

Saman Sharifaie

Petroleum Geologist

GEOLOGIST'S REPORT DRILLING TIME AND SAMPLE LOG

COMPANY Atlas Operating, LLC
LEASE Garden #17-20
FIELD Darmme
LOCATION 1650' FNL & 990' FEL
SEC 20 **TWSP** 22S **RGE** 33W
COUNTY Finney **STATE** Kansas
CONTRACTOR Pioneer Drilling #2
SPUD 07/18/12 **COMP** 07/31/12
RTD 4888' **LTD** 4912'
MUD UP 3500' **TYPE MUD** Chemical
SAMPLES SAVED FROM 3900' **TO** RTD
DRILLING TIME KEPT FROM 3650' **TO** RTD
SAMPLES EXAMINED FROM 3900' **TO** RTD
GEOLOGICAL SUPERVISION FROM 3800'
REFERENCE WELL Garden City #1-20

ELEVATIONS

KB 2892'
DF _____
GL 2884'

Measurements Are All From Kelly Bushing

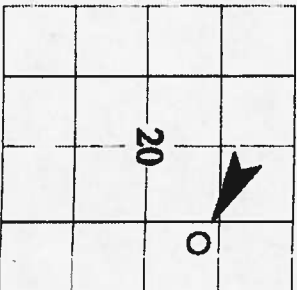
CASING

CONDUCTOR _____
SURFACE 8-5/8" at 343'
PRODUCTION 4-1/2" at 4912'

ELECTRICAL SURVEYS CND; DIL; MEL

Pioneer

| Formation | Sample Tops | E-log Tops | Struct. Pos. |
|---------------|--------------|--------------|--------------|
| Heebner Shale | 3798 (-906) | 3798 (-906) | -7 |
| Lansing | 3836 (-944) | 3840 (-948) | -9 |
| BKC | 4300 (-1408) | 4307 (-1415) | -7 |
| Pavnee | 4402 (-1510) | 4410 (-1518) | -11 |
| Ft. Scott | 4429 (-1537) | 4436 (-1544) | -11 |
| Cherokee | 4446 (-1554) | 4454 (-1562) | -10 |
| Morrow Sh | 4638 (-1746) | 4638 (-1746) | -4 |
| St Genevieve | 4667 (-1775) | 4677 (-1885) | -15 |
| St. Louis | 4734 (-1842) | 4727 (-1835) | +2 |



REMARKS Due to oil shows in multiple pay zones it is recommended and agreed upon that production casing be set to further evaluate this well.

Respectfully Submitted,

API #15-055-22169

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Engineering Data

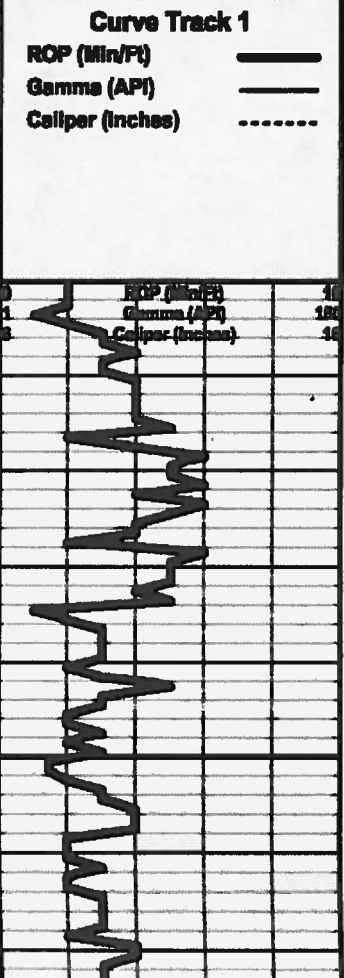
TG (Units) _____
C1 (units) _____
C2 (units) _____
C3 (units) _____
C4 (units) _____
C5 (units) _____

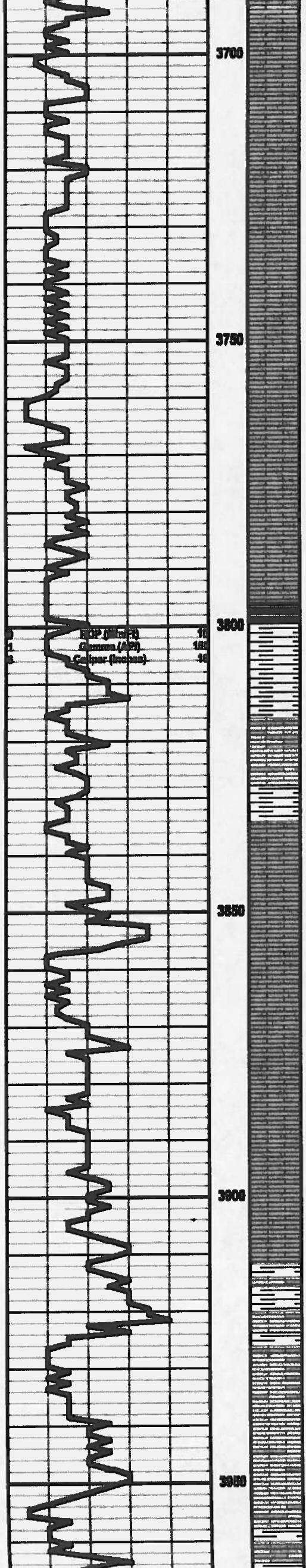
Geological Descriptions

log depth

depth

3650 3700





3700
3750
3800
3850
3900
3950

0
1
2
 ROP (Mm/ft) 10
 Density (lb/ft³) 130
 C_{log} (inches) 30

Index @ 3702
 Wt : 8.0
 Vis : 48
 WT : 8.0
 Chl : 21.00
 LCM : 30
 70, 61.08 100

Heebner 3798 (-906)

Toronto 3809 (-917)

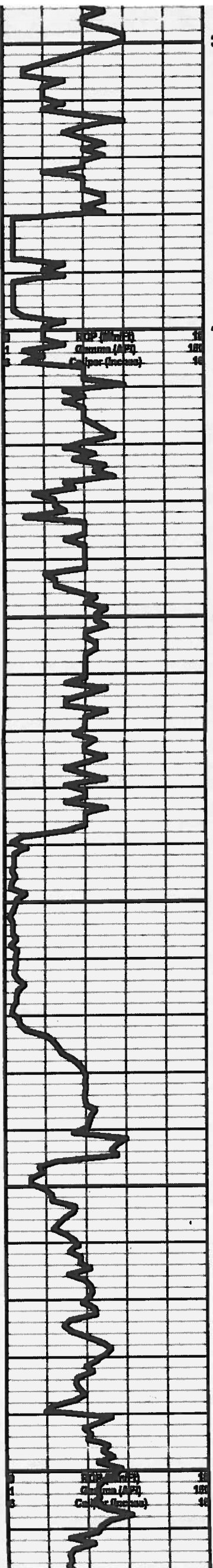
Lansing 3836 (-944)

Ls., crm, sing, f to microxdn, Tr qtz, n/s

 Sh., blk, sily

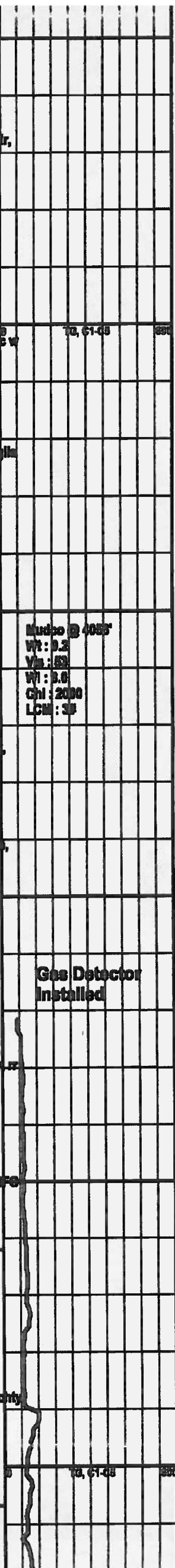
 Ls., crm/tan, sing, f gr, sbang, Tr glauc, n/s

 Ls., a.n



3950
Ls., s.s.
Ls., crm/lan, sing, f to med gr, intgran por, rr dd O str, all odr, no fluor, NSFO
4000
Ls., crm/lan, sing, srt'd, vug & intgran por, fesi IP, Tr pyr, brec w qtz, n/s
Ls., crm, sing, vug & frae por, andy to sub-chky, chty IP, rr gla str, lrd, Tr cut fluor, SFO
Sh., blk carb
4050
Chk., wht/bm, fra to all whtd, ang, fesi, V rr dd O str, no odr, no fluor, NSFO
Sh., blk carb
Ls., whtcrn/lan, sing, f to med gr, intgran por, andy to chky, chty, pyr IP, glauc, all odr, NSFO
Ls., whtcrn/lan, sing, Ool, fesi & intgran por, abund gils str, gd odr, gd cut fluor, SFO
4100
Ls., s.s., brec, gd SLFO
Ls., crm/lan, sing, f to microtin, Ool, abund fesi por, vuggy rr gla str, fluor IP, SFO
4150
Ls., crm, sing, f gr, Ool, vug por, chky, no odr, Tr fluor, all SFO
Sh., blk carb
Ls., s.s., NSFO
Ls., crm/lan, vf gr, sub-chky to chky, abund fesi por, brec, chty IP, rr dd O str, Tr fluor, NSFO
4200
Sh., blk carb

4000
4050
4100
4150
4200

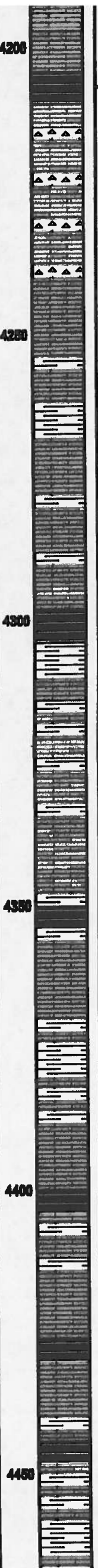
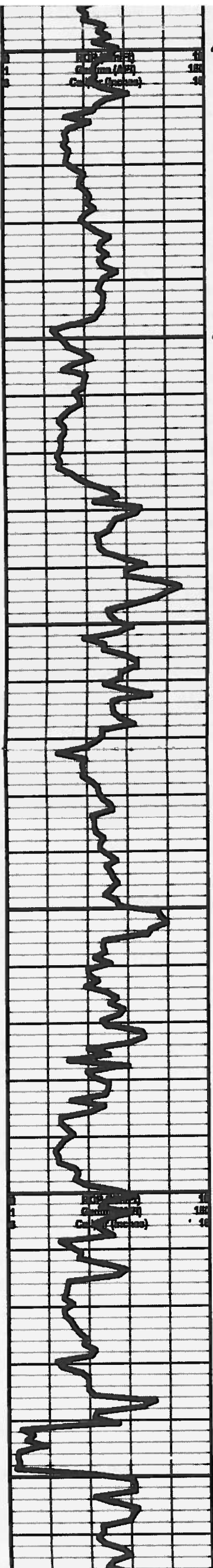


Mudco @ 4055'
Wt: 9.2
Va: 62
Wl: 3.0
Chl: 2000
LCM: 38

Gas Detector
Installed

KC "A" 4162 (-1270)

KC "B" 4207 (-1315)



Sh., blk carb **KC "B" 4207 (-1315)**

Ls., tan/bn, mott, med gr, abund Col, fesi por, Tr Cht, Tr pyr, ang, brcc, no odr, Tr fluor, n/s

Ls., a.a

Sh., varic, silty **KC "C" 4273 (-1381)**

Ls., crm/bn/gry, sing to mott, f to microxdn, frac por, fesi, brcc, sub-chky, sil G odr, n/s **BKC 4300 (-1408)**

Sh., blk carb

Sh., varic, silty to chky, fria

Ls., crm/bn, sing, vf gr, frac por, fesi, glauc, Tr Cht, sil G odr, n/s

Ls., a.a, sil mott, incr fesi

Sh., blk carb

Ls., tan, mott, fesi, ang, n/s

Sh., varic, silty

Pawnee 4402 (-1510)

Sh., blk carb

Ls., crm/bn, mott, fesi por, chky IP, pyr IP, n/s

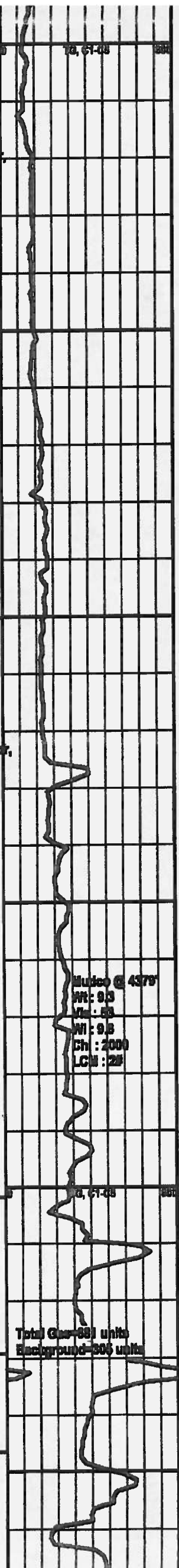
Sh., blk carb **Ft Scott 4429 (-1537)**

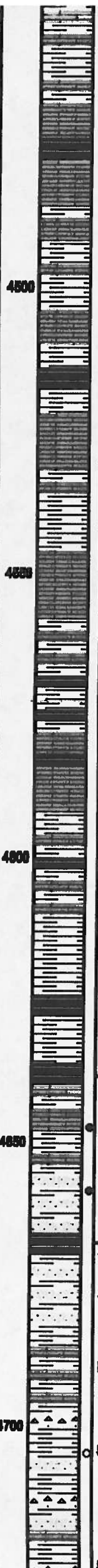
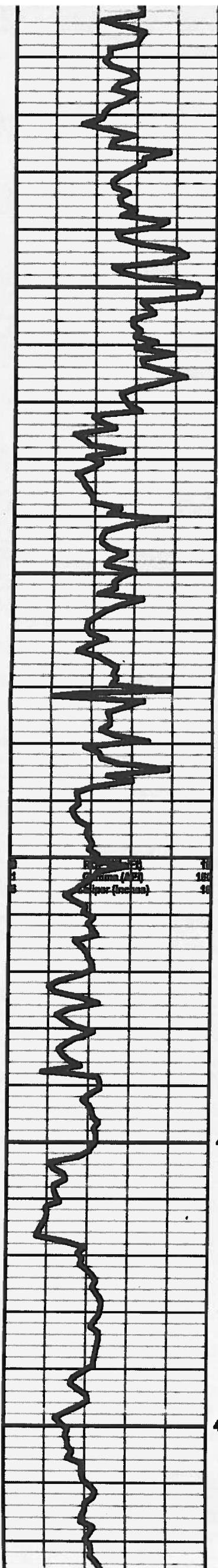
Ls., a.a, chky IP, r G Bubs

Cherokee 4446 (-1554)

Sh., blk carb

Sh., varic, fria to argil





Sh., varic, fra to argil

Sh., blk carb

Ls., crm/tan, med, f gr, intgran & frac por, fecal, sub-chky, n/s

4500 Sh., varic, silty

Sh., blk carb

Ls., crm/tan, sing, f to microdn, n/s

Sh., gry, silty

4600 Ls., crm/tan, sing, med gr, intgran por, endy, Tr Cht, n/s

Sh., varic/blk carb, silty

Ls., a.a

4650 Sh., varic

Sh., varic/blk carb, fra

Sh., blk carb

Morrow Sh 4638 (-1746)

Sh., blk carb

4680 Ls., tan, sing, f gr, intgran & fecal por, vuggy, Tr gils str, gd out fluor, fr SFO

SS., blk/whit, f gr, rmd, intgran por, gn spkd, Tr Cht, O std, sil, odr, fluor, SLFO

St Genevieve 4667 (-1775)

Sh., blk carb

SS., a.a, gd SLFO

Ls., whit/crm, f to lg gr, pr strd, intgran por, n/s

4700 Sh., varic, silty, pyr, Tr Cht w pr SFO

Sh., a.a, Incr Cht



Total Gas - 440 units
Background - 380 units

