

LITHOLOGY STRIP LOG

WellSight Systems

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

Well Name: Koger #3

Well Id:

Location: 890' FNL & 1430' FEL, Sec. 1-T30S-R19W, Kiowa Co., KS.

License Number: 15-097-21823-00-00

Region: Alford Field

Spud Date: 4/6/2016

Drilling Completed: 4/14/2016

Surface Coordinates: 890' FNL & 1430' FEL, Sec. 1-T30S-R19W

Bottom Hole Same as Above

Coordinates:

Ground Elevation (ft): 2270'

K.B. Elevation (ft): 2281'

Logged Interval (ft): 3900' To: 5357'

Total Depth (ft): 5357'

Formation: Viola at Total Depth

Type of Drilling Fluid: Freshwater/Gel to 3307'; Chemical Gel 3307' to 5357'

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

OPERATOR

Company: Herman L. Loeb, LLC.

Address: P.O. Box 838

Lawrenceville, IL. 62439-0838

GEOLOGIST

Name: Jon D. Christensen

Company: Consulting Petroleum Geologist

Address: 9002 W. Silver Hollow St.

Wichita, KS. 67205-8856

Cores

None Taken

DSTs

DST #1(Altamont Lmst.) 4847' - 4881'(Corrected Depths to Log) Test Times 15"-45"-30"-90" IFP Strong Blow BOB/30 Sec. Gas to Surface in 3 Min., FFP Gas to Surface throughout Gauged 2.724 MMCFG/30" of FFP, ISI and FSI Blow would not Bleed off; REC: NO FLUID; IFP 563-640#, ISIP 1617#, FFP 561-561#, FSIP 1607#, IHP 2505#, FHP 2413#, BHT 115 Deg. F.

DST #2(Miss. Chert/Dolomite) 4993' - 5037'(Corrected Depths to Log) Test Times 15"-45"-45"-90" IFP Strong Blow BOB/30 Sec., Gas to Surface in 6 Min., FFP Gas to Surface throughout, Gauged 434 MCFG. decreased to 366 MCFG/45", Blow would not bleed off; REC: 125' GCM(5%G, 95%M), no oil or water; IFP 251-275#, ISIP 684#, FFP 225-126#, FSIP 604#, IHP 2647#, FHP 2424#, BHT 119 Deg. F.

DST #3(Miss. Dolomite) 5052' - 5074'(Corrected Depths to Log) Test Times 15"-45"-30"-60" IFP Strong Blow BOB/3 Min, FFP Strong Blow BOB/30 Sec.,. no Gas to Surface, Weak surface Blowback on SI's; REC: 1978' Gas in Pipe, 3' GCM(2%G, 98%M), 127' OCMW(5%O, 40%M, 55%W), 62' GCMSW(5%G, 20%M, 75%W) CI 85,000, Mud 4500; IFP 35-57#, ISIP 1148#, FFP 53-89#, FSIP 1070#, IHP 2498#, FHP 2468#, BHT 120 Deg. F.

Serial #: 8525

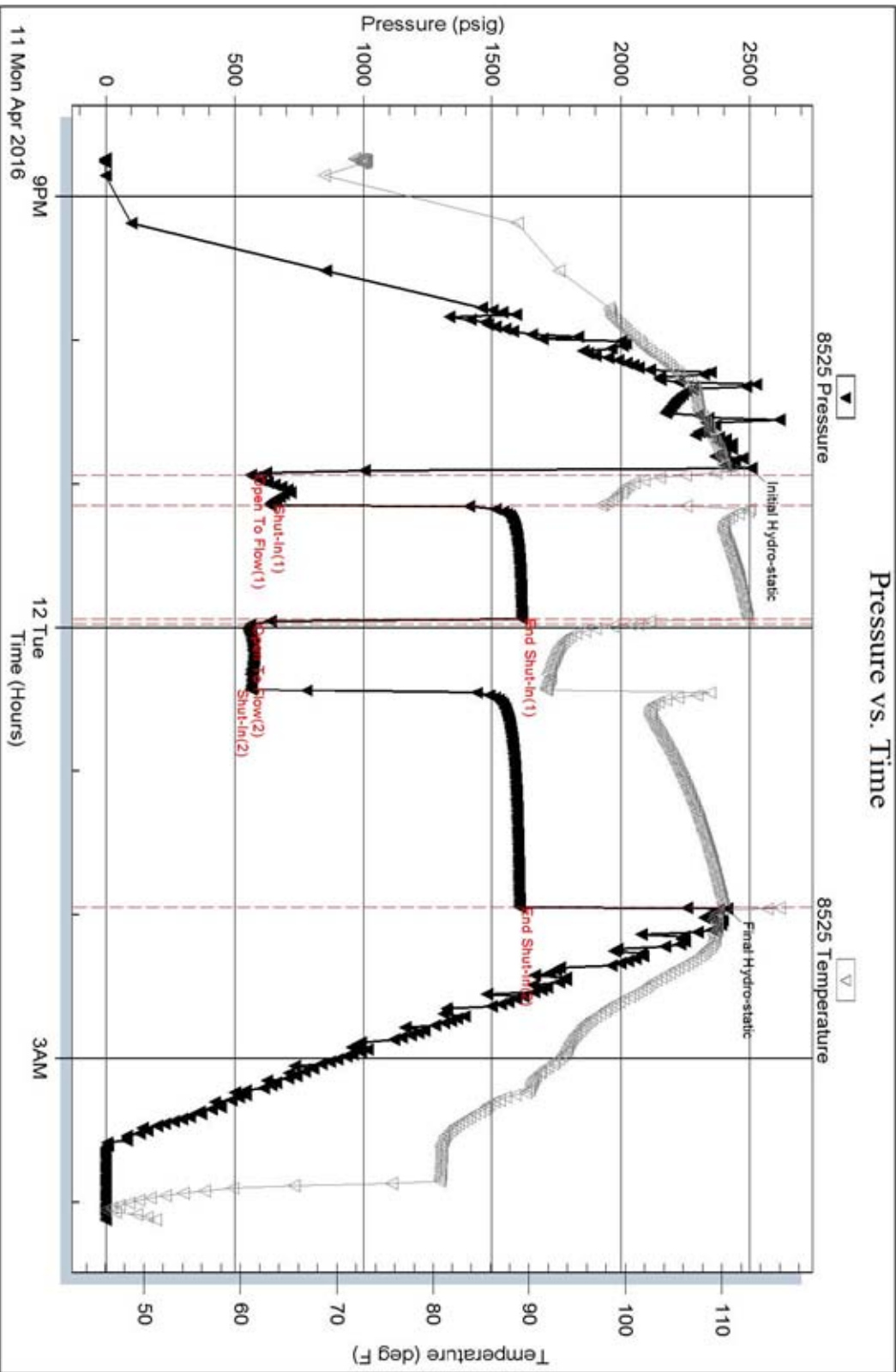
Inside

Herran L Loeb LLC

Koger 3

DST Test Number: 1

Pressure vs. Time



Triobite Testing, Inc

Ref. No: 57985

Printed: 2016.04.12 @ 07:23:35

Serial #: 8525

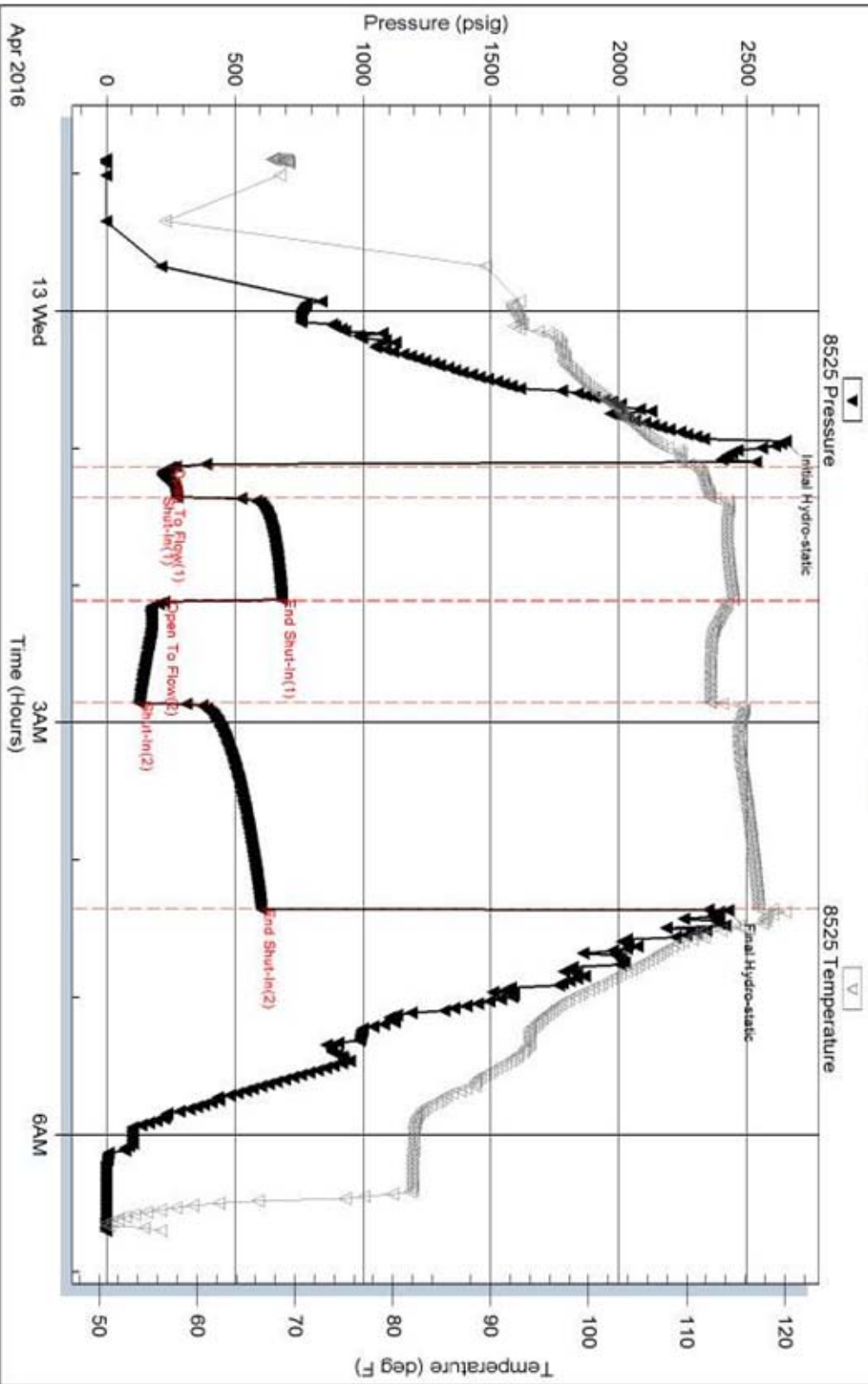
Inside

Herrman L Loeb LLC

Koger 3

DST Test Number: 2

Pressure vs. Time



Triobite Testing, Inc

Ref. No: 57996

Printed: 2016.04.13 @ 08:35:39

Serial #: 8525

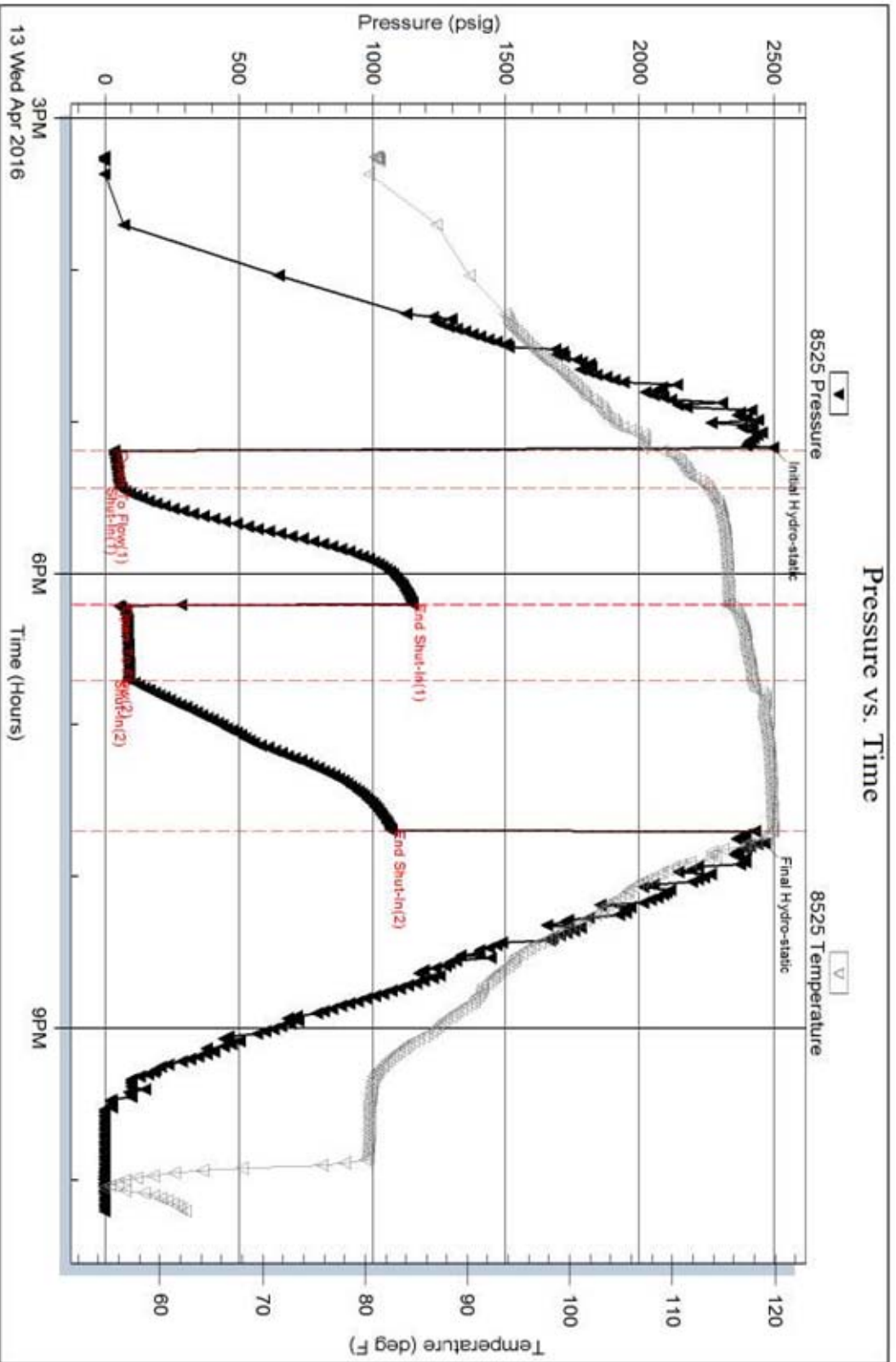
Inside

Herrman L Loeb LLC

Koger 3

DST Test Number: 3

Pressure vs. Time



Triobite Testing, Inc

Ref. No: 57987

Printed: 2016.04.14 @ 07:19:38

Comments

4/5/16 MIRU Sterling Drilling Co. Rig #4; 4/6/16, Spud at 5:00 AM., Drilling at 43'; 4/7/16 Drilling at 664'; 4/8/16 Drilling at 2447'; 4/9/16 Drilling at 3830'; 4/10/16 Drilling at 4400'; 4/11/16 Drilling at 4790'; 4/12/16 TD. 4882' - TIH after DST #1; 4/13/16 TD. 5038' - Prep. to TIH after DST #2; 4/14/16 Drilling at 5190'; 4/15/16 RTD. 5357', LTD. 5356' - Logging(Halliburton) - Set 5 1/2" Production Casing.

Set new 8 5/8"(23#) Surface Casing at 660' KB. with 350 sacks cement(Basic Energy Services). Cement did Circulate. PD. at 7:45 PM. on 4/6/16.

Set new and used 5 1/2"(15.5#) Production Casing at 5345' KB. with 220 sacks of "Loeb Blend" cement(Basic Energy Services). PD. at 11:30 PM. on 4/15/16.

Surveys: 1.0 Deg. at 664'(Surface Casing); 0.50 Deg. at 4103'(Bit Trip); 0.50 Deg. at 4882'(DST #1); 0.50 Deg. at 5357' RTD.

No Pipe Strap was taken. Windy conditions prevailed while drilling the Koger #3.


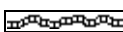
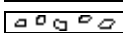
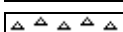
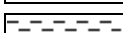
After review of the Halliburton Logs, DST data, and positive indications of commercially recoverable amounts of hydrocarbons, the operator elected to set 5 1/2" Production Casing for completion in the Marmaton and Mississippian intervals.






NOTE: The Lansing 'B' zone should be perforated and tested prior to abandonment of the well. A 20 Unit gas kick with oil shows were noted.



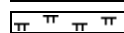

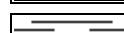
LOG TOPS: Chase 2573(-292), Stotler Lmst. 3528(-1247), Heebner Shale 4189(-1908), Toronto 4201(-1920), Brown Lmst. 4375(-2094), Lansing 'A' 4390(-2109), Lansing 'B' 4414(-2133), Stark Shale 4720(-2439), Hertha 4780(-2499), Base Kansas City 4812(-2531), Marmaton 4860(-2579), Altamont 4870(-2589), Cherokee Shale 4946(-2665), Mississippi Chert 5020(-2739), Kinderhook 5308(-3027), Viola 5318(-3037).

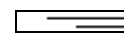
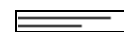


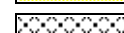
NOTE: This log was shifted upward by 1' to 2' for correlation purposes with the Halliburton Logs.

ROCK TYPES

	Anhy
	Bent
	Brec
	Cht
	Clyst

	Coal
	Congl
	Dol
	Gyp
	Igne

	Lmst
	Meta
	Mrlst
	Salt
	Shale

	Shcol
	Shgy
	Slstst
	Ss
	Till

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

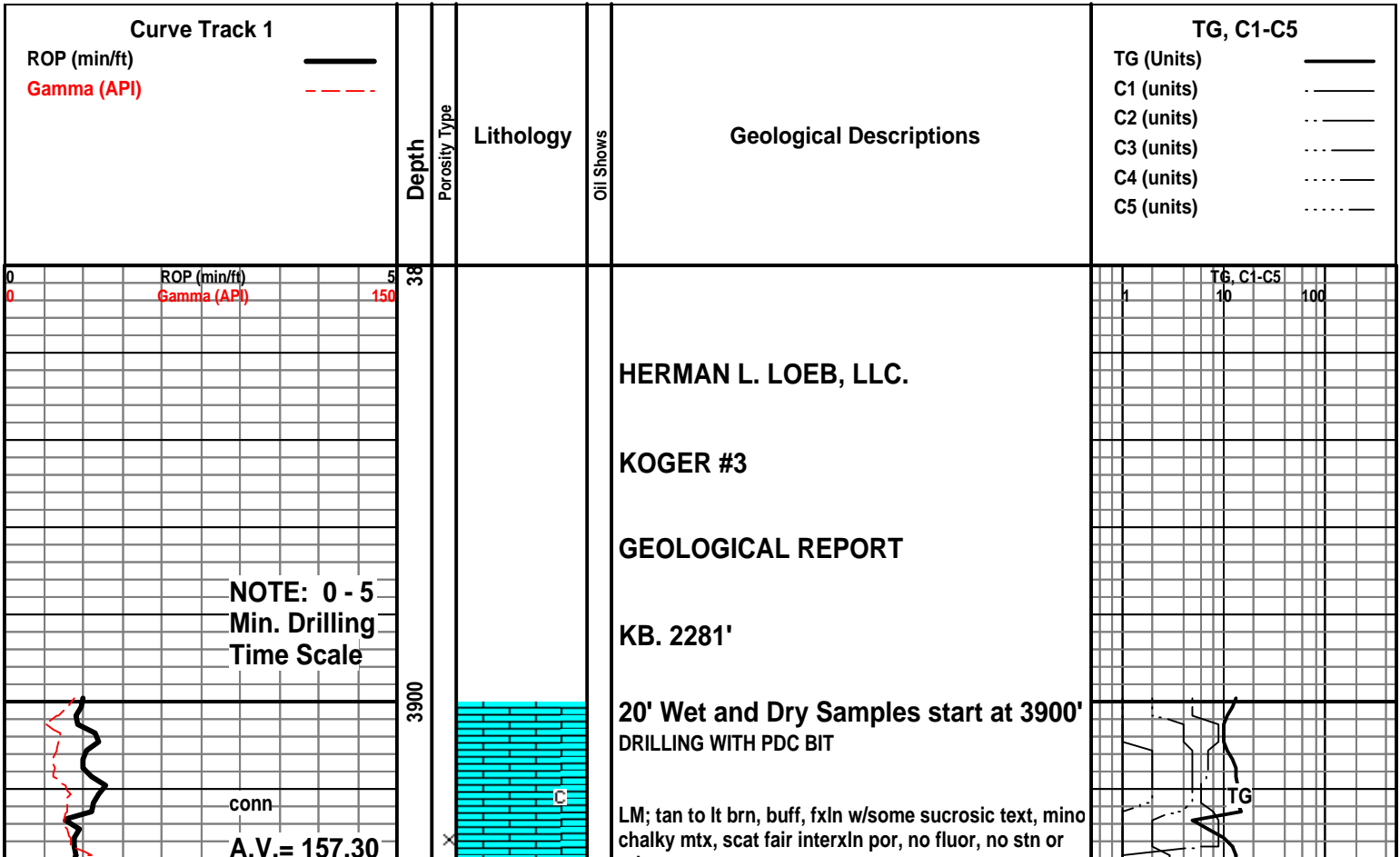
- Even
- Spotted
- Ques
- Dead

INTERVAL

- Core
- Dst

EVENT

- Rft
- Sidewall



at 65 SPM

Vis 46
Wt. 9.2
LCM 2#

conn

WOB 16K
PP 975#
SPM 65
RPM 100

conn

ROP (min/ft)
Gamma (API)

Vis 42
Wt. 9.1
LCM 2#

conn

WOB 16K
PP 1025#
SPM 65
RPM 110

conn

Vis 48
Wt. 9.1
LCM 1#

CFS. at 4103'

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

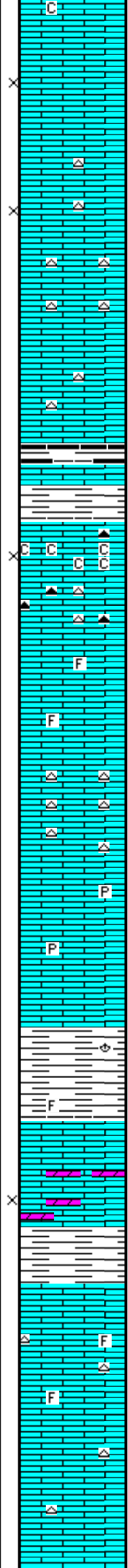
conn
WOB 40K

3950

4000

4050

4100



odor, ns.

LM; tan to cream, lt brn, f to med xln, scat cse spar calc stals, fair interxln por, interbdd gy to off wh cht, no fluor, no stn or odor, ns.

LM; tan to lt brn, fxln, most dense, interbdd gy to blue/gy cht, no vis por, no fluor, ns.

SH; dk gy, some blk, platy

SH; med gy, platy, firm

LM; off wh, tan, buff, fxln to micritic, blocky ip, interbd dk gy/blk cht, chalky - soft w/poor interxln por at top, no fluor, ns.

LM; tan to buff, cream, fxln w/rare foss mat, well cem, hd, no vis por, ns.

LM; tan to lt brn, blocky, hd, interbdd med gy cht, tite

LM; tan to lt brn, most dense - micritic, scat pyr, rare fxln lmst, no fluor, no stn or odor, ns.

SH; med to dk gy, foss ip.

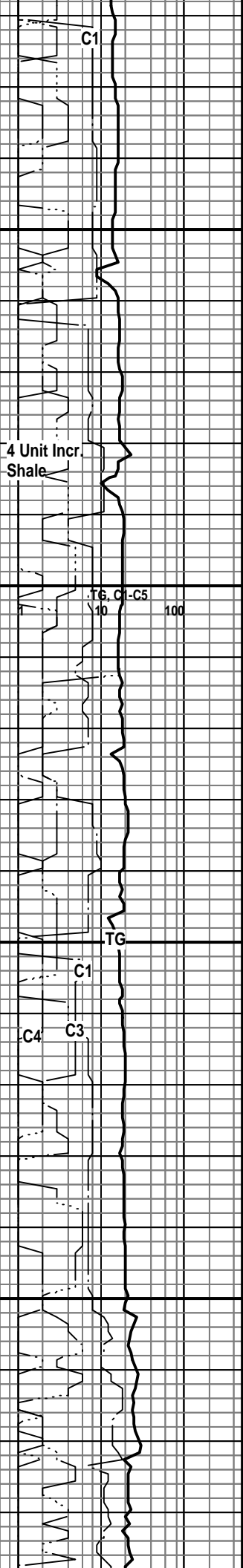
LM; med gy, sucrosic text - dolomitic ip, fair interxln por, dull yel fluor, no stn or odor, ns.

SH; med to dk gy, platy

BIT TRIP AT 4103'
DRILLING WITH BUTTON BIT

LM; tan to lt brn, some off wh, fxln w/scat well cem foss mat, rare lt gy cht, dull yel to no fluor, no stn or odor, ns.

LM; tan to lt brn, fxln to dense, rare gy cht, no vis por, no fluor, ns.



PP 900#
SPM 55
RPM 73

A.V. = 152.15
at 55 SPM

conn Vis 51
Wt. 9.2
LCM 2#

conn

ROP (min/ft)
Gamma (API)

WOB 40K
PP 950#
SPM 55
RPM 70

conn

conn Vis 46
Wt. 9.2
LCM 2#

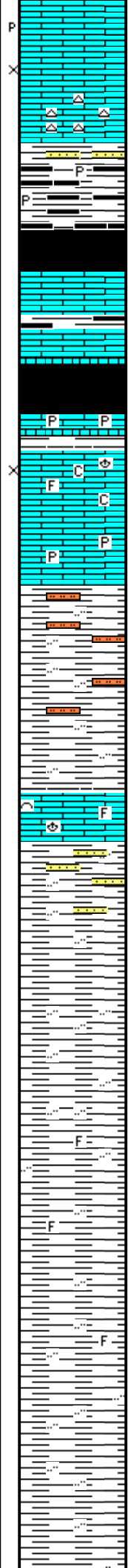
conn

WOB 40K
PP 1025#
SPM 55
RPM 75

conn

conn

4150
4200
4250
4300
4350



LM; tan to buff, off wh, f to occ med xln, rare porous calc xtals, rare poor p-p and interxln por, dull yel fluor, ns.

LM; med brn, blocky, hd, interbdd brn cht, tite

SH; dk gy, blk, sandy ip w/scat pyr

SH; blk, carb, gassy ip.

LM; lt to med gy, gy brn, most dense, blocky, some gritty lmst, no vis por, ns.

HEEBNER SHALE 4189(-1908)

SH; blk, carb, gassy

LM; med brn, hd, pyr ip

TORONTO 4201(-1920)

LM; off wh, cream, tan, foss ip, most fxln w/rare chalky mtz, poor to no vis interxln por, dull yel fluor, no stn o odor, ns.

LM; off wh, buff, hd, pyr ip

DOUGLAS SHALE 4220(-1939)

SH; lt gy, silty w/interbdd sltst

SH; lt to med gy, silty ip, platy

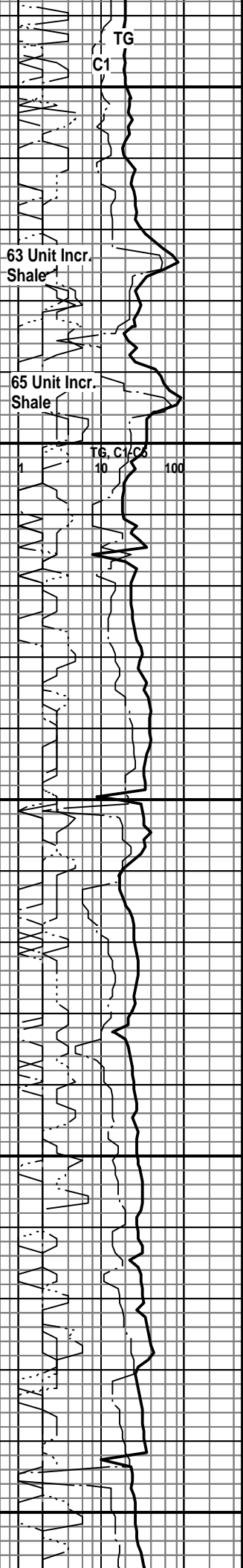
LM; med to dk brn, v. foss, well cem, no vis por, lt yel min fluor, ns.

SH; lt to med gy, platy, silty ip, scat well cem vf to occ gr qtz ss strngs.

SH; lt gy, gy grn, silty, platy, firm

SH; lt to med gy, silty, foss ip, firm

SH; lt to med gy, silty, platy, most smooth



MudCo. Mud
Check at 4384'
Vis 61 Wt. 9.1
WL 8.8 PH 12.0
CI 3000 LCM 1#

conn

A.V.= 152.10
at 55 SPM

ROP (min/ft) 10
Gamma (API) 150

WOB 40K
PP 1020#
SPM 55
RPM 66

conn

CFS. at 4436'

conn

Vis 53
Wt. 9.1+
LCM 1#

conn

WOB 40K
PP 950#
SPM 55
RPM 60

conn

Vis 49
Wt. 9.3
LCM 2#

conn

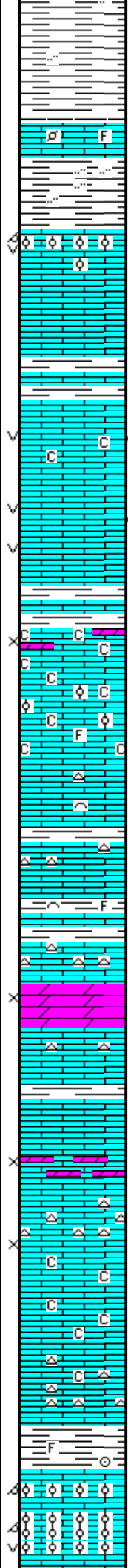
CFS. at 4575'

4400

4450

4500

4550



BROWN LMST. 4375(-2094)

LM; med brn, dense, rare well cem foss, tite

SH; med gy, gy grn, platy, silty ip.

LANSING 'A' 4390(-2109)

LM; lt gy, lt brn, oolitic, poor to fair oomoldic w/scat small vug por, lt yel fluor, brittle ip, no vis gas bubbles, no stn or odor, no sample shows

LM; tan to buff, fxln to dense, scat spar calc xtals,

LANSING 'B' 4414(-2133)

LM; tan to lt gy, foss ip, scat fair vug por, minor chalky mtx, spotty med to rarely brite yel fluor, trc gas bubbles, trc lt brn oil stn, fair odor

LM; lt to med gy, gran text, scat poor to fair vug por, spotted lt brn stn, some barren por, faint odor, spotted med yel fluor

LM; wh, off wh, fxln to sucrosic text, partly dolomitic, fair interxln por, soft, chalky mtx ip, no fluor, no stn or odor, ns.

LM; tan to cream, off wh, foss w/scat oolites and some hash, very chalky ip, poor to fair interpart por, lt yel fluor, no stn or odor, ns.

LM; med brn, rarely foss, micritic, scat gy cht, tite

LM; lt to med brn, fxln, scat foss mat, most well cem, no vis por, no fluor, ns.

DOL; tan, lt brn, fxln to sucrosic, lmy ip, fair interxln por, cherty ip, lt yel min fluor, no stn or gas kick, ns.

LM; lt brn, hd, micritic, blocky, tite

LM; lt brn, sucrosic text - partly dolomitic, fair interxln por, uniform med yel min fluor, no stn or odor, ns.

LM; lt to med brn, fxln, abnt gy fresh cht, poor to fair interxln por, lt to med yel flour, bcm chalky, no stn or odor, ns.

LM; lt brn, tan, fxln to sucrosic text, chalky ip, poor to no vis por, lt yel fluor, scat gy cht, no vis stn, no odor, ns.

SH; med gy, platy, foss ip.

LANSING/K.C. 'H' 4564(-2283)

LM; med brn, oolitic, med size molds - gd oomoldic por, brittle, scat vug por, dull to lt yel fluor, no stn or odor, no gas bubbles vis.

6 Unit Incr.

TG, C1-C5
10 100

TG

C1

20 Unit Incr.
Poss. Show

Recycle

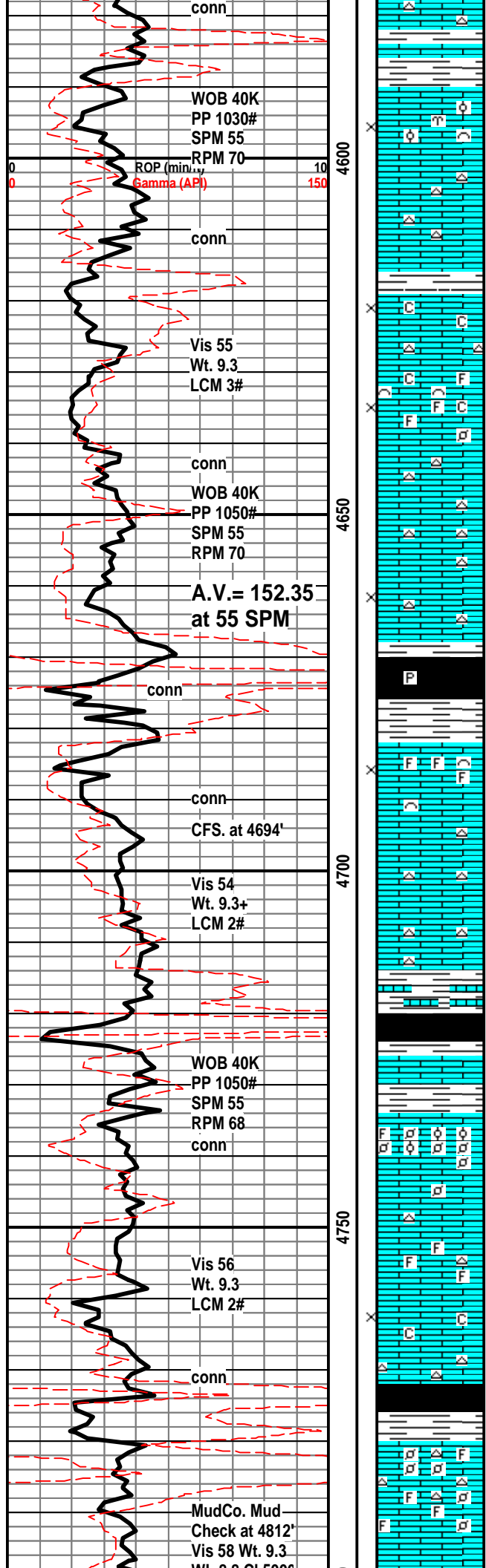
NO GAS DATA
Computer Problem

TG

C1

4 Unit Incr.

5 Unit Incr.



LM; med brn, hd, scat gy/tan cht, tite

LM; tan to lt brn, foss w/scat oolites/foss hash, poor interpart por, lt golden yel fluor, no vis stn, no odor, no gas kick

LM; lt to med brn, hd, micritic, scat gy/tan cht, tite

LM; tan to cream, buff, fxln, poor to fair interxln por, lt yel fluor, minor chalky mtx, no stn or odor, no gas kick

LM; tan to lt brn, abnt foss hash, interbdd soft chalk and chalky mtx, poor to no vis por, lt yel min fluor, no stn or odor, ns.

LM: tan to lt brn, fxln, much dense micrite, scat poor interxln por, occ tan to gy cht, v. dull yel min fluor, no stn or odor, ns.

SH; blk, carb ip, rare pyr

K.C. 'J' DENNIS 4682(-2401)

LM; tan to buff, foss w/poor to fair interpart por, most well cem, minor chalky mtx, dull yel fluor, no vis stn, no odor, no gas kick, ns.

LM; tan to buff, fxln to dense, interbdd off wh to gy cht, no vis por, ns.

LM; med brn, dense, some litho, tite

STARK SHALE 4720(-2439)

SH; blk, carb, gassy

LM; lt brn, tan, foss - abnt well cem small pellets/oooids, no vis por, lt yel fluor, no stn or odor, ns.

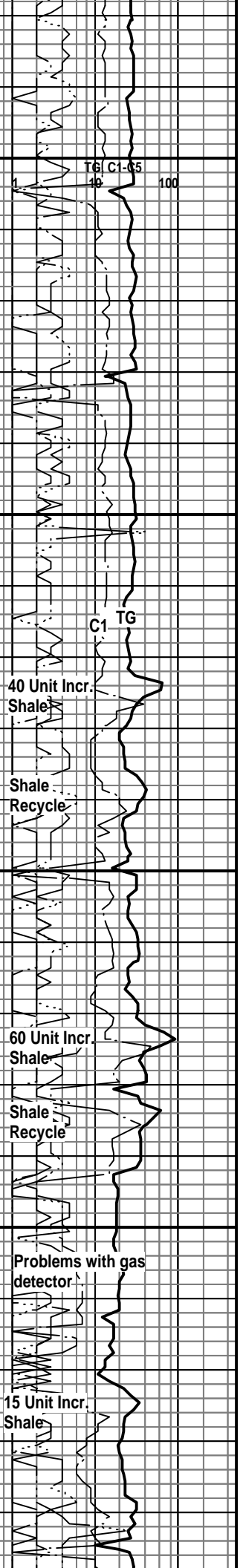
LM; tan to lt brn, foss, scat foss cht, dense, no vis por, lt yel fluor, no stn or odor, ns.

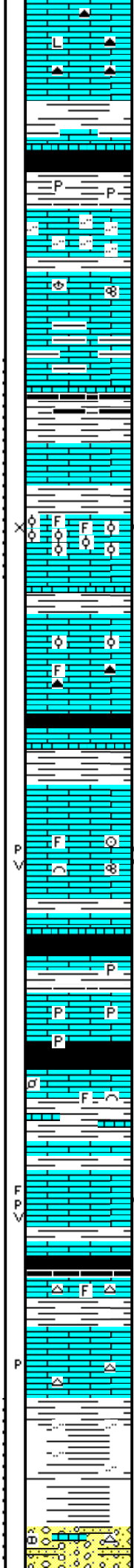
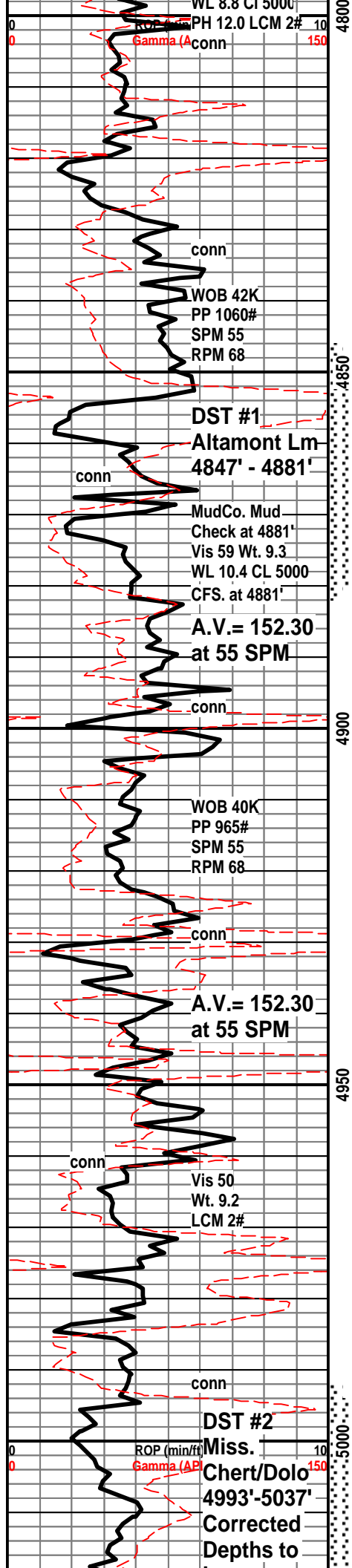
LM; tan to cream, off wh, f to med xln, minor chalky mtx, fair interxln por, dull yel fluor, no stn or odor, ns.

SH; blk, carb ip, platy

HERTHA 4780(-2499)

LM; tan to med brn, foss ip - finely pelletal, some siliceous lmst w/chty lmst, most well cem, no fluor, no vis por, ns.





LM; med to dk brn, v. hd, blocky, some litho, scat dk gy to blk cht, no vis por, ns.

BASE KANSAS CITY 4812(-2531)

LM; med brn, hd, argil ip.

SH; dk gy - blk, platy, occ pyr

LM; med gy brn, med brn, argil - silty to gritty text, hd

LM; med gy, gy brn, hd, interbdd hd argil lmst

SH; med to dk gy, rare blk, some gy grn, firm

MARMATON 4860(-2579)

LM; med brn, hd, blocky

ALTAMONT 4870(-2589)

LM; tan to lt brn, foss - oolitic, fair to gd vis interpart por, sev. gas bubbles, few pcs w/spotted med brn oil stn, v. faint odor, fair cut, lt yel fluor - gas show

DST #1: Altamont Lmst. 4847' - 4881'
Corrected Depths to Log

LM; tan to lt brn, foss ip, well cem, rare oolitic lmst, no vis por, scat org/brn cht, ns.

SH; dk gy, blk, platy

PAWNEE 4908(-2627)

LM; tan to lt brn, foss ip, sev. pcs w/fair p-p and small vug por, appears to be leached por, spotty to occ even lt brn oil stn, gd odor, brite yel fluor, fair to gd cut - maybe a little tight, trc gas bubbles, mostly tite micrite

SH; blk, carb, blocky, gassy

LM; med brn, hd, micritic, occ pyr, tite, ns.

CHEROKEE SHALE 4946(-2665)

SH; blk, carb, gassy ip.

LM; med brn, foss ip, dense, no vis por, ns.

SH; grn, gy brn, lmy ip.

LM; tan to lt brn, fxln, scat poor to fair p-p/small vug por, scat fracs w/edge stn, spotted med brn stn, fair odor, med/occ brite yel fluor, fair cut, most looks tite

SH; blk, carb, thinly bdd

LM; tan to lt brn, hd, scat foss gy cht, tite

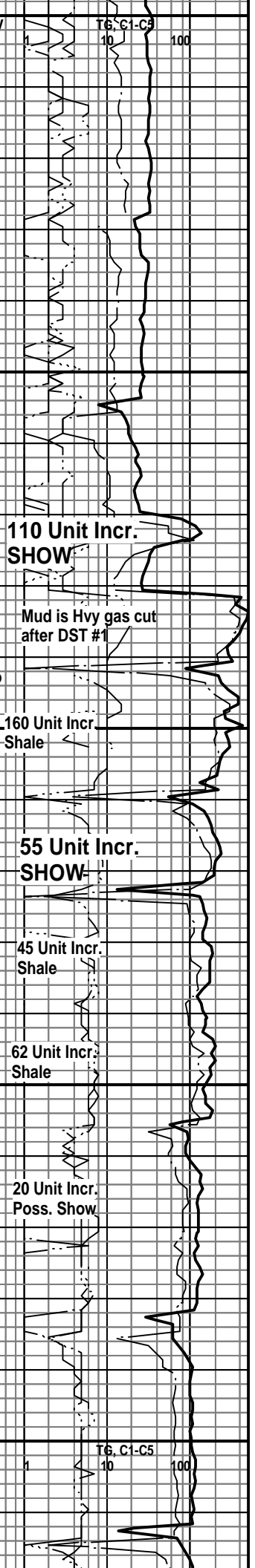
LM; tan to med brn, most dense, micritic, rare gy cht, trc dk brn stn in poor p-p por, faint odor

BASE CHEROKEE LM. 4994(-2713)

SH; grn, gy grn, rare red/brn, maroon, silty ip, firm

CONGL; weath brn cht, grn vf gr qtz ss, weath nodular lmst, no vis stn, no fluor

MISS. CHERT 5020(-2739)



Log

conn
MudCo. Mud
Check at 5037'
Vis 54 Wt. 9.2
WL 9.0 CI 4500
PH 12.0 LCM 2#
CFS. at 5037'

WOB 40K
PP 875#
SPM 55
RPM 65

conn
DST #3
Miss. Dolo.
5052' - 5074'

CFS. at 5074'
Vis 55
Wt. 9.1
LCM 2#
conn

WOB 40K
PP 925#
SPM 55
RPM 65

conn

Vis 52
Wt. 9.1
LCM 2#

conn

WOB 40K
PP 945#
SPM 55
RPM 60

conn
MudCo. Mud
Check at 5198'
Vis 60 Wt. 9.2
WL 9.0 CI 5000
PH 12.5 LCM 1.5#

ROP (min/ft)
Gamma (API)

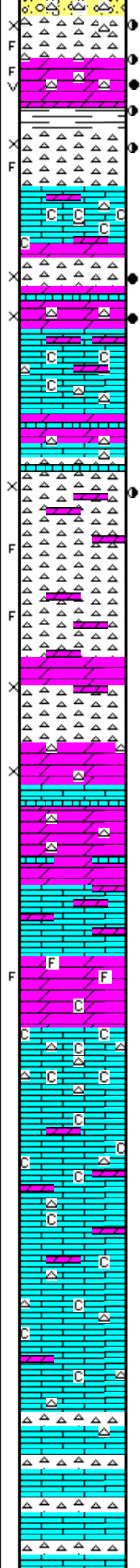
conn
WOB 40K
PP 930#
SPM 55
RPM 60

5050

5100

5150

5200



CHT; grn, off wh, fresh and trip, scat brn oil stn, interbdd sucrosic cherty dolo, scat brite yel fluor, SSFO, fair to gd odor, fair/gd cut
CHERTY DOL; pale grn, wh, off wh, fracs, trip cht/dolomitic cht w/live med brn oil stn, rare vug por, SFO, gas bubbles, fair to gd odor, brite yel fluor, some blue/gy spicular cht, fair/gd cut
DST #2: Miss. Dol/Cht. 4993' - 5037'
CHT; blue/gy, fresh, fracs, rare trip, occ med stn
LM; off wh, wh, buff, fxln w/abnt chalk and chalky mtx, rare sucrosic text, most tite
CHT; wh, off wh, trip to fresh, dolomitic ip, fair even lt brn stn, strong odor, gas bubb, fair interxln por, SFO, brite yel fluor, fair cut
DOL; lt brn, lt gy, sucrosic, fair interxln por, gd odor, SFO, gas bubbles, brite yel fluor, gd cut
LM; off wh, wh, med xln, some chalky - soft, occ cherty, most tite
DST #3: Miss. Dolo. 5052' - 5074'
Corrected Depths to Log
CHT; off wh, blue/gy, partly dolomitic, some fresh sharp cht, rare trip, poor to fair interxln por w/rare fracs, trc spotted med brn oil stn, no odor, no cut
CHT; off wh, lt gy, rare blue gy, most fresh, interbdd tan to lt gy cherty dolomite, sucrosic, no fluor, no stn or odor, ns.
DOL; lt gy, tan, sucrosic, fairly tite, poor interxln por, cherty ip, interbdd lmy dolo, ns.
DOL; tan, lt gy, cherty, most tite, scat blue/gy to off wh cht, some lmy, ns.
LM; off wh, med to cse xln, partly dolomitic, hd, blocky, no vis por, ns.
DOL; tan, sucrosic, cherty, some foss cht, most hd, no fluor, ns.
LM; tan to cream, buff, cherty w/interbdd lt gy fresh cht, some chalky - soft, no fluor, no vis por, ns.
LM; off wh, cream, med to cse xln, much chalky mtx, rarely dolomitic, scat off wh to lt gy cht, interbdd dolomitic lmst, no fluor, no stn or odor, ns.
LM; off wh, buff, cream, med to occ cse xln, chalky mtx, scat gy to off wh cht, rarely dolomitic, no fluor, no stn or odor, ns.
LM; tan to cream, lt brn, interbdd gy to off wh fresh cht, some dk gy cht, no vis por, no fluor, ns.

56 Unit Max.
Incr.
SHOW

Mud is gassy after DST #2

POSS. GAS KICK
130 Unit Incr
SHOW

Gassy Mud after DST #3

Recycle

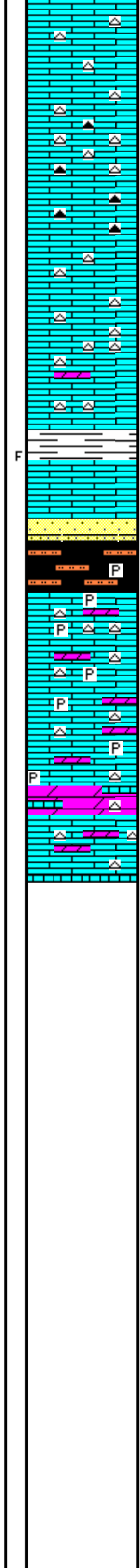
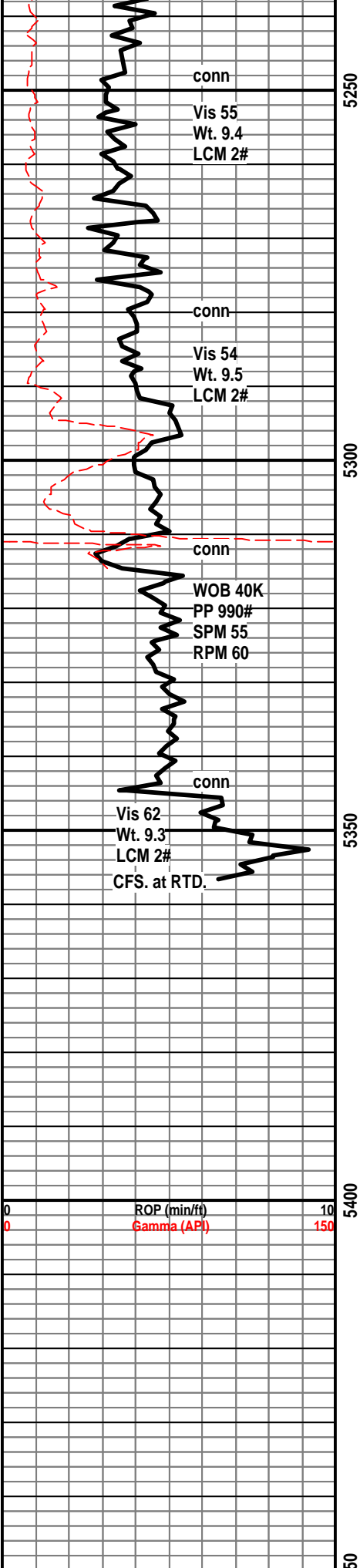
Recycle

Recycle?

Recycle?

Recycle?

TG, C1-C5
10
100



LM; lt to med brn, very cherty ip, scat med to dk gy cht, no vis por, ns.

UPHOLE SHALE SLOUGHING BADLY - SAMPLES VERY POOR

KINDERHOOK SHALE 5308(-3027)
 SH; med gy, dk gy-blk, silty ip, rarely pyr, trc v gr qtz ss, poor intergran por, no fluor, ns.

VIOLA 5318(-3037)
 LM; tan to lt gy, med to occ cse xln, partly dolomitic, scat pyr, no vis por, scat dove gy cht w/black specks, no fluor, ns.

LM; lt gy, off wh, interbdd fresh cht, very spotted/trc lt brn oil stn in partly weathered areas, lt yel fluor, no odor, no vis gas bubbles, looks tite

LM; tan to buff, dolomitic w/interbdd sucrosic dolomitic lmst, scat tan to gy fresh cht, occ chalky mt; no vis por, no fluor, ns.

NOTE: BIT BOUNCING BADLY, SUSPECT CONE LOOSE - BALD BIT, BUTTONS MOSTLY GONE - DECIDED TD. AT 5357'

RTD. 5357' at 8:22 PM. on 4/14/16

LTD. 5356'

Halliburton DIL, NEU/DEN w/PE, Microlog and Sonic

NOTE: This log was shifted upward by 1' to 2' for correlation purposes with the Halliburton Logs.

