

**Darrah Oil Company, LLC
Ottley No. 3-12
335' FSL and 1815' FWL
NE SW SE SW
Sec 12 T14S R32W
Logan County, Kansas**

Geological Report
by

Macklin M. Armstrong

Scale 1:240 Imperial

Well Name:	Ottley No. 3-12	
Surface Location:	Sec 12 T14S R32W	
Bottom Location:	335' FSL and 1815' FWL	
API:	15-109-21634	
License Number:		
Spud Date:	6/29/2022	Time: 7:00 AM
Region:	Logan County, Kansas	
Drilling Completed:	7/7/2022	Time: 1:26 AM
Surface Coordinates:	199037 & 1194488	
Bottom Hole Coordinates:	199037 & 1194488	
Ground Elevation:	2849.00ft	
K.B. Elevation:	2858.00ft	
Logged Interval:	3400.00ft	To: 4620.00ft
Total Depth:	4600.00ft	
Formation:	Lansing/KC	
Drilling Fluid Type:	Chemical/Fresh Water Gel	

OPERATOR

Company:	Darrah Oil Company, LLC	
Address:	125 N Market, Suite 1015 Wichita, Kansas 67202	
Contact Geologist:	John Hastings	
Contact Phone Nbr:	316-219-3390	
Well Name:	Ottley No. 3-12	
Location:	Sec 12 T14S R32W	
API:	15-109-21634	
Pool:	Oil	Field: Chauk Buttes

CONTRACTOR

Contractor: Duke Drilling Company
 Rig #: 4
 Rig Type: mud rotary
 Spud Date: 6/29/2022
 TD Date: 7/7/2022
 Rig Release: 7/8/2022

Time: 7:00 AM
 Time: 1:26 AM
 Time: 2:30 AM

SURFACE CO-ORDINATES

Well Type: Vertical
 Longitude: 100.828537
 Latitude: 38.845293
 N/S Co-ord: 199037
 E/W Co-ord: 1194488

ELEVATIONS

K.B. Elevation: 2858.00ft
 K.B. to Ground: 9.00ft
 Ground Elevation: 2849.00ft

NOTES

Date	Depth at 7 am	Activity
6-29-22	MIRU	Spud at 7:00 am
6-30-22	600	Drilling
7-01-22	2282	Drilling
7-02-22	3400	CTCH for Bit Trip
7-03-22	3866	Drilling
7-04-22	4140	TOH for DST 1
7-05-22	4320	Drilling
7-06-22	4490	DST 2
7-07-22	4625	Logging
7-08-22	4625	Set 5 1/2"

Surface Casing: 8 5/8" 20# at 217'
 Production Casing: 5 1/2" 15# at 4625

Deviation: 217' - 3/4°
 2127' - 3/4°
 3400' - 1/2°
 4140' - 1/2°
 4625' - 3/4°

Bit Record:	Make	Size	Type	Depth In	Depth Out	Hours
	JZ	12 1/4"	PL616	Surface	217	1
	JZ	7 7/8"	HA527	217	4625	

Drill Stem Tests:

DST No. 1 4092 to 4140 Lansing I and J Zones

30-30-30-30

Recovery: 25' OCM (10%O, 90%M)

IHP 2092 FHP 1991

IFP 36-38 FFP 26-29

ISIP 106 FSIP 69

Temp 116°

DST No. 2 4436 to 4490 Johnson Zone

30-45-45-60

Recovery: 2723' GIP

129' MCGO (30%G, 70%O - 33 deg gravity)

372' MCGO (20%M, 30%G, 50%O)

124' MCGO (20%M, 20%G, 60%O)

124' MWCGO (10%M, 10%W, 10%G, 70%O)

IHP 2341 FHP 2156
 IFP 47-174 FFP 174-314
 ISIP 1018 FSIP 972
 Temp 128°








Formation	Sample	E-Log	Datum	Well 1	Well 2	Well 3	Well 4
Anhydrite	2295		+563	+16	+16	+28	+34
Base/Anhydrite	2334		+524	-2	-2	+10	+17
Stotler	3488		-630	-16	-16	-3	+5
Topeka	3630		-772	-19	-17	-7	-1
Heebner	3854		-996	-19	-14	-4	+2
Lansing	3892		-1034	-19	-14	-19	-1
B Zone	3926		-1115	-18	-13	+4	-3
D Zone	3974		-1116	-19	+1	-1	-4
Muncie Creek	4046		-1188	-13	-12	+1	+1
H Zone	4060		-1202	-10	-10	+4	+5
I Zone	4087		-1234	-9	-6	+5	+8
J Zone	4112		-1254	-9	-5	+6	+7
Stark	4133		-1275	-11	-11	+3	+4
K Zone	4145		-1287	-10	-9	+1	+4
Hushpuckney	4167		-1309	-14	-13	+4	+2
L Zone	4176		-1378	-15	-17	+5	-3
Base/Kansas City	4227		-1369	-16	-14	-2	-3
Marmaton	4269		-1411	-14	-11	+4	-3
Pawnee	4338		-1480	-10	-8	+5	+1
Fort Scott	4368		-1510	-9	-6	+9	+3
Cherokee Shale	4387		-1529	-8	-6	+10	+4
Lower Cherokee Shale	4417		-1559	-6	-3	+12	+4
Johnson Zone	4462		-1604	-7	-14	+12	+2
Morrow Shale	4497		-1639	-6	-11	+7	+3
Morrow Sand	4512		-1647	-7	-7	+9	+3
Mississippi	4522		-1664	-8	+11	+46	+27
Total Depth	4625		-1767				

Well 1: Pioneer Resources Ottley No. 2 NE SW SW SW Sec 12 T14S R32W
 Well 2: Pioneer Resources Knopp No. 4 SE NW NW NW Sesc 13 T14S R32W
 Well 2: Pioneer Resources Ottley No. 1 NE NW SE Sec 12 T14S R32W
 Well 3 Pioneer Resources Knopp No. 7 2283' FNL & 1650' FEL Sec 13 T14S R32W

Pipe was set to further test the Johnson Zone.

Respectfully submitted,
 Macklin M. Armstrong

ROCK TYPES

 Lmst fw7>	 shale, gry	 shale, red	 Ss
 shale, grn	 Carbon Sh	 Shcol	

ACCESSORIES

MINERAL

- Sandy
- Silty
- △ Chert White

FOSSIL

- Crinoids
- F Fossils < 20%
- φ Oolite
- ⊗ Fossilinid

TEXTURE

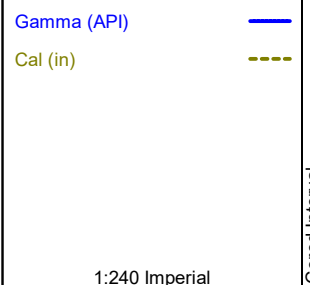
- C Chalky

OTHER SYMBOLS

DST

-  DST Int
-  DST alt
-  Core

Curve Track #1					
ROP (min/ft)	—				

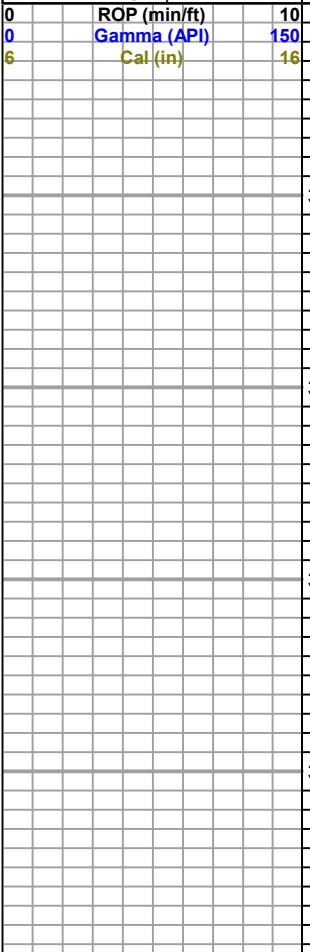


Depth | Intervals
Cored Interval
DST Interval

DST
Lithology
Oil Show

Geological Descriptions

Comment



3320
3340
3360
3380
3400

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NE SW SE SW
Sec 12 T14S R32W
Logan County, Kansas

GL 2849 KB 2858

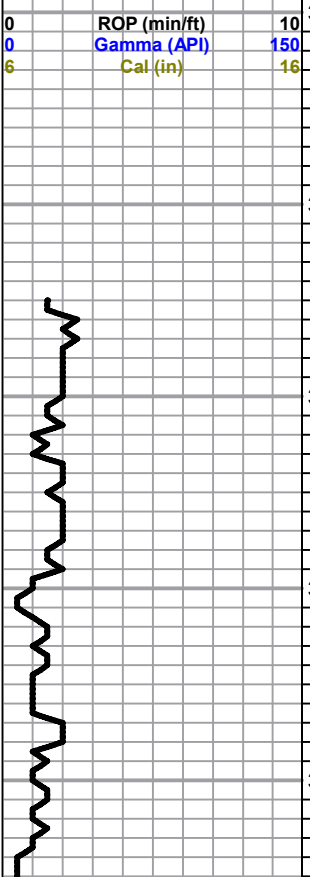
Mud Program:
Mudco:
Chemical Gel/Premix

Sample Cuttings:
Kansas Geological Survey
Well Sample Library

Testing: Trilobite Testing

Electric Logs: ELI Wireline Services
DIL
CNL/CDL
MEL
SONIC

Deviation:
217' - 1/4°
2127' - 1/2°
3400' - 1/2°
4140' - 1/2°
4625' - 1/4°



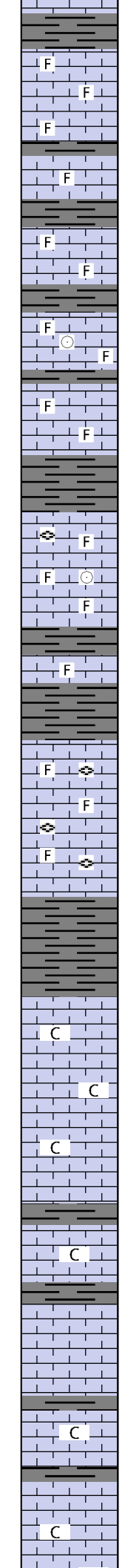
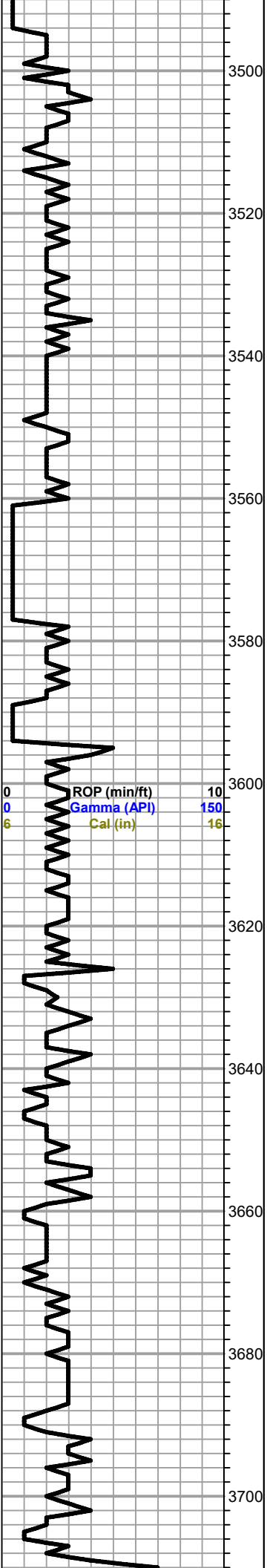
3400
3420
3440
3460
3480

Sh-gry/red
Ls-gry fxln mdh no por
Sh-gry/red
Ls-gry fxlm mhd no por
Sh-gry/dk gry sl sdy
Sh-AA
Sh-gry/dk gry sl sdy
Sh-AA

----- **Stotler 3488 -630** -----

Mud Data 3400'
8:20 am on 7-2-22
Wt 8.7 Vis 54 WL 6.4
pH 11.5 Chl 2000 Sol 2.4
YP 15 LCM 1.0

All fromation tops on
this geological log have
been correlated back to



Sh-gry fxln mhd no por

3500 F Ls-lt gry/tan f/mxln mhd/dns sl fos no por

F Ls-AA

F Sh-gry

F Ls-lt gry/tan f/mxln mhd/dns sl fos no por

3520 Sh-gry/dk gry

F Ls-lt gry/tan f/mxln mhd/dns sl fos no por

F Sh-gry/dk gry

3540 F Ls-lt gry/tan f/mxln dns sl fos no por sm free crin

F Sh-gry

F Ls-lt gry/tan f/mxln dns sl fos no por

3560 Sh-gry/dk gry

F Ls-tan fxln to blkly mhd highly fos no por sm free fussion and crin

F Ls-AA

3580 Sh-gry/dk gry

F Ls-tan/lt gry fxln mhd/dns sl fos no por

Sh-gry/dk gry

3600 F Ls-tan/crm blkly mhd highly fos sl clkly no por sm free fussion

F Ls-AA

F Ls-AA

3620 Sh-gry/dk gry

Sh-AA

-----Topeka 3630 -772 -----

3640 C Ls-tan/crm fxln mhd fos sl clkly no por

C Ls-AA

C Ls-crm/lt gry fxln mhd sl clkly no por

3660 Sh-gry/dk gry

C Ls-crm/lt gry fxln mhd sl clkly no por

Sh-gry/dk gry

Ls-tan fxln mjhd/dns no por

3680 Ls-AA

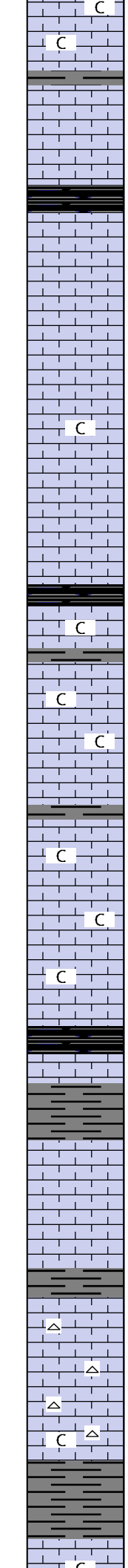
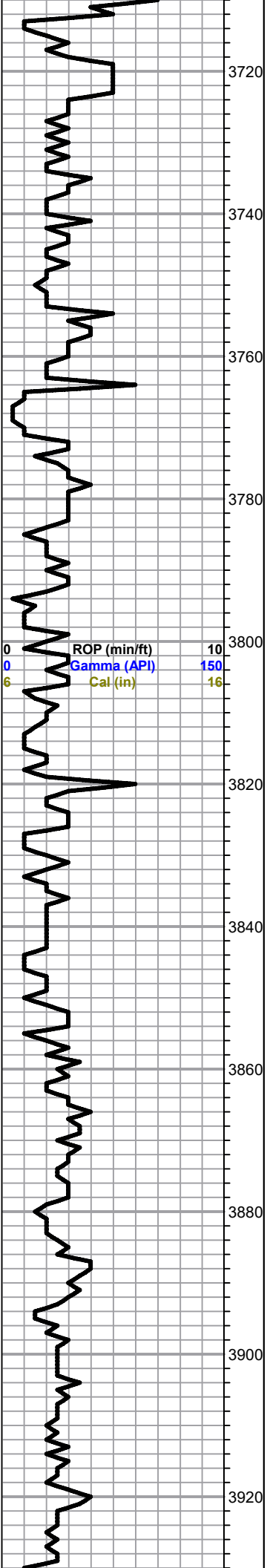
Sh-gry/dk gry

C Ls-tan/lt gry fxln mhd/dns no por

Sh-gry/dk gry

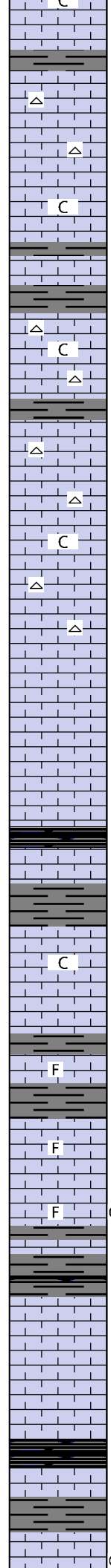
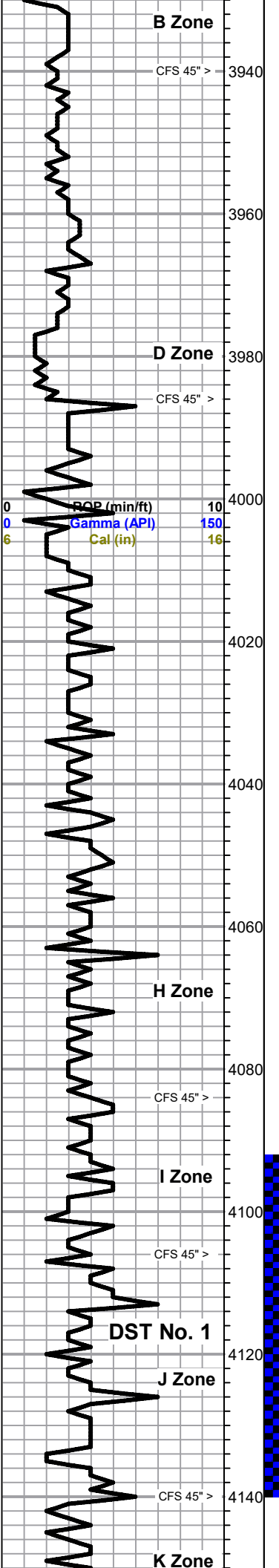
3700 Ls-tan/lt gry fxln mhd no por

C Ls-tan/lt gry fxln soft/mhd clkly no por



Ls-tan/lt gry fxln dns sl clky no por
 Sh-gry/dk gry
 Ls-tan lt gry fxln mhd no por
 Ls-AA
 Sh-blk carb
 Ls-tan/lt gry fxln mhd no por
 Ls-AA
 Ls-tan/lt gry fxln mhd/dns no por
 Ls-AA
 Ls-crm/lt tan fxln soft clky no por
 Ls-tan fxln mhd/dns no por
 Ls-AA
 Sh-blk carb
 Ls-lt gry/crm fxln mhd sl clky no por
 Sh-gry/dk gry
 Ls-lt gry/crm fxln mhd sl clky no por
 Ls-AA
 Ls-lt gry/crm fxln dns no por
 Sh-gry/dk gry
 Ls-crm/lt tan fxln mhd sl clky no por
 Ls-AA
 Ls-lt gry fxln mhd fos sl clky no por
 Ls-gry/lt gry f/mxln mhd/dns no por
 ----- Heebner 3854 -996 -----
 Sh-blk carb
 Ls-gry f/mxln dns no por
 Sh-gry/dk gry
 Ls-lt gry/wt fxln dns no por
 Ls-AA
 Ls-lt gry fxln dns no por
 ----- Lansing 3892 -1034 -----
 Ls-crm/lt tan fxln mhd no pr sm Cht-wt/tan fsh opa
 Ls-crm/lt gry fxln dns no por sm Cht-wt/tan fsh opa
 Ls-crm/tan fxln dns no por sm Ls-wt fxln soft clky
 and sm Cht-wt/tan fsh opa
 Sh-gry/dk gry
 Ls-crm fxln mhd/dns no por sm Ls-wt fxln soft clky

Mud Data 3867'
 7:00 am on 7-3-22
 Wt 9.1 Vis 57 WL 8.0
 pH 11.0 Chl 2500 Sol 5.4
 YP 16 LCM 1.0



Ls-crm fxln mhd/dns no por
Sh-gry/dk gry

Ls-crm fxln mhd/dns no por sm Cht-wt fsh opa

Ls-lt gry/crm fxln mnd/dns no por sm Cht-wt fsh opa

Ls-crm/lt gry fxln mhd/dns no por sm Ls-wt fxln soft clky

Sh-gry/dk gry
Ls-crm/tan fxln dns no por
Sh-gry/dk gry

Ls-crm/tan fxln mdn no por sm Cht-wt fsh opa sm Ls-wt fxln soft clky

Sh-gry/dk gry

Ls-crm/lt gry fxln dns no por sm Cht-lt gry fsh opa

Ls-AA

Ls-crm/lt gry fxln mhd sl clky no por sm Cht-lt gry fsh opa

Ls-AA sm Cht-lt gry fsh opa

Ls-crm/lt gry fxln mhd/dns no por

Ls-AA

Ls-crm/lt gry fxln mhd/dns no por

----- **Muncie Creek 4046 -1188** -----

Ls-gry/gry brn fxln dns no por

Sh-gry/dk gry

Ls-crm/lt gry fxln dns sl clky no por

Ls-crm/lt gry fxln dns no por

Sh-gry/dk gry

Ls-gry/brn fxln dns no por sm Ls-gry blk dns fos no por

Sh-gry/dk gry

Ls-lt gry/crm fxln mnd/dns no por

Ls-crm fxln mhd/dns no por

Ls-lt gry fxln mhd sl fos fr xln/vug por lt brn sct stn fsfo on brk fair odor

Sh-gry/dk gry
Ls--lt gry/crm fxln mhd/dns no por
Sh-gry/dk gry/sm blk

Ls-gry fxln dns no por

Ls-tan/gry fxln mhd/dns no por

Ls-crm fxln dns no por

----- **Stark 4133 -1275** -----

Sh-blk carb

Ls-gry/brn f/mxln dns no por

Sh-gry/dk gry

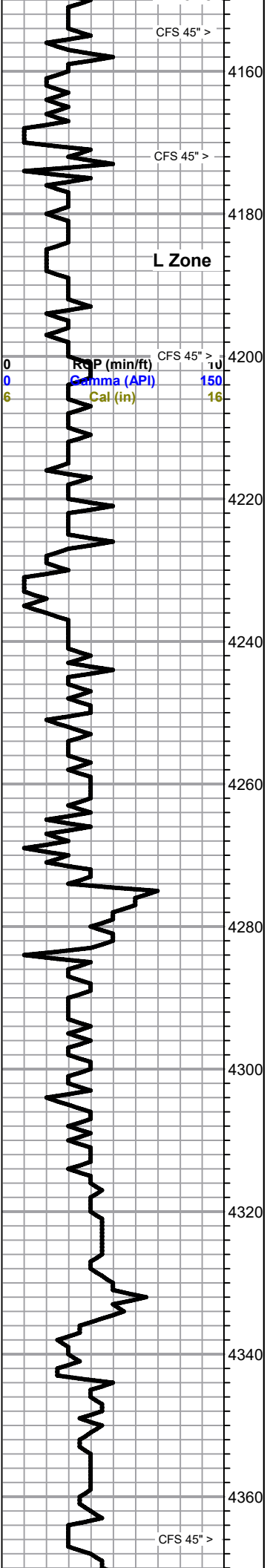
Ls-lt gry fxln dns no por

Ls-lt gry fxln mhd pr interxln por brn spt stn ssfo on brk very faint odor

DST No. 1
4092 to 4140
30-30-30-30
1st Open: Weak blob, built to 1 1/4"
2nd Open: Weak blow, built to 1 1/2"
Recovery: 25' OCM (10%O, 90%M)
IHP 2092 FHP 1992
IFP 36-38 FFP 26-29
ISIP 106 FSIP 116
116°

Pulled 15 stand short trip at 4140' then cir for test 60"

Pipe strap at 4140'. Short



Ls-lt gry fxln mhd/dns no por

Ls-lt gry fxln mhd/pr interxln por trc brn stn vssfo on brk very faint odor

Ls-lt gry fxln mhd/dns no por and Ls-crm fxln mhd sl clky no por

----- **Hushpuckney 4167 -1309** -----

Sh-blk carb

Ls-gry f/mxln dns no por

Sh-gry/grn/mar

Ls-gry f/mxln mhd sl fos fr/gd vud interxln por dk brn sct to sat stn gd cut f/gso on brk fr odor

Ls-lt gry/crm fxln mhd clky no por

Ls-AA

Ls-crm/lt gry/tan fxln mhd sll clky no por

Ls-crm/fxln dns no por

Ls-crm/lt gry fxln dns no por

Sh-gry/dk gry

Ls-lt gry fxln mhd/dns no por

Sh-gry/dk gry

Ls-lt gry fxln mhd/dns no por

----- **Base/Kansas City 4227 -1369** -----

Sh-gry/dk gry

Sh-AA

Sh-AA

Ls-crm/lt gry fxln dns no por

Sh-gry/dk gry

Ls-crm/lt gry fxln dns no por

Sh-gry/mar/grn

----- **Marmaton 4269 -1411** -----

Ls-crm fsln mhd sl clky no por

Ls-lt gry fsln dns no por

Ls-lt gry fxln mhd fos ool no por sm Ls-lt yel to tan fxln mhd fos ool no por

Sh-gry/dk gry

Ls-crm/lt gry fxln mhd/dns no por

Sh-gry/dk gry

Ls-lt gry fxln dns no por

Ls-AA

Ls-lt gry fxln dns no por

Ls-lt gry fxln dns no por sm Cht-gry wt fsh opa

Sh-blk carb

----- **Pawnee 4338 -1480** -----

Ls-lt gry fxln mhd no por sm Cht-gry wt fsh opa

Ls-lt gry/gry fxln dns sl fos no por sm Cht-gry wt fsh opa

Ls-gry/gry brn f/mxln dns no por sm Cht-wt/gry wt fsh opa

Ls-AA sm Cht-wt fsh opa

Sh-blk carb

----- **Fort Scott 4368 -1510** -----

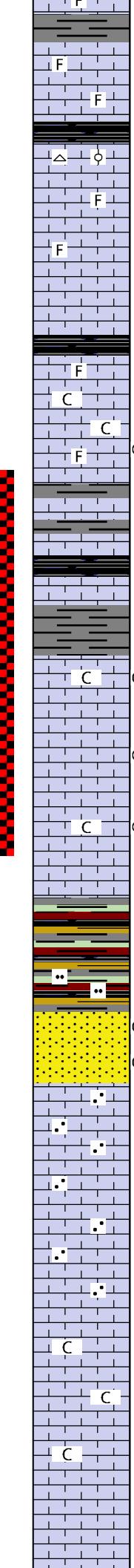
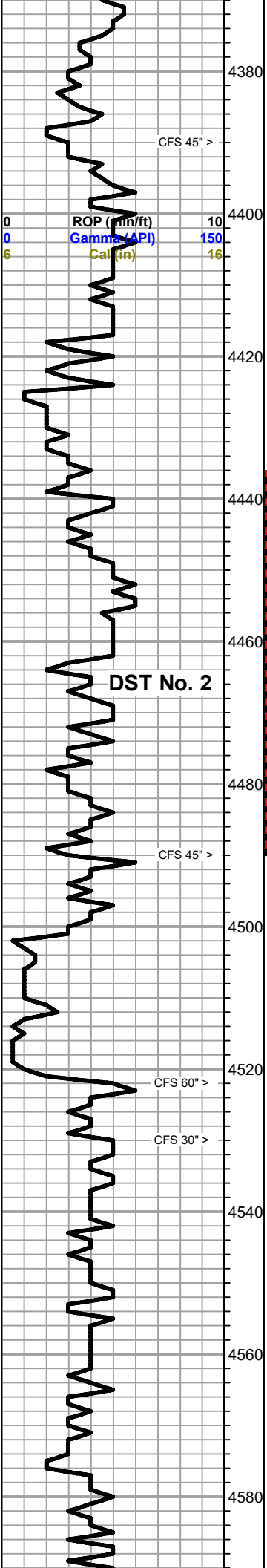
Ls-gry f/mxln dns sl fos no por

Mud Data 4140'

9:20 am on 7-4-22
Wt 9.2 Vis 58 WL 8.8
pH 11.0 Chl 3000 Sol 5.9
YP 15 LCM 2.0

Mud Data 4347'

8:50 am on 7-5-22
Wt 9.3 Vis 54 WL 8.8
pH 10.5 Chl 3600 Sol 6.6
YP 16 LCM 2.0



Sh-gry/lm/ln dns sl fos no por

Sh-gry/dk gry

Ls-lt gry/gry fxln mhd fos no por

Ls-lt gry/gry/brn fxln mhd sl fos no por

----- **Cherokee Shale 4387 -1529** -----

Sh-blk carb

Ls-gry/gry brn fxln mhd fos ool no por sm Cht-wt/brn fsh opa

Ls-gry/gry brn fxln dns sl fos no por

Ls-AA

Ls-gry/tan fxln dns no por

----- **Lower Cherokee Shale 4417 -1559** -----

Sh-blk carb

Ls-tan/brn fxln mhd fos no por

Ls-lt gry fxln soft/mhd clkly no por

Ls-tan/gry fxln to sl blkly mhd sl fos no por with few pcs (10) of Ls-brn fxln mhd pr/fr pp por fr cut vssfo on brk trc odor

Sh-gry/dk gry

Ls-tan/brn fxln dns no por

Sh-gry/dk gry

Ls-tan/brn fxln dns no por

Sh-blk carb

Ls-tan/brn/gry fxln dns no por

Sh-gry/dk gry

----- **Johnson Zone 4462 -1604** -----

Ls-lt gry/tan fxln mhd sl clkly no por with few pcs (10) Ls-brn fxln mhd fr vug por dk brn sct to sat stn gd cut ssfo on brk trc odor

Ls-lt gry/tan fxln mhd/dns no por with few pcs (3) Ls-brn fxln mhd pr interxln por dk brn sat stn fr cut vssfo and gas bub on brk faint cup odor

Ls-crm/tan fxln mhd/dns clkly no por with few pcs (3) Ls-ben fxln mhd fr vug por dk brn sat stn fr cut vssfo on brk faint cup odor

Ls-lt gry/gry/brn fxln mhd/dns no por

----- **Morrow Shale 4497 -1639** -----

Sh-gry/grn/red/blk/yel

Sh-AA with sm Siltstone lt grn vfgrn very soft to gummy

----- **Morrow Sand 4512 -1654** -----

Ss-clr fgrn fri sat stn gd cut f/gso fr odor

Ss-AA with sm Ss-clr f/mgrn sl fri nofo

----- **Mississippi 4522 -1964** -----

Ls-wt/crm fxln dns sl sdy no por

Ls-AA

Ls-wt/crm fxln dns sl sdy no por

Ls-AA

Ls-crm/lt tan fxln mhd/dns no por sm Ls-wt fxln soft clkly and sm Cht-lt tan fsh opa

Ls-AA with sm Cht-lt tan fsh opa

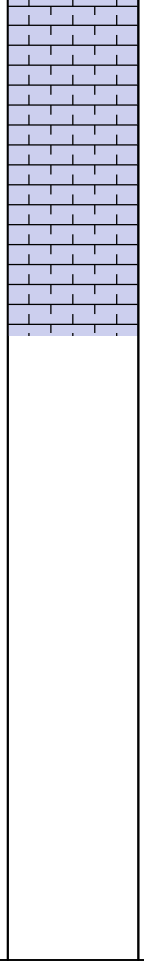
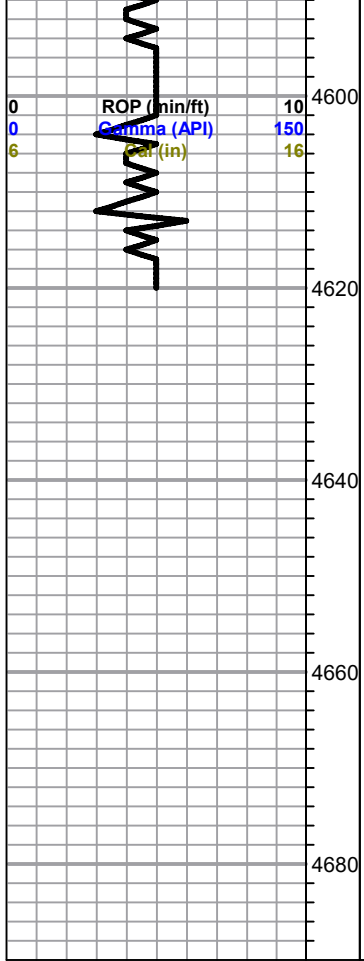
Ls-crm/lt tan fxln mhd sl clkly no por

Ls-AA

DST No. 2
 4436 to 4490
 30-45-45-60
 1st Open: BOB in 3"
 2nd Open: BOB in 4"
 Recovery:
 2723' GIP
 129' GO (30%G, 70%O)
 372' MCGO (20%M, 30%G 50%O)
 124' MCGO (20%M, 20%G 60%O)
 124' MWCGO (10%M, 10%W, 10%G, 70%O)
 IHP 2341 FHP 2156
 IFP 47-174 FFP 174-314
 ISIP 1018 FSIP 972
 128°

Pulled 10 stand short trip at 4490' then cir for test 60"

Mud Data 4490'
 8:30 am on 7-6-22
 Wt 9.5 Vis 59 WL 9.6
 pH 9.5 Chl 3500 Sol 8.2
 YP 19 LCM 1.0



Ls-crm/lt tan fxln mhd/dns no por

Ls-AA

Ls-crm/lt gry fxln mhd/dns no por

Ls-AA

----- RTD 4625 -1767 -----

Finished drilling at 1:26 am on 7-7-22. Circulated for log 90 minutes.

Fiished logging at 0:00 am on 7-7-22.