING**
- Well
  - Moderate
  - Poor

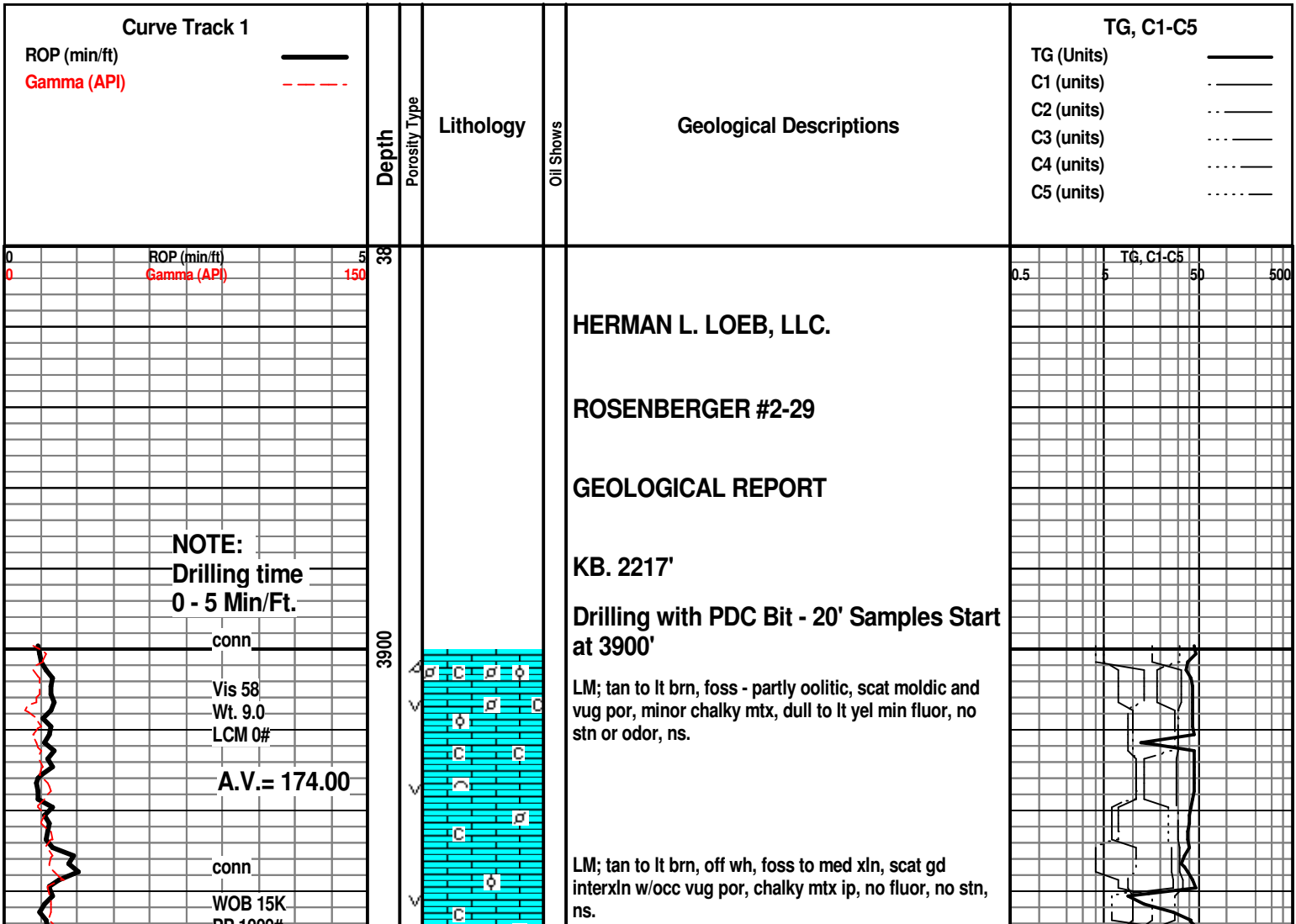
- ROUNDING**
- Rounded
  - Subrnd
  - Subang
  - Angular

- OIL SHOW**
- Even

- Spotted
- Ques
- Dead

- INTERVAL**
- Core
  - Dst

- EVENT**
- Rft
  - Sidewall



PP 1000#  
SPM 66  
RPM 80-85

conn  
Vis 55  
Wt. 9.1  
LCM 0#

conn

ROP (min/ft)  
Gamma (API)

WOB 15K  
PP 1000#  
SPM 65  
RPM 83

conn

A.V.= 174.00

conn

MudCo. Mud  
Check at 4090'  
Vis 78 Wt. 9.4  
WL 9.2 CI 4000  
PH 10.5 LCM 0#

conn

conn

WOB 14K  
PP 950-1000#  
SPM 60-62  
RPM 80-83

conn

Vis 70+

3950

4000

4050

4100

4150



LM; brn, tan, rare lt gy brn, med to cse xln, spar calc, occ foss, most w/fair to gd interxln and scat vug por, ns.

LM; off wh, buff, lt brn, med to cse xln ip, gd interxln por, incr. chalk and chalky mtx, scat lt yel min fluor, no stn or odor, ns.

DOL; lt brn, sucrosic, poor to fair interxln por, dull yel min fluor, no stn or odor, occ pyr, no gas kick, ns.

SH; med to dk gy, some blk, platy

LM; lt to med brn, rare gy brn, most dense, scat foss mat, poor interpart por, no fluor, no stn or odor, occ gy cht, ns.

**HEEBNER SHALE 4040(-1823)**

SH; blk, carb, trc gas, rare pyr

LM; med to dk brn, dense

SH; grn, gy grn, silty w/interbdd sltst.

**TORONTO 4058(-1841)**

LM; med to dk brn, gy brn, highly foss, abnt pellets/pisolites, pyr ip, tite

LM; off wh, tan, fxln w/abnt soft chalk and chalky mtx, occ fair small vug por, dull yel min fluor, no stn or odor, ns.

**DOUGLAS SHALE 4083(-1866)**

TOH into Surface Casing for Rig Repairs at 4090'

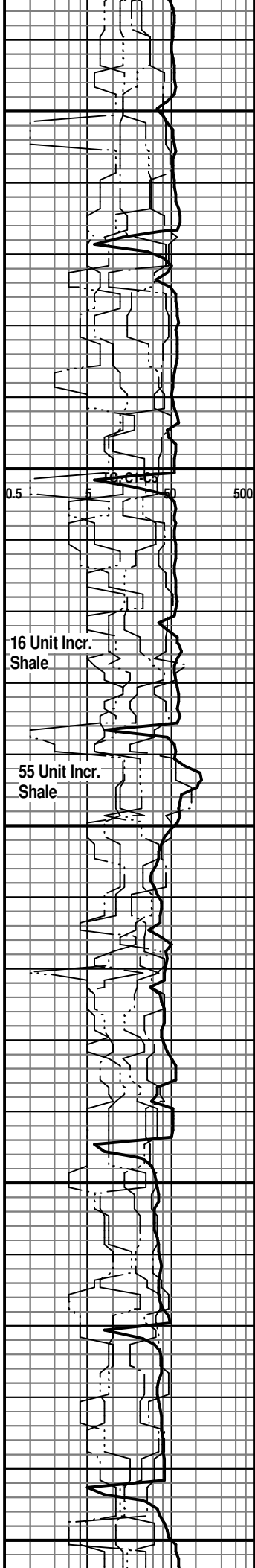
LM; med brn, foss ip, most well cem, tite

SH; lt to med gy, platy, silty to sandy

LM; lt to med brn, blocky, micritic, foss ip, hd

SH; lt to med gy, platy, silty ip, occ mica

SH; lt to med gy, platy, soft, occ silty



Wt. 9.4  
LCM 0#

WOB 15K  
PP 970#  
SPM 60  
RPM 85

conn

A.V.= 172.00  
at 60 SPM

ROP (min/ft)  
Gamma (API)

DST #1  
Lansing 'A'  
4204' - 4220'  
Corrected  
CFS. at 4220'

Scale Change  
ROP (min/ft)  
Gamma (API)

MudCo. Mud  
Check at 4220'  
Vis 68 Wt. 9.4  
WL 9.2 CI 4000  
PH 10.0 LCM 0#

WOB 40K  
PP 1000#  
SPM 59  
RPM 85

A.V.= 162.00  
at 58 SPM

WOB 40K  
PP 970#  
SPM 58  
RPM 84

Vis 60  
Wt. 9.4  
LCM 0#

WOB 40K  
PP 950#  
SPM 57  
RPM 86

4200

4250

4300

4350

SH; lt to med gy, platy to flakey, occ silty

**BROWN LMST. 4194(-1977)**  
LM: med to dk brn, dense, micritic, tite

**LANSING 'A' 4202(-1985)**  
LM; lt brn, oolitic, med to lrg molds, gd oomoldic por, med yel fluor, fair gas odor, gas bubbles, trc lt brn oil stn, no FO., weak cut - Gas Show

LM; lt to med brn, foss ip, most dense, scat cht  
**DST #1: Lansing 'A' 4204' - 4220'**  
**BUTTON BIT IN AT 4224'**

**LANSING 'B' 4225(-2008)**  
LM; off wh, wh, lt gy, fxln, much soft chalk and chalky mtx, no fluor, rare vug por, ns.

LM; lt brn, lt gy brn, foss ip, scat fair vug & interpart por, dull yel fluor, no stn, ns.

LM; tan to lt gy, f to med xln, fair interxln por, occ spar calc xtals, minor chalky mtx, no fluor, no stn or odor, ns.

LM; tan to lt brn, most dense, micritic, scat gy to dk gy cht, no vis por, ns.

SH; lt to med gy, gy grn, platy, silty pin.

LM; tan to buff, lt brn, f to med xln, fair interxln por ip, much dense - micritic, no fluor, no stn or odor, ns.

LM; tan to lt brn, buff, foss ip w/rare well cem ooids, most dense, blocky, scat gy cht, rare vug por, no fluor, ns.

LM; off wh, lt brn - tan, some sucrosic text, partly dolomitic, interbdd partly chalky lmst, fair interxln por, dull yel fluor, no vis stn, ns.

LM; tan to cream, buff, med xln w/scat foss mat, occ vug and interpart por, minor chalky mtx, dull yel min fluor, no stn, ns.

SH; med to dk gy, rare gy grn, pyr ip, occ foss

**LANSING/K.C. 'H' 4363(-2146)**  
LM; lt brn, oolitic, brittle - breaks easily, most w/small molds, gd oomoldic w/scat vug por, lt yel min fluor, no stn or odor, no gas kick, ns.

0.5 500

**28 Unit Incr. SHOW**

Gas readings unreliable - change filter/gas line

High Mud Level - gas kick not real

Change ext. Filter

Gas Test at Extractor

A.V.= 164.25  
at 58 SPM

conn  
Vis 62  
Wt. 9.2  
LCM 0#

ROP (min/ft)  
Gamma (API)

DST #2  
K.C. 'I' zone  
4400' - 4420'

CFS. at 4420'  
conn

CFS. at 4434'

DST #3  
K.C. 'J' zone  
4442' - 4458'

conn  
CFS. at 4458'

MudCo. Mud  
Check at 4458'  
Vis 60 Wt. 9.2  
WL 8.8 Cl 5000  
PH 11.5 LCM 0#

conn

WOB 40K  
PP 875#  
SPM 58  
RPM 82

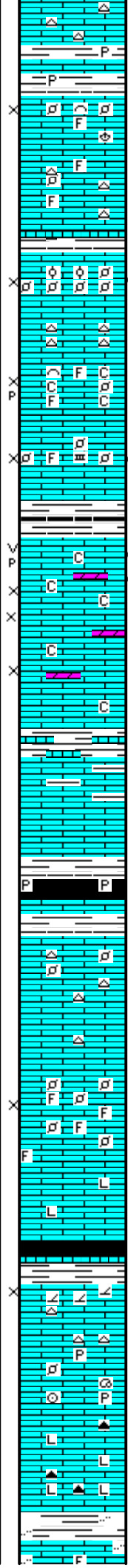
conn  
A.V.= 160.00  
at 58 SPM

Vis 60  
Wt. 8.9  
LCM 1#

conn  
MudCo. Mud  
Check at 4561'  
Vis 62 Wt. 8.9  
WL 7.2 Cl 6000  
PH 10.5 LCM 1#

WOB 40K  
PP 970#  
SPM 59-60  
RPM 85  
conn

4400  
4450  
4500  
4550



SH; med gy, platy, occ pyr

LM; tan to buff, cream, foss w/scat pellets and foss hash, trc poor interpart por, most well cem, dull yel fluor, no stn or odor, no gas kick

LM; tan to lt brn, foss ip, most well cem, scat off wh/gy cht, no vis por, no fluor, ns.

K.C. 'I' 4409(-2192)

LM; off wh, buff, finely pelletal, small ooids, gas bubbles, very slight spotted lt brn oil stn, v. faint odor, fair interpart por, med/brite yel fluor

DST #2: K.C. 'I' Zone: 4400' - 4420'

Corrected Depths to Log

LM; off wh, foss ip, scat fair interpart/p-p por, chalky ip, no fluor, poss. gas bubbles, no odor, no vis oil stn, no cut

LM; off wh, foss - finely pelletal, trc v. lt brn stn, faint odor, chalky ip, rare med yel fluor, poor to fair interpart por, occ stylolites, most barren

K.C. 'J' 4449(-2232)

LM; tan, cream, fxl n w/scat gd p-p/occ lrg vug por, spotty brite yel fluor, fair odor, gd cut, spotted/even lt brn stn, chalky ip, gas bubbles, bcm lt brn f to med xln lmst w/some barren por.

DST #3: K.C. 'J' Zone: 4442' - 4458' (Corrected Depths to Log)

LM; tan to cream, buff, fxl n w/fair interxln por, minor chalky mtz, partly dolomitic, no fluor, no stn or odor, ns.

SH; med gy, gy brn, lmy

LM; med gy, gy brn, hd, blocky, some argil, no vis por, ns.

STARK SHALE 4497(-2280)

SH; blk, carb, blocky, occ pyr

SWOPE 4505(-2288)

LM; lt to med brn, foss ip w/rare pellets, well cem, hd, scat brn cht, no fluor, no vis por, ns.

LM; tan to lt brn, buff, foss ip /scat pellets, foss hash, fair interpart por in some, most well cem, no fluor, no stn or odor, ns.

LM; med brn, blocky, some litho, tite

SH; blk, carb ip, platy

HERTHA 4554(-2337)

LM; tan, buff, fxl n w/occ sucrosic text, partly dolomitic, lt yel min fluor, fair interxln por, no stn or odor, ns.

LM; med brn, foss, blocky, most well cem, pyr ip, scat lt yel min fluor, no stn, ns.

LM; med to dk brn, occ dk gy, micritic to litho, interbdd dk gy/smoky cht, tite

BASE KANSAS CITY 4586(-2369)

LM; med brn, foss in dense some siltv

FG, C, 55 50 500

45 Unit Incr.  
SHOW

OIL/GAS IN MUD  
AFTER DST #2

POSS. SHOW??  
120 Unit Incr.

Recycle

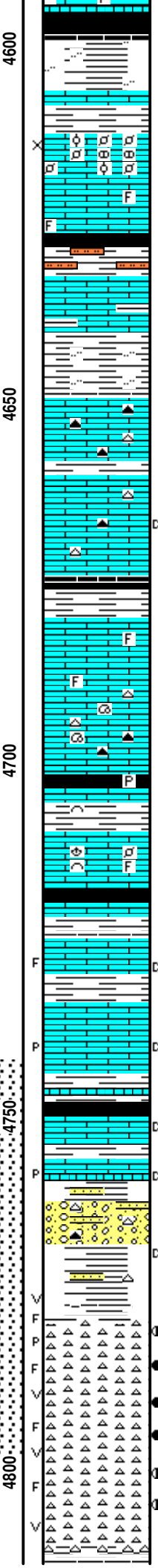
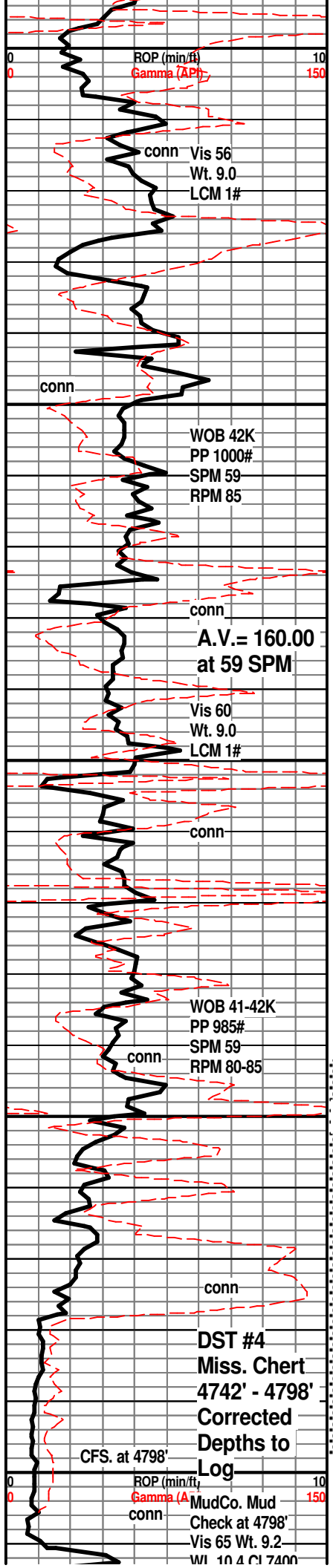
60 Unit Incr.  
SHOW

GAS & OIL IN MUD  
AFTER DST #3

90 Unit Incr.  
Shale

OIL/GAS in Mud

20 Unit Incr.  
Shale



SH; gy grn, rust red, blk, platy to flakey, silty ip.

**PLEASANTON 4612(-2395)**  
LM; tan to lt brn, foss - pelletal, scat ooids and pellets, weakly cem with fair interpart por, interbdd brn nodular lmst, no vis por, dull yel to no fluor, ns.

SH; med gy, gy grn, trc blk, silty w/stst interbdd

**MARMATON 4632(-2415)**  
LM; lt brn, lt gy, rare pale grn, argil ip, dense, blocky, no fluor, ns.

SH; med gy, gy grn, rare brn, silty ip.

LM; tan to cream, buff, fxln to micritic, scat amber to org cht, no vis por, no fluor, ns.

LM; tan to lt brn, buff, fxln, most dense - micritic, scat pcs w/blk tar/gils - dead oil. med yel fluor, weak cut, no live shows, no vis por

SH; blk, dk gy, platy

**PAWNEE 4678(-2461)**  
LM; tan to lt brn, foss ip, most well cem, spotty lt to med yel fluor, no vis stn, no odor, ns.

LM; med to dk brn, most micritic, blocky, interbdd grn sh, foss ip, no vis por, interbdd amber to tan cht, ns.

SH; blk, carb ip, platy, rare pyr

LM; lt to med brn, foss ip, most well cem, blocky, no vis por, scat lt yel min fluor, no stn, ns.

**CHEROKEE SHALE 4718(-2501)**  
SH; blk, carb ip, w/gy grn soft sh

LM; tan to lt brn, fxln, trc frags w/blk tar/gils dead oil, no odor, spotty lt/med yel fluor, weak cut, no live shows

LM; tan to buff, lt brn, fxln, most dense, few pcs w/blk dead oil in poor p-p por, dull yel fluor, no odor, no gas kick

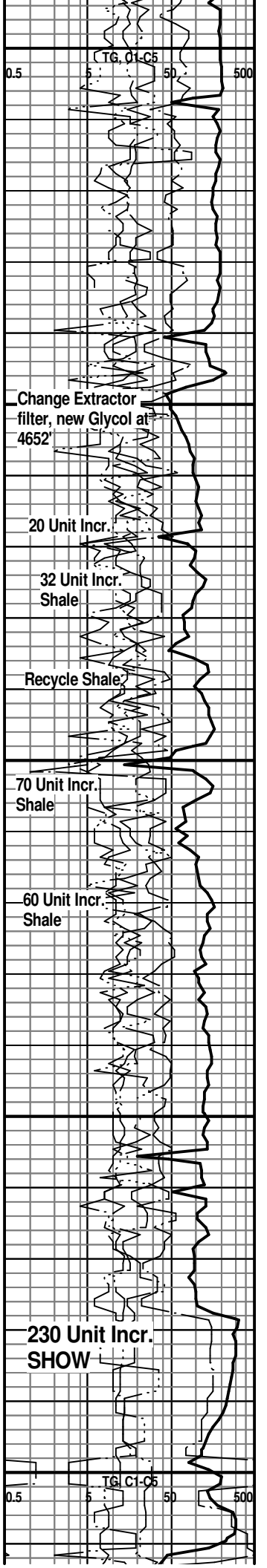
LM; tan, lt brn, most dense, interbdd dk gy/blk sh, trc blk tar/gils, no fluor, no odor, no gas kick

LM; lt brn, off wh, fxln, scat dk brn/blk stn, most dead oil, dull yel flour, occ p-p por, no odor

CONGL; varic shales, red, rust red, interbdd sandy sh/shaly ss w/gas bubbles, some varic cht w/blk tar/dead oil

**MISSISSIPPI CHERT 4778(-2561)**  
CHT; wh, fresh and trip, frags and some lrg vug por w/live oil stn, med to occ brite yel fluor, SSFO, weathred edges w/stn, faint gas odor  
CHT; wh, most fresh, fractured, spotty brite yel fluor, weath edges w/med brn stn, scat tripolite w/even lt brn oil stn and gas bubbles, SFO  
CHT; wh, off wh, trip and fresh, scat gd vug por, SFO, faint odor, interbdd soft tripolite w/oil stn and gas bubbles, much brite yel fluor

**DST #4: Miss. Chert 4742' - 4798'**  
CHT; wh, fresh, weath edges, scat med brn stn, faint to fair odor, scat med/brite yel fluor



WE 10.4 GP 7400  
PH10.0 LCM Trc.

CFS. at RTD

4850

00

**KINDERHOOK SHALE 4811(-2594)**

SLTST; lt grn, soft, mica ip, some sandy

SH; med gy, gy grn, platy, silty to sandy, interbdd vf gr  
grn argil soft ss

RTD. 4832' at 10:15 PM. 3/26/14

LTD. 4828'

Halliburton ACRT(DIL), NEU/DEN w/PE,  
Microlog, MIRL

**NOTE: This log was shifted upward by  
4' to 5' for correlation purposes with the  
Halliburton Logs.**