MIDWESTERN
EXPLORATION
COMPANY

L & L #1-3

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

Well Name: L & L #1-3
API: 15-189-22862-00-00
Location: Section 3-T35S-R35W
License Number: 5263
Region: Stevens Co, KS
Spud Date: 8/10/2021
Drilling Completed: 8/17/2021
Surface Coordinates: 1530" FSL & 2305' FWL

Bottom Hole Coordinates: 1530" FSL & 2305' FWL
Ground Elevation (ft): 2,979'
K.B. Elevation (ft): 2,991'
Logged Interval (ft): 4,000' **To:** 6,690'
Total Depth (ft): 6,690'
Formation: Mississippian Ste. Genevieve
Type of Drilling Fluid: Chemical

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

OPERATOR

Company: Midwestern Exploration Company
Address: 3500 S. Boulevard, Suite #2B
Edmond, OK 73013

GEOLOGIST

Name: Thomas M. Williams
Company: Petroleum Geologist
Address: Wichita, KS

CORE

Contractor:
Core #:
Formation:
Core Interval: **From:** **Cut:**
To: **Recovered:**
Bit type:
Size:
Coring Time:

Formation Tops

	Sample Top	E-Log Top
Oread Lm	4290 (-1299)	4283 (-1292)
Base/Heebner Sh	4354 (-1363)	4348 (-1357)
Toronto Lm	4364 (-1373)	4358 (-1367)
Lansing	4478 (-1487)	4490 (-1499)
Kansas City	4592 (-1601)	4584 (-1593)
Base / KC	5147 (-2156)	5140 (-2149)
Marmaton	5223 (-2232)	5215 (-2224)
Ft. Scott Lm	5473 (-2482)	5465 (-2474)
Cherokee Sh	5575 (-2584)	5566 (-2575)
Atoka Lm	5728 (-2737)	5722 (-2731)
L. Atoka Lm	5888 (-2897)	5881 (-2890)
Morrow Sh	5924 (-2933)	5916 (-2925)
L. Morrow Lm	6226 (-3235)	6220 9-3239)
L. Morrow Sd	6275 (-3284)	6282 (-3291)
Chester 'C' Lm	6294 (-3303)	6288 (-3297)
Chester 'B' Lm	6388 (-3397)	6382 (-3391)
Chester 'A' Lm	6491 (-3500)	6484 (-3493)
Chester 'A' Sand	6532 (-3541)	6528 (-3537)
Chester 'B' Sand	6567 (-3576)	6560 (-3569)
Ste. Genevieve	6612 (-3621)	6603 (-3612)

DSTs

None

Comments

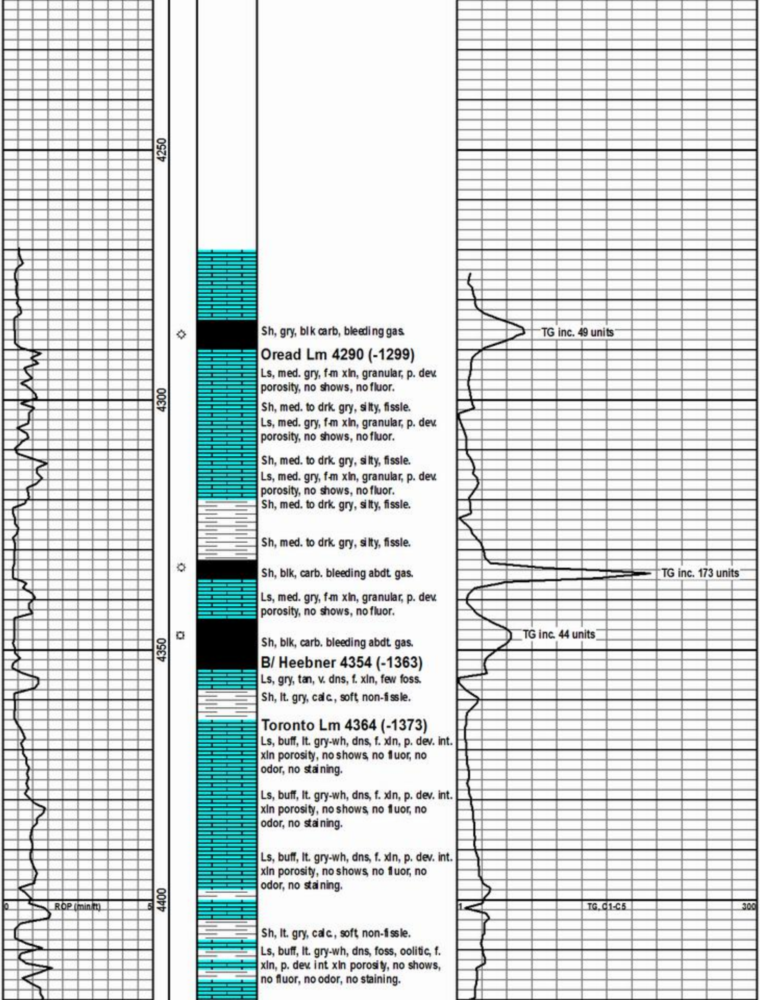
Due to the shows of oil and gas in the Chester 'A' Sand and electric log calculations, it was decided to further test the L & L #1-3 through production casing.

ROCK TYPES

🟧	Anhy	⬛	Carb.sh	🟦	Lmst	▭	Shcol
▨	Bent	🟨	Congl	🟥	Meta	▭	Shgy
▨	Brec	🟪	Dol	▭	Mrlst	🟧	Sltst
△	Cht	🟧	Gyp	🟩	Salt	🟨	Ss
▭	Clyst	🟥	Igne	▭	Shale	▨	Till

Curve Track 1	MD	Shows	Lithology	Geological Descriptions	TG, C1-C5
ROP (min/ft) —					TG (Units) — C1 (units) ·— C2 (units) ··— C3 (units) ···— C4 (units) ····— C5 (units) ·····—

Survey @ 4195'
1 degree



Sh, gry, blk carb, bleeding gas.

Oread Lm 4290 (-1299)

Ls, med. gry, f-m xln, granular, p. dev. porosity, no shows, no fluor.

Sh, med. to drk. gry, silty, fissle.

Ls, med. gry, f-m xln, granular, p. dev. porosity, no shows, no fluor.

Sh, med. to drk. gry, silty, fissle.

Ls, med. gry, f-m xln, granular, p. dev. porosity, no shows, no fluor.

Sh, med. to drk. gry, silty, fissle.

Sh, med. to drk. gry, silty, fissle.

Sh, blk, carb. bleeding abdt. gas.

Ls, med. gry, f-m xln, granular, p. dev. porosity, no shows, no fluor.

Sh, blk, carb. bleeding abdt. gas.

B/ Heebner 4354 (-1363)

Ls, gry, tan, v. dns, f. xln, few foss.

Sh, lt. gry, calc., soft, non-fissle.

Toronto Lm 4364 (-1373)

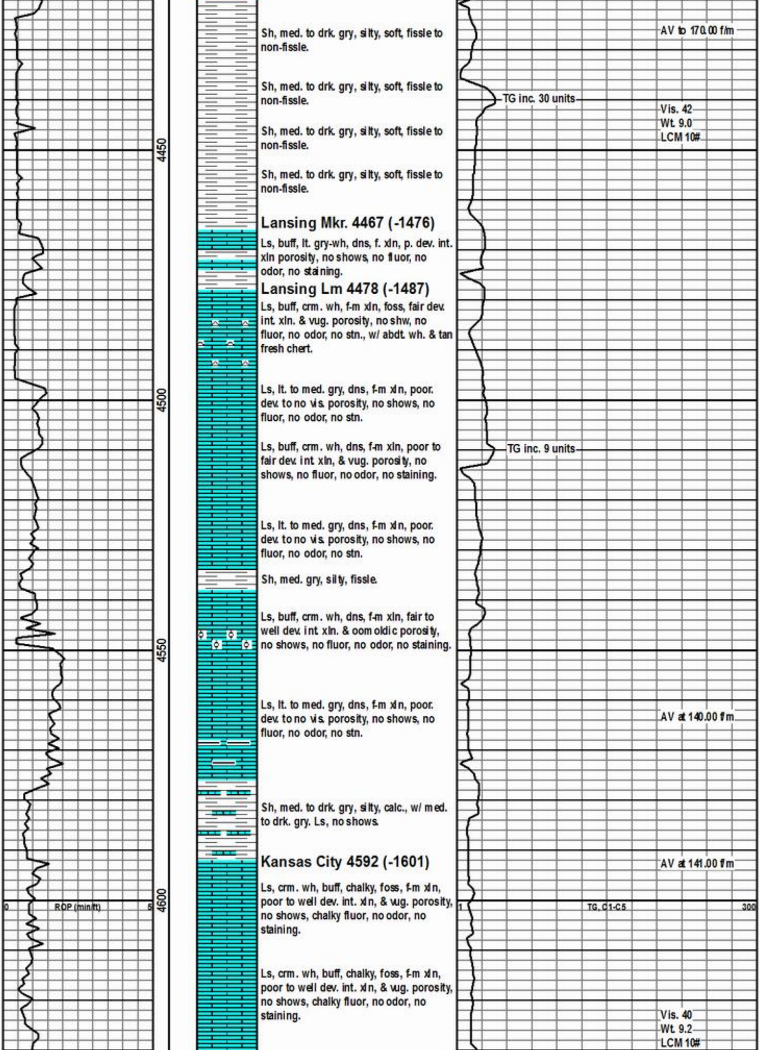
Ls, buff, lt. gry-wh, dns, f. xln, p. dev. int. xln porosity, no shows, no fluor, no odor, no staining.

Ls, buff, lt. gry-wh, dns, f. xln, p. dev. int. xln porosity, no shows, no fluor, no odor, no staining.

Ls, buff, lt. gry-wh, dns, f. xln, p. dev. int. xln porosity, no shows, no fluor, no odor, no staining.

Sh, lt. gry, calc., soft, non-fissle.

Ls, buff, lt. gry-wh, dns, foss, oolitic, f. xln, p. dev. int. xln porosity, no shows, no fluor, no odor, no staining.



Sh, med. to drk. gry, silty, soft, fissle to non-fissle.

Sh, med. to drk. gry, silty, soft, fissle to non-fissle.

Sh, med. to drk. gry, silty, soft, fissle to non-fissle.

Sh, med. to drk. gry, silty, soft, fissle to non-fissle.

Lansing Mkr. 4467 (-1476)

Ls, buff, lt. gry-wh, dns, f. xln, p. dev. int. xln porosity, no shows, no fluor, no odor, no staining.

Lansing Lm 4478 (-1487)

Ls, buff, crm. wh, f-m xln, foss, fair dev. int. xln. & vug. porosity, no shw, no fluor, no odor, no stn., w/ abdt. wh. & tan fresh chert.

Ls, lt. to med. gry, dns, f-m xln, poor. dev. to no vis. porosity, no shows, no fluor, no odor, no stn.

Ls, buff, crm. wh, dns, f-m xln, poor to fair dev. int. xln, & vug. porosity, no shows, no fluor, no odor, no staining.

Ls, lt. to med. gry, dns, f-m xln, poor. dev. to no vis. porosity, no shows, no fluor, no odor, no stn.

Sh, med. gry, silty, fissle.

Ls, buff, crm. wh, dns, f-m xln, fair to well dev. int. xln. & oomoldic porosity, no shows, no fluor, no odor, no staining.

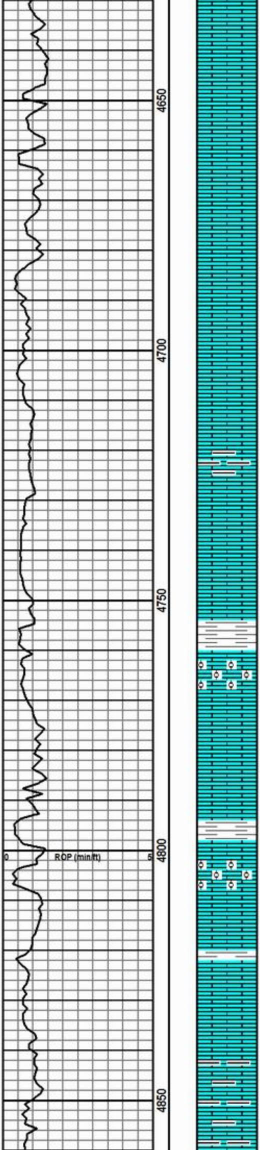
Ls, lt. to med. gry, dns, f-m xln, poor. dev. to no vis. porosity, no shows, no fluor, no odor, no stn.

Sh, med. to drk. gry, silty, calc., w/ med. to drk. gry. Ls, no shows.

Kansas City 4592 (-1601)

Ls, crm. wh, buff, chalky, foss, f-m xln, poor to well dev. int. xln, & vug. porosity, no shows, chalky fluor, no odor, no staining.

Ls, crm. wh, buff, chalky, foss, f-m xln, poor to well dev. int. xln, & vug. porosity, no shows, chalky fluor, no odor, no staining.



Ls, buff, gry, granular, f-m xln, poorly dev. to no vis. porosity, no shows, no fluor, no odor, no staining.

Ls, crm. wh, buff, chalky, foss, f-m xln, poor to well dev. int. xln, & vug. porosity, no shows, chalky fluor, no odor, no staining.

Ls, crm. wh, buff, chalky, foss, f-m xln, w/ c. xln. sparite, poor to well dev. int. xln, & vug. porosity, no shows, chalky fluor, no odor, no staining.

Ls, crm. wh, buff, chalky, foss, f-m xln, w/ c. xln. sparite, poor to well dev. int. xln, & vug. porosity, no shows, chalky fluor, no odor, no staining.

Ls, med. gry, arg. & silty, granular.

Ls, crm. wh, buff, chalky, foss, f-m xln, w/ c. xln. sparite, well dev. int. xln, & vug. porosity, no shows, chalky fluor, no odor, no staining.

Sh, med. gry, silty, calcareous.

Ls, buff, foss, oolitic, f-m xln, well dev. int. xln, & oomoldic porosity, no shows, chalky fluor, no odor, no staining.

Ls, buff, gry, granular, f-m xln, poorly dev. to no vis. porosity, no shows, no fluor, no odor, no staining.

Sh, lt. to med. gry, silty, fissle.

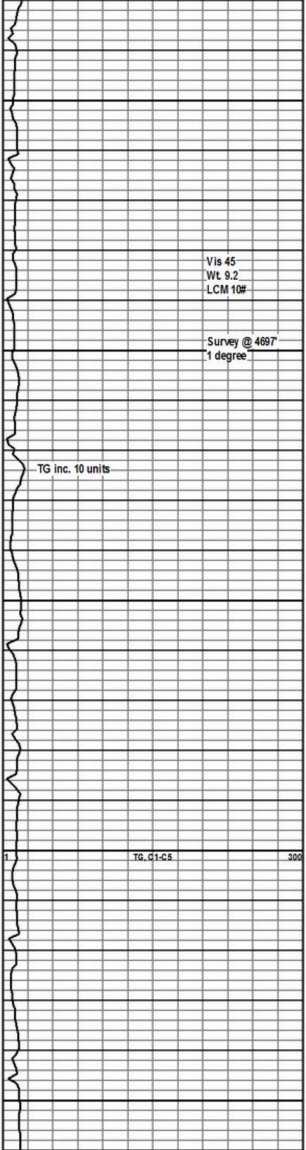
Ls, buff, foss, oolitic, f-m xln, well dev. int. xln, & oomoldic porosity, no shows, chalky fluor, no odor, no staining.

Ls, buff, tan, gry-wh, f-m xln, dns, poorly dev. to no vis. por., no show, no fluor, no odor, no stain.

Sh, lt. to med. gry, silty, calcareous.

Ls, buff, gry-wh, granular, f-m xln, fair to well dev. int. xln. porosity, no shows, no fluor, no odor, no staining.

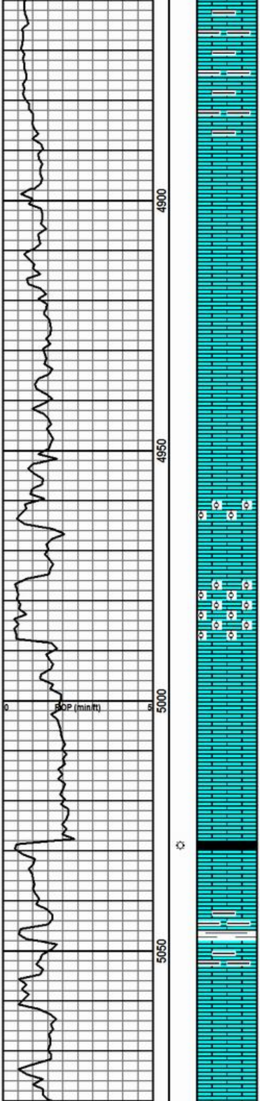
Ls, buff, tan, gry-wh, f-m xln, dns, poorly dev. to no vis. por., no show, no fluor, no odor, no stain.



Vis 45
Wt. 9.2
LCM 10#

Survey @ 4697'
1 degree

TG inc. 10 units



Ls, lt to med. gry, f-m xln, granular, dns, poorly dev. to no vis. por., no show, no fluor, no odor, no stain.

Ls, lt to med. gry, f-m xln, granular, dns, poorly dev. to no vis. por., no show, no fluor, no odor, no stain.

Ls, gry, buff, f-m xln, dns, poorly dev. to no vis. por., no show, no fluor, no odor, no stain.

Ls, buff, gry-wh, f-m xln, poor to fair dev. int. xln. porosity, no show, no fluor, no odor, no staining.

Ls, gry, buff, f-m xln, dns, poorly dev. to no vis. por., no show, no fluor, no odor, no stain.

Ls, tan, buff, lt. gry-wh, f-m xln, dns, poorly dev. to no vis. por., no show, no fluor, no odor, no stain.

Ls. buff, f-m xln, v. brittle, oolitic w/ well dev. oomoldic porosity, no shows, no fluor, no odor, no stain.

Ls. buff, f-m xln, v. brittle, oolitic w/ well dev. oomoldic porosity, no shows, no fluor, no odor, no stain.

Ls, lt. to med. gry-wh, f. xln, v. dns, no vis, porosity, no shows, no fluor, no odor, no staining.

Ls, tan, lt. to med. gry, v. dns, f. xln, no vis. porosity, no shows, no fluor, no odor, no staining.

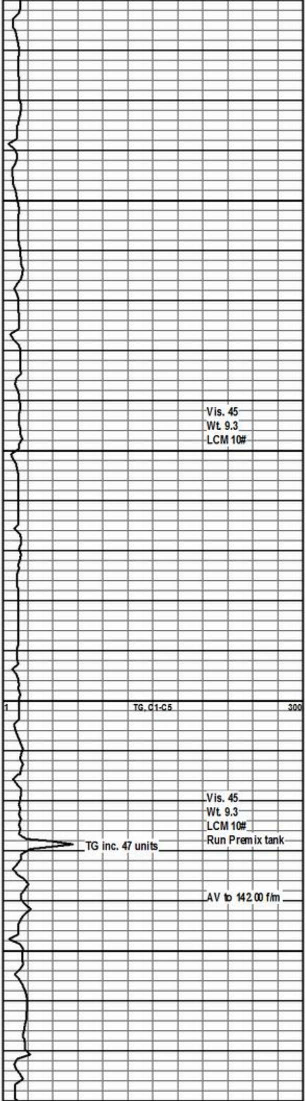
Sh, blk, carb. bleeding abdt. gas.

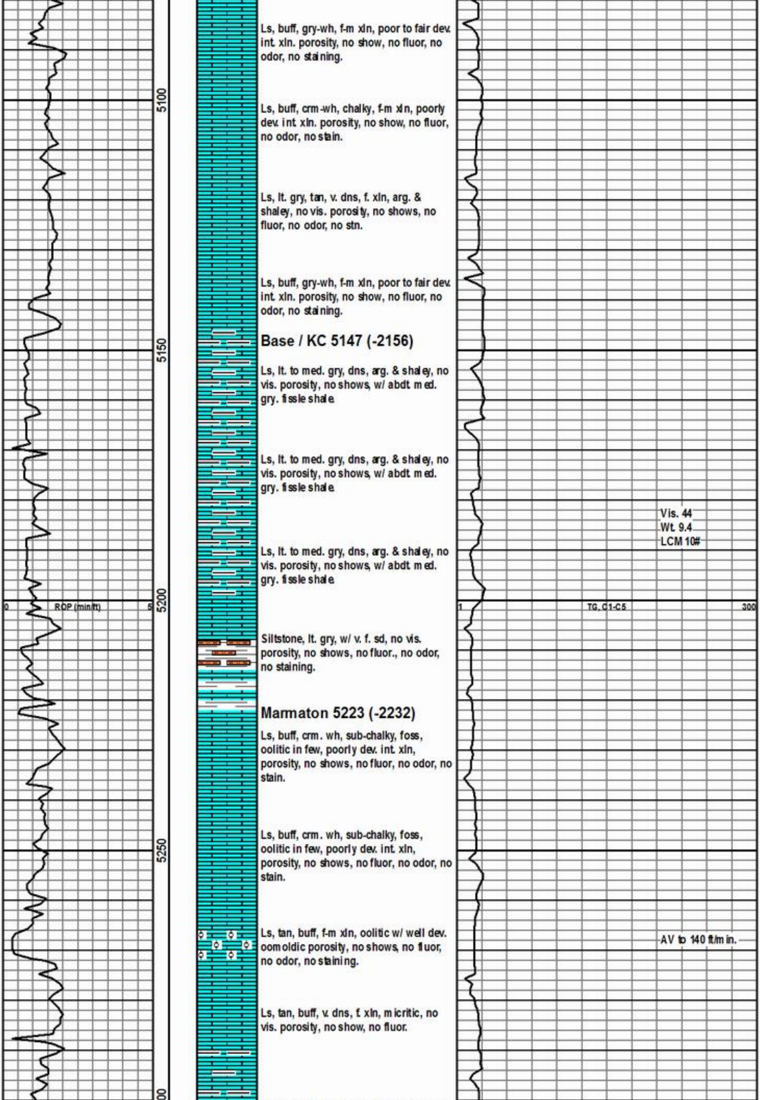
Ls, buff, gry-wh, f-m xln, poor to fair dev. int. xln. porosity, no show, no fluor, no odor, no staining.

Sh, med. gry, silty, calcareous.

Ls, buff, gry-wh, f-m xln, fair to well dev. int. xln. porosity, no show, no fluor, no odor, no staining.

Ls, buff, gry-wh, f-m xln, poor to fair dev. int. xln. porosity, no show, no fluor, no odor, no staining.





Ls, buff, gry-wh, f-m xln, poor to fair dev. int. xln. porosity, no show, no fluor, no odor, no staining.

Ls, buff, crm-wh, chalky, f-m xln, poorly dev. int. xln. porosity, no show, no fluor, no odor, no stain.

Ls, lt. gry, tan, v. dns, f. xln, arg. & shaley, no vis. porosity, no shows, no fluor, no odor, no stn.

Ls, buff, gry-wh, f-m xln, poor to fair dev. int. xln. porosity, no show, no fluor, no odor, no staining.

Base / KC 5147 (-2156)

Ls, lt. to med. gry, dns, arg. & shaley, no vis. porosity, no shows, w/ abdt. med. gry. fissle shale.

Ls, lt. to med. gry, dns, arg. & shaley, no vis. porosity, no shows, w/ abdt. med. gry. fissle shale.

Vis. 44
Wt. 9.4
LCM 10#

Ls, lt. to med. gry, dns, arg. & shaley, no vis. porosity, no shows, w/ abdt. med. gry. fissle shale.

Siltstone, lt. gry, w/ v. f. sd, no vis. porosity, no shows, no fluor., no odor, no staining.

Marmaton 5223 (-2232)

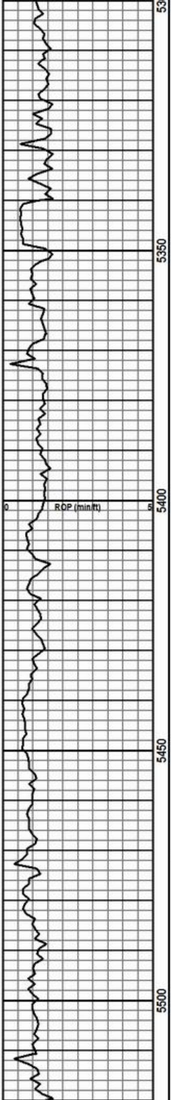
Ls, buff, crm. wh, sub-chalky, foss, oolitic in few, poorly dev. int. xln, porosity, no shows, no fluor, no odor, no stain.

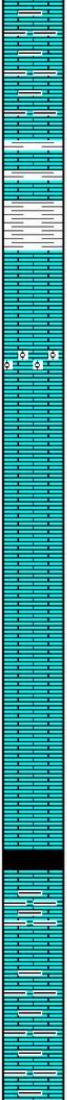
Ls, buff, crm. wh, sub-chalky, foss, oolitic in few, poorly dev. int. xln, porosity, no shows, no fluor, no odor, no stain.

Ls, tan, buff, f-m xln, oolitic w/ well dev. oomoldic porosity, no shows, no fluor, no odor, no staining.

AV to 140 ft/min.

Ls, tan, buff, v. dns, f. xln, micritic, no vis. porosity, no show, no fluor.





Ls, med. to drk. gry, m. xln, gran., poorly dev. porosity, no shows, no fluor, no odor, no staining.

Ls, med. to drk. gry, m. xln, gran., poorly dev. porosity, no shows, no fluor, no odor, no staining.

Sh, lt. to med. gry, soft, silty, fissle.

Sh, lt. to med. gry, soft, silty, fissle.

Ls, buff, gry-wh, tan, f. xln, poor to fair dev. int. xln. porosity, no show, chalky fluor, no staining.

Ls, tan, buff, f-m xln, oolitic w/ fair dev. oomoldic porosity, no shows, no fluor, no odor, no staining.

Ls, buff, crm-wh, lt. gry-wh, f. xln, poorly dev. to no vis. porosity, no shows, chalky fluor, no stain.

Ls, buff, tan, f-m xln, fair to well dev. int. xln. porosity, no shows, no odor, no fluor, no staining.

Ls, buff, crm. wh, sub-chalky, poorly dev. int. xln, porosity, no shows, no fluor, no odor, no stain.

Ls, buff, tan, f-m xln, fair to well dev. int. xln. porosity, no shows, no odor, no fluor, no staining.

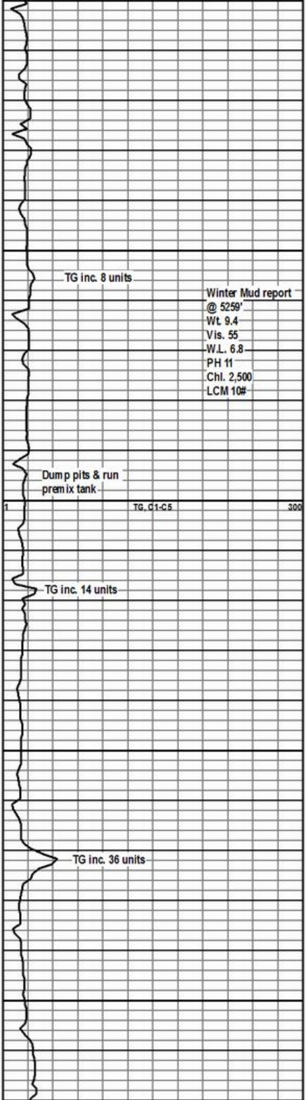
Ls, buff, crm. wh, sub-chalky, poorly dev. int. xln, porosity, no shows, no fluor, no odor, no stain.

☼ Sh, blk, carb. bleeding abdt. gas.

Ft. Scott 5473 (-2482)

Ls, lt. to med. gry, brown, arg, dns, f-m xln, poorly dev. to no vis. porosity, no shows, no fluor, no odor, no stain.

Ls, lt. to med. gry, brown, arg, dns, f-m xln, poorly dev. to no vis. porosity, no shows, no fluor, no odor, no stain.



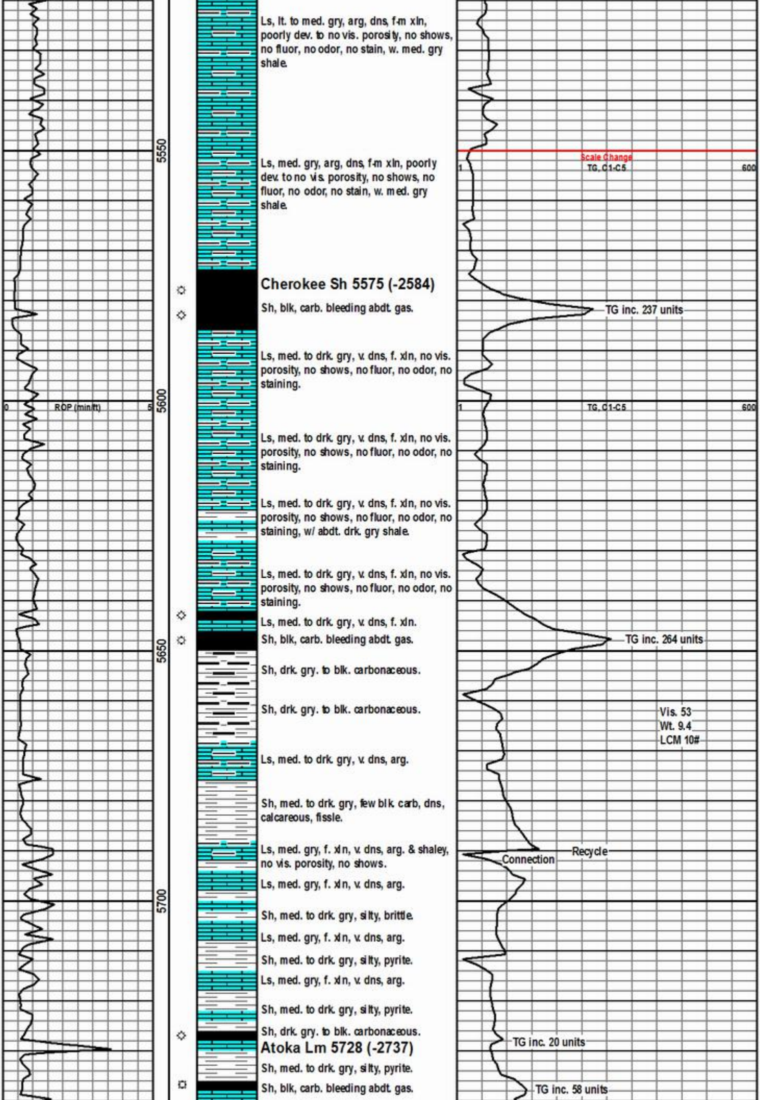
TG inc. 8 units

Winter Mud report
@ 5259'
Wt. 9.4
Vis. 55
W.L. 6.8
PH 11
Chl. 2,500
LCM 10#

Dump pits & run
premix tank

TG inc. 14 units

TG inc. 36 units



Ls, lt. to med. gry, arg, dns, f-m xln, poorly dev. to no vis. porosity, no shows, no fluor, no odor, no stain, w. med. gry shale.

Ls, med. gry, arg, dns, f-m xln, poorly dev. to no vis. porosity, no shows, no fluor, no odor, no stain, w. med. gry shale.

Cherokee Sh 5575 (-2584)

Sh, blk, carb. bleeding abdt. gas.

Ls, med. to drk. gry, v. dns, f. xln, no vis. porosity, no shows, no fluor, no odor, no staining.

Ls, med. to drk. gry, v. dns, f. xln, no vis. porosity, no shows, no fluor, no odor, no staining.

Ls, med. to drk. gry, v. dns, f. xln, no vis. porosity, no shows, no fluor, no odor, no staining, w/ abdt. drk. gry shale.

Ls, med. to drk. gry, v. dns, f. xln, no vis. porosity, no shows, no fluor, no odor, no staining.

Ls, med. to drk. gry, v. dns, f. xln.

Sh, blk, carb. bleeding abdt. gas.

Sh, drk. gry. to blk. carbonaceous.

Sh, drk. gry. to blk. carbonaceous.

Ls, med. to drk. gry, v. dns, arg.

Sh, med. to drk. gry, few blk. carb, dns, calcareous, fissle.

Ls, med. gry, f. xln, v. dns, arg. & shaley, no vis. porosity, no shows.

Ls, med. gry, f. xln, v. dns, arg.

Sh, med. to drk. gry, silty, brittle.

Ls, med. gry, f. xln, v. dns, arg.

Sh, med. to drk. gry, silty, pyrite.

Ls, med. gry, f. xln, v. dns, arg.

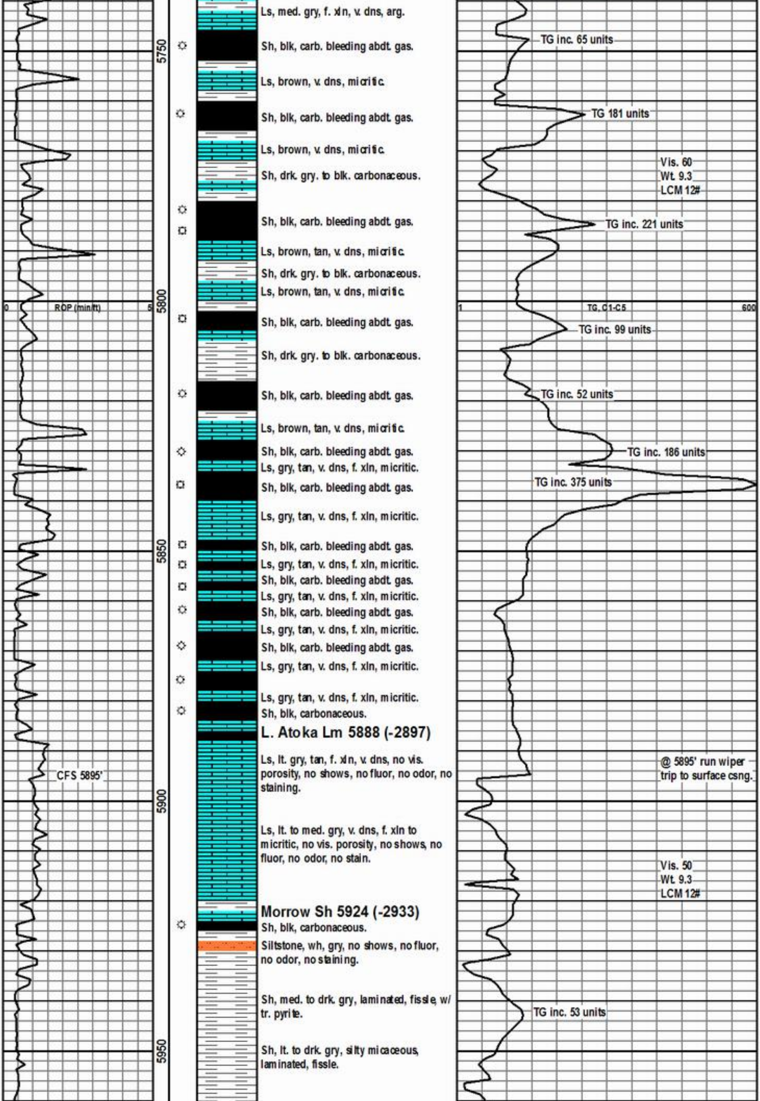
Sh, med. to drk. gry, silty, pyrite.

Sh, drk. gry. to blk. carbonaceous.

Atoka Lm 5728 (-2737)

Sh, med. to drk. gry, silty, pyrite.

Sh, blk, carb. bleeding abdt. gas.



Ls, med. gry, f. xln, v. dns, arg.

Sh, blk, carb. bleeding abdt. gas.

Ls, brown, v. dns, micritic.

Sh, blk, carb. bleeding abdt. gas.

Ls, brown, v. dns, micritic.

Sh, drk. gry. to blk. carbonaceous.

Sh, blk, carb. bleeding abdt. gas.

Ls, brown, tan, v. dns, micritic.

Sh, drk. gry. to blk. carbonaceous.

Ls, brown, tan, v. dns, micritic.

Sh, blk, carb. bleeding abdt. gas.

Sh, drk. gry. to blk. carbonaceous.

Sh, blk, carb. bleeding abdt. gas.

Ls, brown, tan, v. dns, micritic.

Sh, blk, carb. bleeding abdt. gas.

Ls, gry, tan, v. dns, f. xln, micritic.

Sh, blk, carb. bleeding abdt. gas.

Ls, gry, tan, v. dns, f. xln, micritic.

Sh, blk, carb. bleeding abdt. gas.

Ls, gry, tan, v. dns, f. xln, micritic.

Sh, blk, carb. bleeding abdt. gas.

Ls, gry, tan, v. dns, f. xln, micritic.

Sh, blk, carb. bleeding abdt. gas.

Ls, gry, tan, v. dns, f. xln, micritic.

Sh, blk, carb. bleeding abdt. gas.

Ls, gry, tan, v. dns, f. xln, micritic.

Ls, gry, tan, v. dns, f. xln, micritic.

Sh, blk, carbonaceous.

L. Atoka Lm 5888 (-2897)

Ls, lt. gry, tan, f. xln, v. dns, no vis. porosity, no shows, no fluor, no odor, no staining.

Ls, lt. to med. gry, v. dns, f. xln to micritic, no vis. porosity, no shows, no fluor, no odor, no stain.

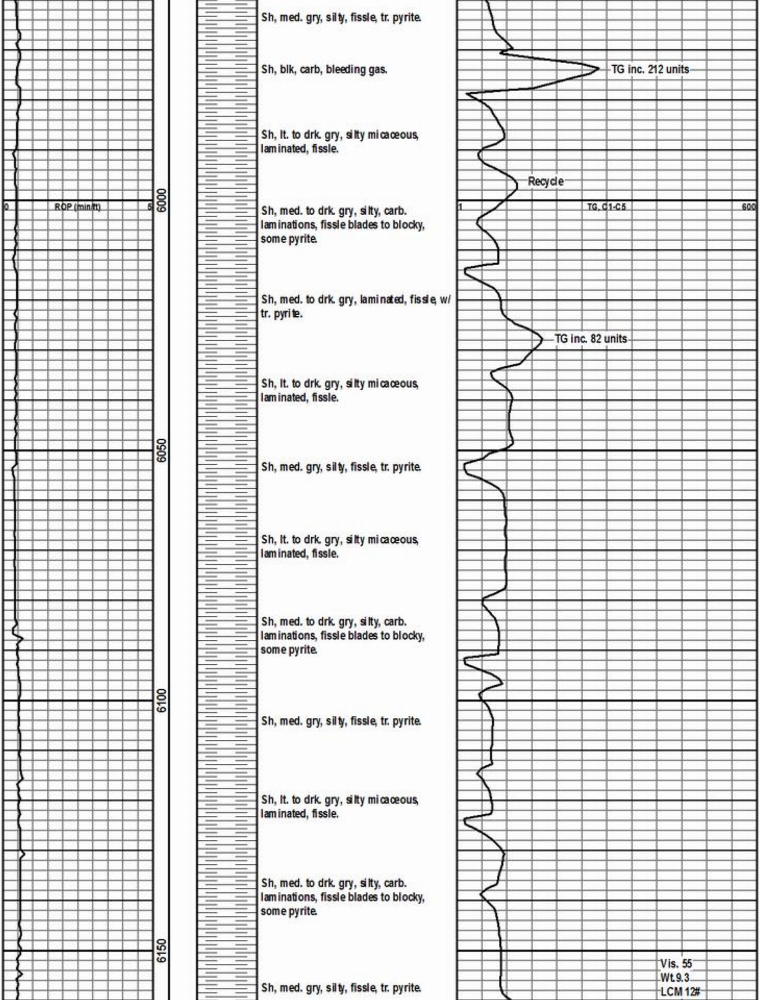
Morrow Sh 5924 (-2933)

Sh, blk, carbonaceous.

Siltstone, wh, gry, no shows, no fluor, no odor, no staining.

Sh, med. to drk. gry, laminated, fissle, w/ tr. pyrite.

Sh, lt. to drk. gry, silty micaceous, laminated, fissle.



Sh, med. gry, silty, fissle, tr. pyrite.

Sh, blk, carb, bleeding gas.

Sh, lt. to drk. gry, silty micaceous, laminated, fissle.

Sh, med. to drk. gry, silty, carb. laminations, fissle blades to blocky, some pyrite.

Sh, med. to drk. gry, laminated, fissle, w/ tr. pyrite.

Sh, lt. to drk. gry, silty micaceous, laminated, fissle.

Sh, med. gry, silty, fissle, tr. pyrite.

Sh, lt. to drk. gry, silty micaceous, laminated, fissle.

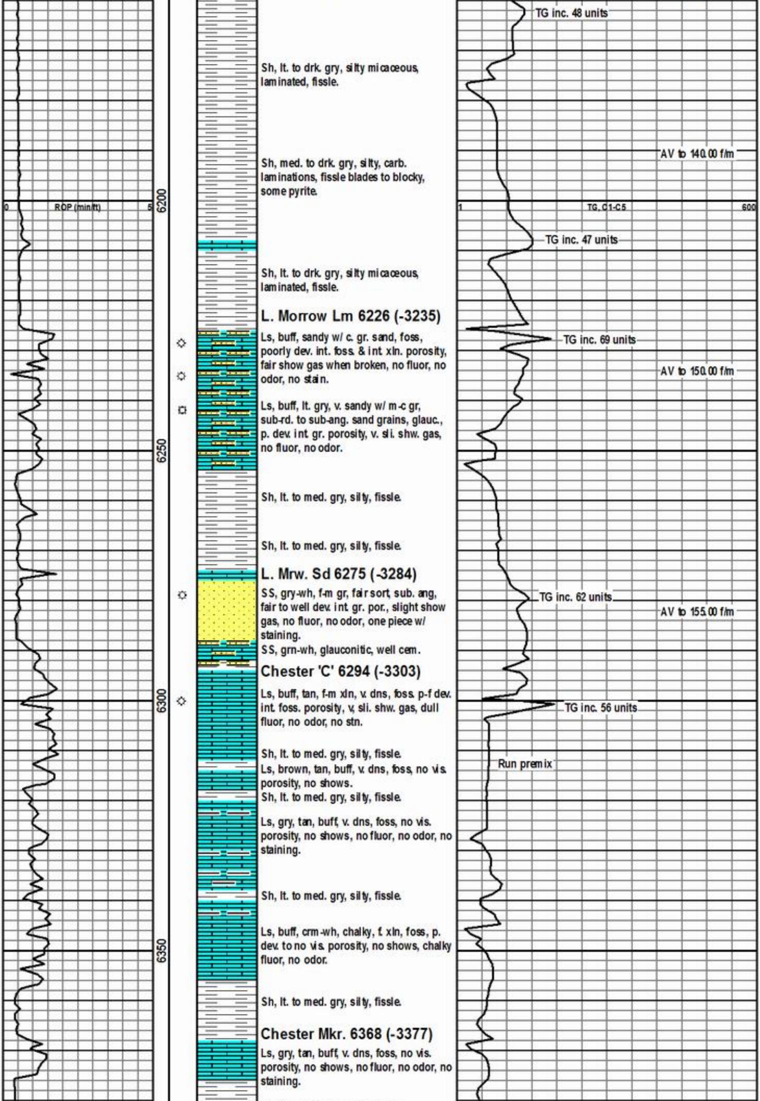
Sh, med. to drk. gry, silty, carb. laminations, fissle blades to blocky, some pyrite.

Sh, med. gry, silty, fissle, tr. pyrite.

Sh, lt. to drk. gry, silty micaceous, laminated, fissle.

Sh, med. to drk. gry, silty, carb. laminations, fissle blades to blocky, some pyrite.

Sh, med. gry, silty, fissle, tr. pyrite.



Sh, lt. to drk. gry, silty micaceous, laminated, fissle.

Sh, med. to drk. gry, silty, carb. laminations, fissle blades to blocky, some pyrite.

Sh, lt. to drk. gry, silty micaceous, laminated, fissle.

L. Morrow Lm 6226 (-3235)

Ls, buff, sandy w/ c. gr. sand, foss, poorly dev. int. foss. & int. xln. porosity, fair show gas when broken, no fluor, no odor, no stain.

Ls, buff, lt. gry, v. sandy w/ m-c gr, sub-rd. to sub-ang. sand grains, glauc., p. dev. int. gr. porosity, v. sli. shw. gas, no fluor, no odor.

Sh, lt. to med. gry, silty, fissle.

Sh, lt. to med. gry, silty, fissle.

L. Mrw. Sd 6275 (-3284)

SS, gry-wh, f-m gr, fair sort, sub. ang, fair to well dev. int. gr. por., slight show gas, no fluor, no odor, one piece w/ staining.

SS, grn-wh, glauconitic, well cem.

Chester 'C' 6294 (-3303)

Ls, buff, tan, f-m xln, v. dns, foss. p-f dev. int. foss. porosity, v. sli. shw. gas, dull fluor, no odor, no stn.

Sh, lt. to med. gry, silty, fissle.

Ls, brown, tan, buff, v. dns, foss, no vis. porosity, no shows.

Sh, lt. to med. gry, silty, fissle.

Ls, gry, tan, buff, v. dns, foss, no vis. porosity, no shows, no fluor, no odor, no staining.

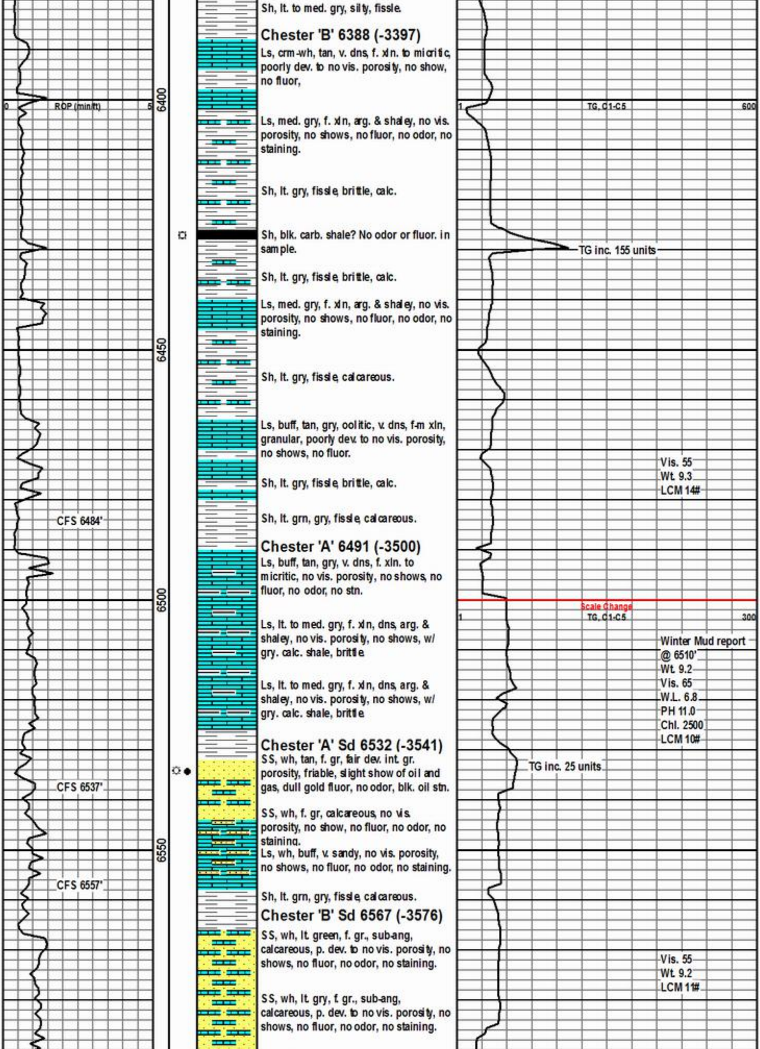
Sh, lt. to med. gry, silty, fissle.

Ls, buff, crm-wh, chalky, f. xln, foss, p. dev. to no vis. porosity, no shows, chalky fluor, no odor.

Sh, lt. to med. gry, silty, fissle.

Chester Mkr. 6368 (-3377)

Ls, gry, tan, buff, v. dns, foss, no vis. porosity, no shows, no fluor, no odor, no staining.



Sh, lt. to med. gry, silty, fissle.

Chester 'B' 6388 (-3397)

Ls, crm-wh, tan, v. dns, f. xln. to micritic, poorly dev. to no vis. porosity, no show, no fluor,

Ls, med. gry, f. xln, arg. & shaley, no vis. porosity, no shows, no fluor, no odor, no staining.

Sh, lt. gry, fissle, brittle, calc.

Sh, blk. carb. shale? No odor or fluor. in sample.

Sh, lt. gry, fissle, brittle, calc.

Ls, med. gry, f. xln, arg. & shaley, no vis. porosity, no shows, no fluor, no odor, no staining.

Sh, lt. gry, fissle, calcareous.

Ls, buff, tan, gry, oolitic, v. dns, f-m xln, granular, poorly dev. to no vis. porosity, no shows, no fluor.

Sh, lt. gry, fissle, brittle, calc.

Sh, lt. grn, gry, fissle, calcareous.

Chester 'A' 6491 (-3500)

Ls, buff, tan, gry, v. dns, f. xln. to micritic, no vis. porosity, no shows, no fluor, no odor, no stn.

Ls, lt. to med. gry, f. xln, dns, arg. & shaley, no vis. porosity, no shows, w/ gry. calc. shale, brittle

Ls, lt. to med. gry, f. xln, dns, arg. & shaley, no vis. porosity, no shows, w/ gry. calc. shale, brittle

Chester 'A' Sd 6532 (-3541)

SS, wh, tan, f. gr, fair dev. int. gr. porosity, friable, slight show of oil and gas, dull gold fluor, no odor, blk. oil stn.

SS, wh, f. gr, calcareous, no vis. porosity, no show, no fluor, no odor, no staining.

Ls, wh, buff, v. sandy, no vis. porosity, no shows, no fluor, no odor, no staining.

Sh, lt. grn, gry, fissle, calcareous.

Chester 'B' Sd 6567 (-3576)

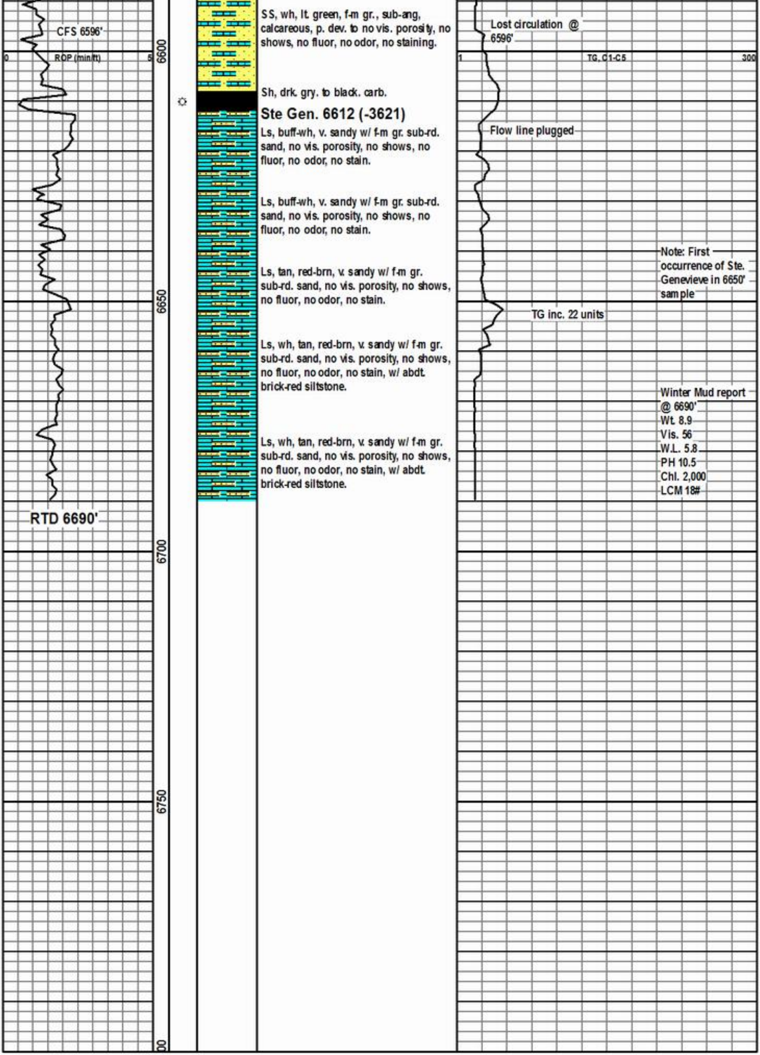
SS, wh, lt. green, f. gr., sub-ang, calcareous, p. dev. to no vis. porosity, no shows, no fluor, no odor, no staining.

SS, wh, lt. gry, f. gr., sub-ang, calcareous, p. dev. to no vis. porosity, no shows, no fluor, no odor, no staining.

Vis. 55
Wt. 9.3
LCM 14#

Winter Mud report
@ 6510'
Wt. 9.2
Vis. 65
W.L. 6.8
PH 11.0
Chl. 2500
LCM 10#

Vis. 55
Wt. 9.2
LCM 11#



SS, wh, lt. green, f-m gr., sub-ang, calcareous, p. dev. to no vis. porosity, no shows, no fluor, no odor, no staining.

Sh, drk. gry. to black. carb.

Ste Gen. 6612 (-3621)

Ls, buff-wh, v. sandy w/ f-m gr. sub-rd. sand, no vis. porosity, no shows, no fluor, no odor, no stain.

Ls, buff-wh, v. sandy w/ f-m gr. sub-rd. sand, no vis. porosity, no shows, no fluor, no odor, no stain.

Ls, tan, red-brn, v. sandy w/ f-m gr. sub-rd. sand, no vis. porosity, no shows, no fluor, no odor, no stain.

Ls, wh, tan, red-brn, v. sandy w/ f-m gr. sub-rd. sand, no vis. porosity, no shows, no fluor, no odor, no stain, w/ abdt. brick-red siltstone.

Ls, wh, tan, red-brn, v. sandy w/ f-m gr. sub-rd. sand, no vis. porosity, no shows, no fluor, no odor, no stain, w/ abdt. brick-red siltstone.

Note: First occurrence of Ste. Genevieve in 6650' sample

Winter Mud report
@ 6690'
Wt. 8.9
Vis. 56
W.L. 5.8
PH 10.5
Chl. 2,000
LCM 18#