



Musgrove

**PETROLEUM
CORPORATION**
Clifflin, Kansas

COMPANY: H&D Exploration LLC

LEASE: Bartlett / Zeigler #1

FIELD: wildcat

LOCATION: E2-SE-SE-NW (2310' FNL & 2648' FEL)

SEC: 29 **TWSP:** 25s **RGE:** 12w

COUNTY: Stafford **STATE:** Kansas

KB: 1886 **GL:** 1878

API # 15-185-23827-00-00

CONTRACTOR: Southwind Drilling Company (Rig #6)

Spud: 08-07-2013 **Comp:** 08-16-2013

RTD: 4275' **LTD:** 4275'

Mud Up: 2800' **Type Mud:** Chemical was displaced

Samples Saved From: 3200' to RTD
Drilling Time Kept From: 3200' to RTD
Samples Examined From: 3200' to RTD
Geological Supervision From: 3380' to RTD
Geologist on Well: Josh Austin

Surface Casing: 8 5/8" @ 698'
Production Casing: 5 1/2"

Electronic Surveys: By Pioneer Energy Services cnl/cdl, dil, micro, sonic

NOTES

On the basis of the drill stem test and after reviewing the electric logs it was recommended by all parties involved that 5 1/2" production casing be set and cemented at the rotary total depth 4275'

Log Tops

Heebner 3422 (-1536)
 Toronto 3440 (-1554)
 Douglas Shale 3460 (-1574)
 Douglas Sand 3483 (-1597)
 Brown Lime 3588 (-1702)
 Lansing 3608 (-1722)
 BKC 3898 (-2012)
 Mississippi 4004 (-2118)
 Viola 4063 (-2177)
 Simpson Shale 4147 (-2261)
 Simpson Sand 4162 (-2276)
 Arbuckle 4228 (-2342)
 LTD 4275 (-2389)



DIAMOND TESTING
 P.O. Box 157
 HOISINGTON, KANSAS 67544
 (800) 542-7313
DRILL-STEM TEST TICKET
 FILE: barzeig1dst1

TIME ON: 10:25:00
 TIME OFF: 18:05:00

Company H&D Exploration, LLC Lease & Well No. Bartlett/Zeigler #1
 Contractor Southwind #6 Charge to H&D Exploration, LLC
 Elevation 1886 Formation "B" Effective Pay _____ Ft. Ticket No. K016
 Date 8-12-13 Sec. 29 Twp. 25 S Range 12 W County Stafford State KANSAS
 Test Approved By Josh Austin Diamond Representative Jason McLemore

Formation Test No. 1 Interval Tested from 3620 ft. to 3650 ft. Total Depth 3650 ft.

Packer Depth 3615 ft. Size 6 3/4 in. Packer depth _____ ft. Size 6 3/4 in.

Packer Depth 3620 ft. Size 6 3/4 in. Packer depth _____ ft. Size 6 3/4 in.

Depth of Selective Zone Set _____

Top Recorder Depth (Inside) 3608 ft. Recorder Number 5513 Cap. 5000 P.S.I.

Bottom Recorder Depth (Outside) 3617 ft. Recorder Number 13306 Cap. 4825 P.S.I.

Below Straddle Recorder Depth _____ ft. Recorder Number _____ Cap. _____ P.S.I.

Mud Type Chemical Viscosity 53 Drill Collar Length 0 ft. I.D. 2 1/4 in.

Weight 9.4 Water Loss 8.8 cc. Weight Pipe Length 0 ft. I.D. 2 7/8 in.

Chlorides 4000 P.P.M. Drill Pipe Length 3595 ft. I.D. 3 1/2 in.

Jars: Make STERLING Serial Number N/A Test Tool Length 25 ft. Tool Size 3 1/2-IF in.

Did Well Flow? NO Reversed Out no Anchor Length 30 ft. Size 4 1/2-FH in.

Main Hole Size 7 7/8 Tool Joint Size 4 1/2 XH in. Surface Choke Size 1 in. Bottom Choke Size 5/8 in.

Blow: 1st Open: Strong, BOB in 13 Sec. GTS in 9 Min. Gaging Gas, No Return Blow

2nd Open: Strong, BOB on Open, Gaging Gas, Return Blow Built to 1/4"

Recovered 75 ft. of GOCWM 25%G, 15%O, 10%W, 50%M

Recovered 150 ft. of GOCMW 35%G, 25%O, 30%W, 10%M

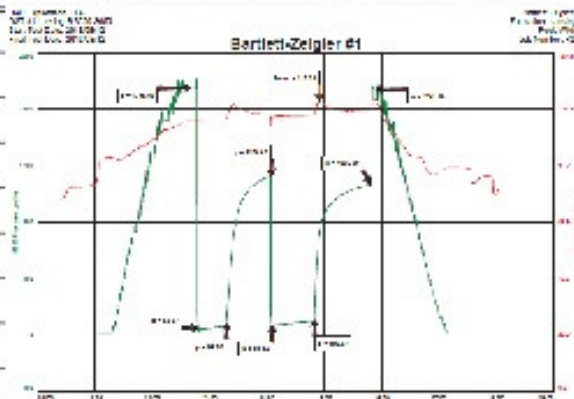
Recovered 30 ft. of SOCMW 6%O, 91%W, 3%M

Recovered 255 ft. of Total Fluid

Recovered _____ ft. of CHLORIDES: 95000

Recovered _____ ft. of PH: 7

Remarks: RW .095 @ 68



Time Set Packer(s) 12:50 PM A.M. P.M. Time Started Off Bottom 3:50 PM A.M. P.M. Maximum Temperature 120

Initial Hydrostatic Pressure..... (A) 1749 P.S.I.

Initial Flow Period..... Minutes 30 (B) 50 P.S.I. to (C) 85 P.S.I.

Initial Closed In Period.....	Minutes	45	(D)	1124	P.S.I.
Final Flow Period.....	Minutes	45	(E)	69	P.S.I. to (F) 110 P.S.I.
Final Closed In Period.....	Minutes	60	(G)	1065	P.S.I.
Final Hydrostatic Pressure.....			(H)	1742	P.S.I.



DIAMOND TESTING
P.O. Box 157
HOISINGTON, KANSAS 67544
(800) 542-7313
DRILL-STEM TEST TICKET
FILE: barzeig1dst2

TIME ON: 13:49:00
TIME OFF: 21:00:00

Company H&D Exploration, LLC Lease & Well No. Bartlett/Zeigler #1
Contractor Southwind #6 Charge to H&D Exploration, LLC
Elevation 1886 Formation _____ I-J Effective Pay _____ Ft. Ticket No. K017
Date 8-13-13 Sec. 29 Twp. _____ 25 S Range _____ 12 W County Stafford State KANSAS
Test Approved By Josh Austin Diamond Representative Jason McLemore

Formation Test No. 2 Interval Tested from 3775 ft. to 3840 ft. Total Depth 3840 ft.

Packer Depth 3770 ft. Size 6 3/4 in. Packer depth _____ ft. Size 6 3/4 in.

Packer Depth 3775 ft. Size 6 3/4 in. Packer depth _____ ft. Size 6 3/4 in.

Depth of Selective Zone Set _____

Top Recorder Depth (Inside) 3763 ft. Recorder Number 5513 Cap. 5000 P.S.I.

Bottom Recorder Depth (Outside) 3772 ft. Recorder Number 13306 Cap. 4625 P.S.I.

Below Straddle Recorder Depth _____ ft. Recorder Number _____ Cap. _____ P.S.I.

Mud Type Chemical Viscosity 44 Drill Collar Length 0 ft. I.D. 2 1/4 in.

Weight 9.3 Water Loss 9.0 cc. Weight Pipe Length 0 ft. I.D. 2 7/8 in.

Chlorides 5000 P.P.M. Drill Pipe Length 3750 ft. I.D. 3 1/2 in.

Jars: Make STERLING Serial Number N/A Test Tool Length 25 ft. Tool Size 3 1/2-IF in.

Did Well Flow? NO Reversed Out no Anchor Length 65 ft. Size 4 1/2-FH in.

Main Hole Size 7 7/8 Tool Joint Size 4 1/2 XH in. Surface Choke Size 1 in. Bottom Choke Size 5/8 in.

Blow: 1st Open: Fair Blow, Built to 7". No Return Blow

2nd Open: Good Blow, BOB in 28 Min. No Return Blow

Recovered 65 ft. of VSOCM, 1%O, 99%M

Recovered 65 ft. of Total Fluid

Recovered _____ ft. of _____

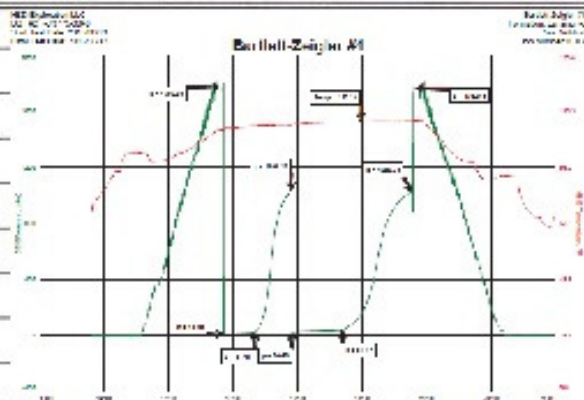
Recovered _____ ft. of _____

Recovered _____ ft. of _____

Recovered _____ ft. of _____

Recovered _____ ft. of _____

Remarks: _____



Time Set Packer(s) 3:49 PM A.M. P.M. Time Started Off Bottom 6:34 PM A.M. P.M. Maximum Temperature 112

Initial Hydrostatic Pressure..... (A) 1769 P.S.I.

Initial Flow Period..... Minutes 30 (B) 10 P.S.I. to (C) 21 P.S.I.

Initial Closed In Period..... Minutes 30 (D) 1036 P.S.I.

Final Flow Period..... Minutes 45 (E) 24 P.S.I. to (F) 37 P.S.I.

Final Closed In Period..... Minutes 60 (G) 1027 P.S.I.

Final Hydrostatic Pressure..... (H) 1762 P.S.I.



DIAMOND TESTING
 P.O. Box 157
 HOISINGTON, KANSAS 67544
 (800) 542-7313
DRILL-STEM TEST TICKET
 FILE: barzeig1dst3

TIME ON: 13:18
 TIME OFF: 20:17

Company H&D Exploration, LLC Lease & Well No. Bartlett/Zeigler #1
 Contractor Southwind #6 Charge to H&D Exploration, LLC
 Elevation 1886 Formation Mississippi Effective Pay _____ Ft. Ticket No. K018
 Date 8-14-13 Sec. 29 Twp. 25 S Range 12 W County Stafford State KANSAS
 Test Approved By Josh Austin Diamond Representative Jason McLemore

Formation Test No. 3 Interval Tested from 3945 ft. to 4045 ft. Total Depth 4045 ft.
 Packer Depth 3940 ft. Size 6 3/4 in. Packer depth _____ ft. Size 6 3/4 in.
 Packer Depth 3945 ft. Size 6 3/4 in. Packer depth _____ ft. Size 6 3/4 in.

Depth of Selective Zone Set _____
 Top Recorder Depth (Inside) 3933 ft. Recorder Number 5513 Cap. 5000 P.S.I.
 Bottom Recorder Depth (Outside) 3942 ft. Recorder Number 13306 Cap. 4625 P.S.I.
 Below Straddle Recorder Depth _____ ft. Recorder Number _____ Cap. _____ P.S.I.

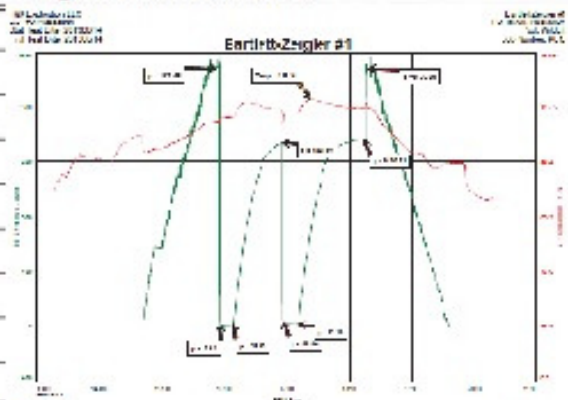
Mud Type Chemical Viscosity 43 Drill Collar Length 0 ft. I.D. 2 1/4 in.
 Weight 9.3 Water Loss 9.6 cc. Weight Pipe Length 0 ft. I.D. 2 7/8 in.
 Chlorides 5000 P.P.M. Drill Pipe Length 3920 ft. I.D. 3 1/2 in.
 Jars: Make STERLING Serial Number N/A Test Tool Length 25 ft. Tool Size 3 1/2-IF in.
 Did Well Flow? NO Reversed Out no Anchor Length 100 ft. Size 4 1/2-FH in.
 Main Hole Size 7 7/8 Tool Joint Size 4 1/2 XH in. Surface Choke Size 1 in. Bottom Choke Size 5/8 in.

Blow: 1st Open: Strong, BOB in 1 Min. No Return Blow

2nd Open: Strong, BOB on Open, GTS in 5 Min. Too Weak To Gage, No Return Blow

Recovered 45 ft. of Drilling Mud
 Recovered 45 ft. of Total Fluid
 Recovered _____ ft. of _____
 Recovered _____ ft. of _____
 Recovered _____ ft. of _____
 Recovered _____ ft. of _____

Remarks: _____



Time Set Packer(s) 3:55 PM A.M. P.M. Time Started Off Bottom 6:10 PM A.M. P.M. Maximum Temperature 119
 Initial Hydrostatic Pressure..... (A) 1879 P.S.I.
 Initial Flow Period..... Minutes 15 (B) 16 P.S.I. to (C) 24 P.S.I.
 Initial Closed In Period..... Minutes 45 (D) 1340 P.S.I.
 Final Flow Period..... Minutes 15 (E) 39 P.S.I. to (F) 23 P.S.I.
 Final Closed In Period..... Minutes 60 (G) 1368 P.S.I.
 Final Hydrostatic Pressure..... (H) 1876 P.S.I.



DIAMOND TESTING
 P.O. Box 157
 HOISINGTON, KANSAS 67544
 (800) 542-7313
DRILL-STEM TEST TICKET
 FILE: barzeig1dst3

TIME ON: 10:25
 TIME OFF: 17:28:00

Company H&D Exploration, LLC Lease & Well No. Bartlett/Zeigler #1
 Contractor Southwind #6 Charge to H&D Exploration, LLC
 Elevation 1886 Formation Simpson Sand Effective Pay _____ Ft. Ticket No. K019
 Date 8-15-13 Sec. 29 Twp. 25 S Range 12 W County Stafford State KANSAS
 Test Approved By Josh Austin Diamond Representative Jason McLemore

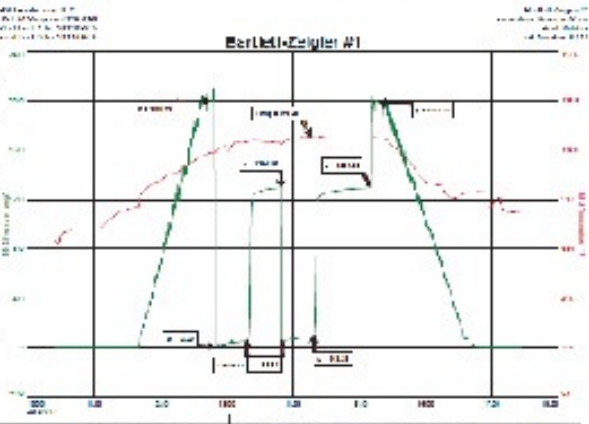
Formation Test No. 4 Interval Tested from 4128 ft. to 4180 ft. Total Depth 4180 ft.
 Packer Depth 4123 ft. Size 6 3/4 in. Packer depth _____ ft. Size 6 3/4 in.
 Packer Depth 4128 ft. Size 6 3/4 in. Packer depth _____ ft. Size 6 3/4 in.

Depth of Selective Zone Set _____
 Top Recorder Depth (Inside) 4121 ft. Recorder Number 5513 Cap. 5000 P.S.I.
 Bottom Recorder Depth (Outside) 4125 ft. Recorder Number 13306 Cap. 4625 P.S.I.
 Below Straddle Recorder Depth _____ ft. Recorder Number _____ Cap. _____ P.S.I.

Mud Type Chemical Viscosity 51 Drill Collar Length 0 ft. I.D. 2 1/4 in.
 Weight 9.4 Water Loss 8.8 cc. Weight Pipe Length 0 ft. I.D. 2 7/8 in.
 Chlorides 4000 P.P.M. Drill Pipe Length 4103 ft. I.D. 3 1/2 in.
 Jars: Make STERLING Serial Number N/A Test Tool Length 25 ft. Tool Size 3 1/2-IF in.
 Did Well Flow? NO Reversed Out no Anchor Length 52 ft. Size 4 1/2-FH in.
 Main Hole Size 7 7/8 Tool Joint Size 4 1/2 XH in. 31' DP in Anchor Surface Choke Size 1 in. Bottom Choke Size 5/8 in.

Blow: 1st Open: Weak Blow, Built to 2-1/4", No Return Blow
2nd Open: Weak Blow, Built to 4-1/2", No Return Blow

Recovered 170 ft. of Watery Mud
 Recovered 170 ft. of Total Fluid
 Recovered _____ ft. of _____
 Recovered _____ ft. of _____
 Recovered _____ ft. of _____
 Recovered _____ ft. of _____



Remarks: CHLORIDES: 22000
PH: 7
RW: .360 @ 76

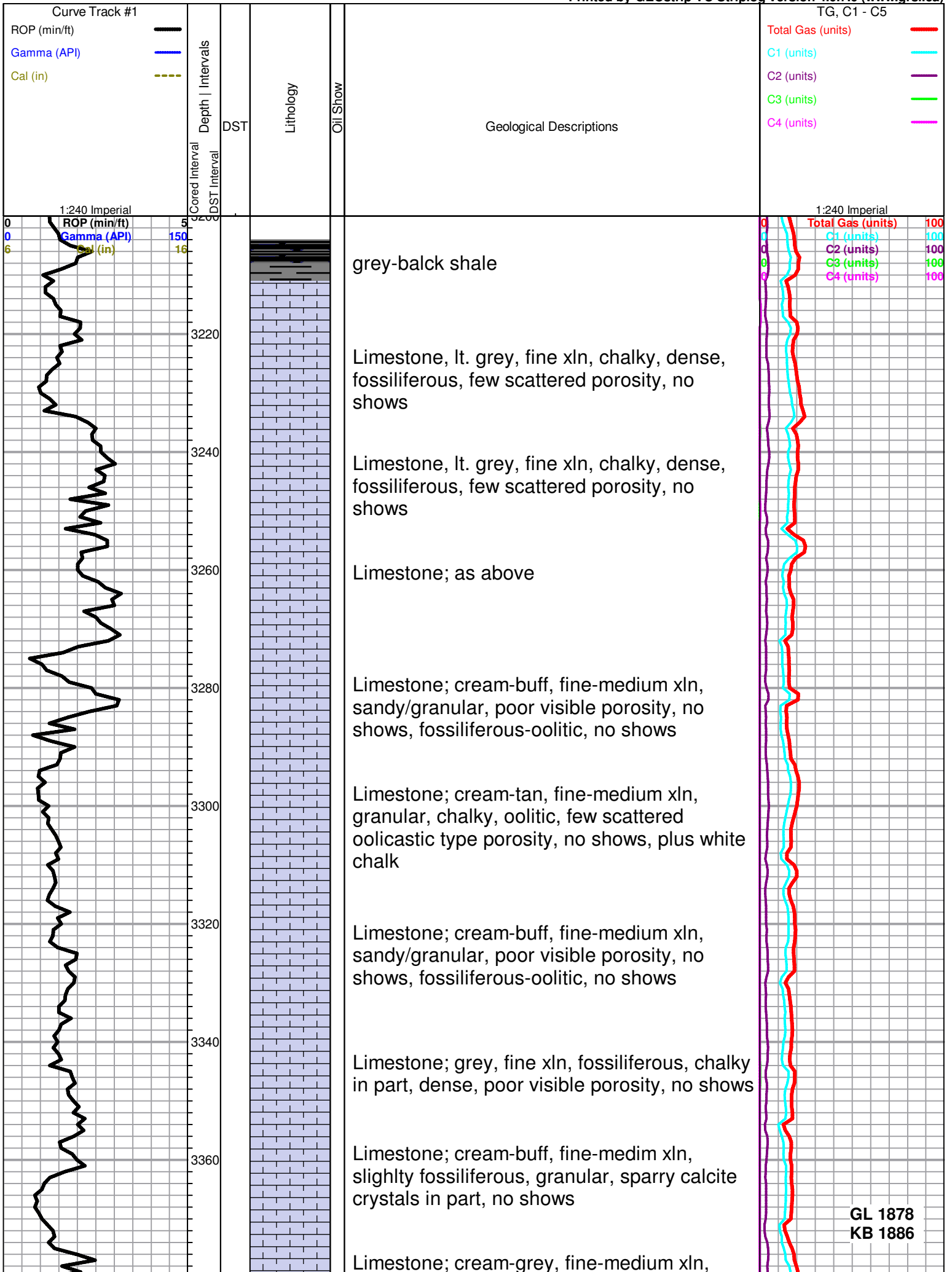
Time Set Packer(s) 12:59 PM A.M. P.M. Time Started Off Bottom 3:14 PM A.M. P.M. Maximum Temperature 120
 Initial Hydrostatic Pressure..... (A) 1996 P.S.I.
 Initial Flow Period..... Minutes 30 (B) 12 P.S.I. to (C) 55 P.S.I.
 Initial Closed In Period..... Minutes 30 (D) 1295 P.S.I.
 Final Flow Period..... Minutes 30 (E) 60 P.S.I. to (F) 103 P.S.I.
 Final Closed In Period..... Minutes 45 (G) 1295 P.S.I.
 Final Hydrostatic Pressure..... (H) 1984 P.S.I.

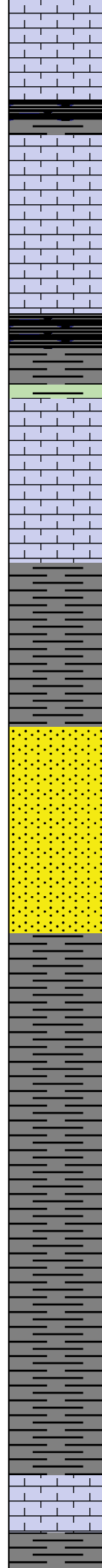
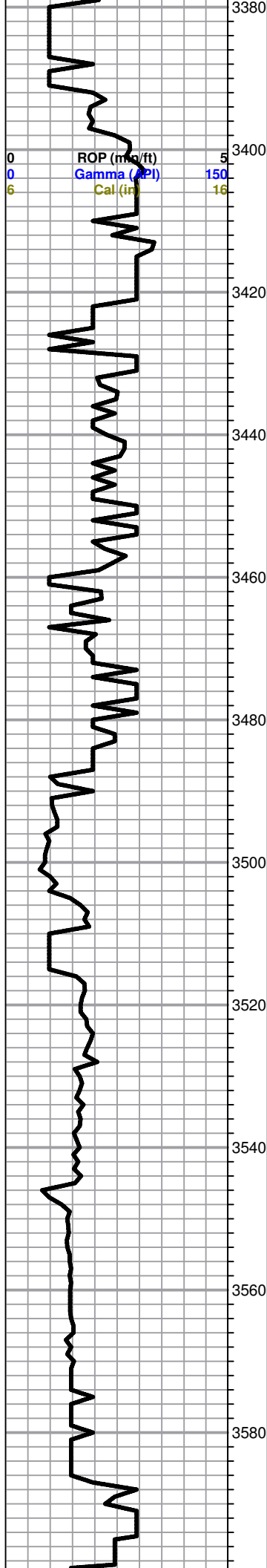
ROCK TYPES

- △△△△ Cht
- ▨ Dolsec
- ▬ shale, grn
- ▬ Carbon Sh
- Chtcong
- ▬ Lmst fw7>
- ▬ shale, gry
- Ss

OTHER SYMBOLS

- Even Stn
- DST Int
- Spotted Stn 50-75
- DST alt
- Spotted Stn 25-50
- Core
- Spotted Stn 1-25
- tail pipe
- Questionable Stn
- D Dead Oil Stn
- Fluorescence
- * Gas





chalky, granular, scattered porosity, no shows

Limestone; tan, fine-medium xln, slightly fossiliferous, dense, plus grey-white boney Chert

Limestone; as above plus grey-white boney Chert

HEEBNER 3422 (-1536)

black carboniferous shale

TORONTO 3436 (-1550)

Limestone; white-cream, fine-medium xln, chalky, few pin point type porosity, no shows

DOUGLAS 3459 (-1573)

Shale; grey-green-maroon, soft, silty in part, few micaceous pieces

Shale; grey-greyish green, micaceous in part, silty, few sandy pieces

DOUGLAS SAND 3484 (-1598)

Sand; grey-lt grey, friable, few sub angular, fine grained, micaceous, no shows

Sand as above plus soft grey-dark grey Shale

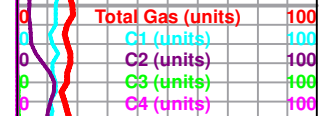
Shale; grey-greyish green, micaceous in part, silty, few sandy pieces

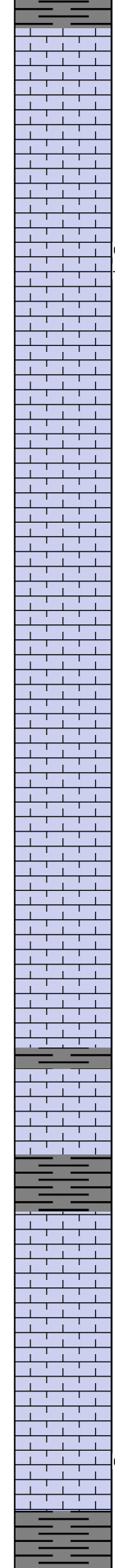
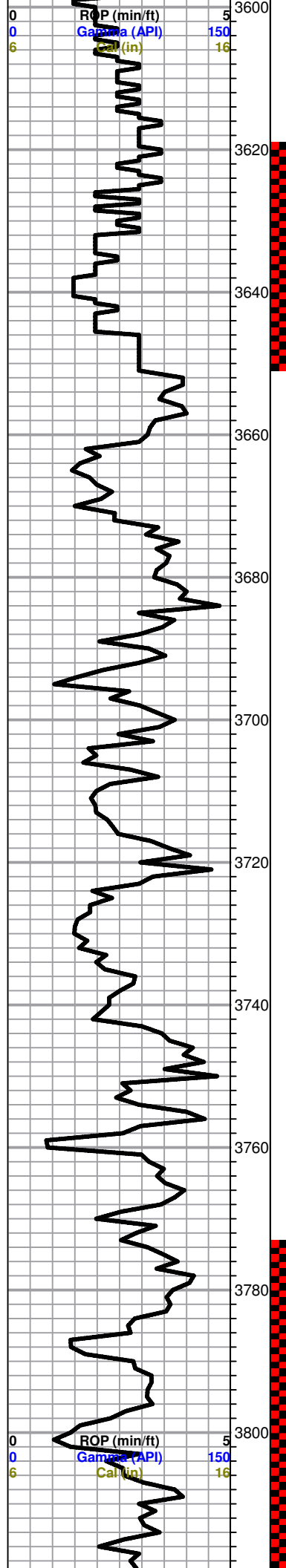
Shale; grey, soft micaceous, silty in part

Shale; as above

BROWN LIME 3587 (-1701)

Limestone; tan-brown, fine xln, dense, cherty in part, fossiliferous





grey-dark grey-green shale

LANSING 3607 (-1721)

Limestone; cream-lt. grey, fine xln, highly fossiliferous-oolitic in part, dense, chalky, trace lt. brown stain, NSFO, no odor

● * Limestone; grey-cream, fine xln, inter xln porosity, few vuggy pieces, brown-grey stain, spotty SFO, fair odor

Limestone; cream-buff, fine-medium xln, dense

Limestone; cream-white, fine xln, dense, few scattered porosity, plus sparry calcite, trace brown-dark brown stain, NSFO, no odor

Limestone; cream, fine xln, chalky in part, inter xln porosity, brown stain, trace free oil, faint odor

Limestone; grey-cream-buff, fine xln, dense, slightly cherty, few inter xln type porosity, dark brown stain, trace free oil, faint odor

Limestone; cream, fine xln, chalky, plus chert cream, boney, fossiliferous

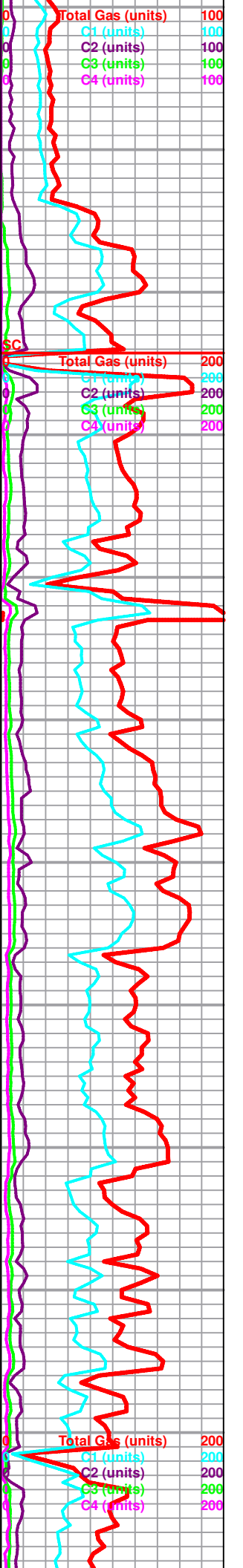
Limestone; cream-buff, fine xln, dense, sparry calcite inclusions, plus grey-buff-cream, boney Chert

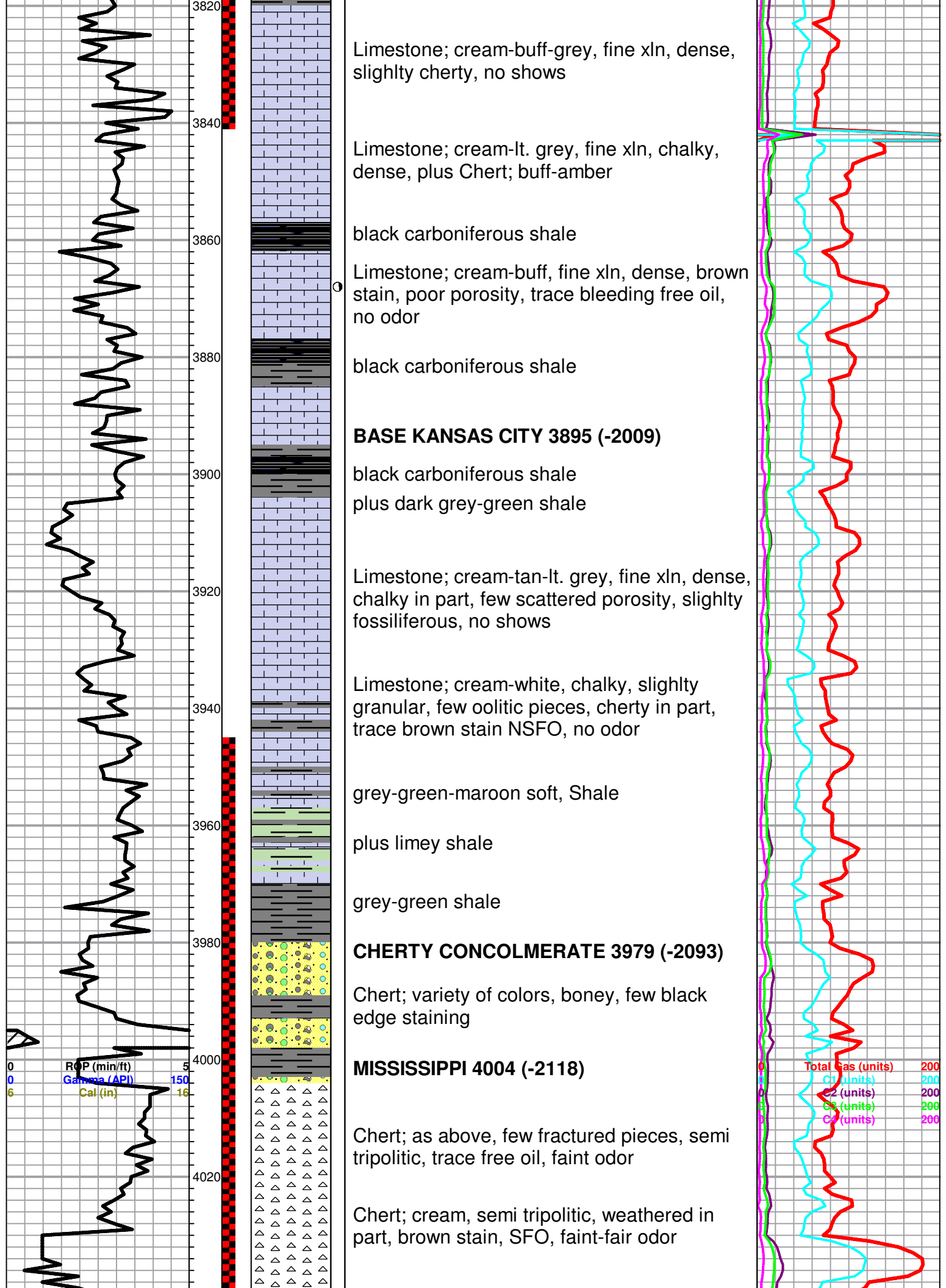
Limestone; cream-grey, fine xln, dense, plus oomoldic porosity, barren

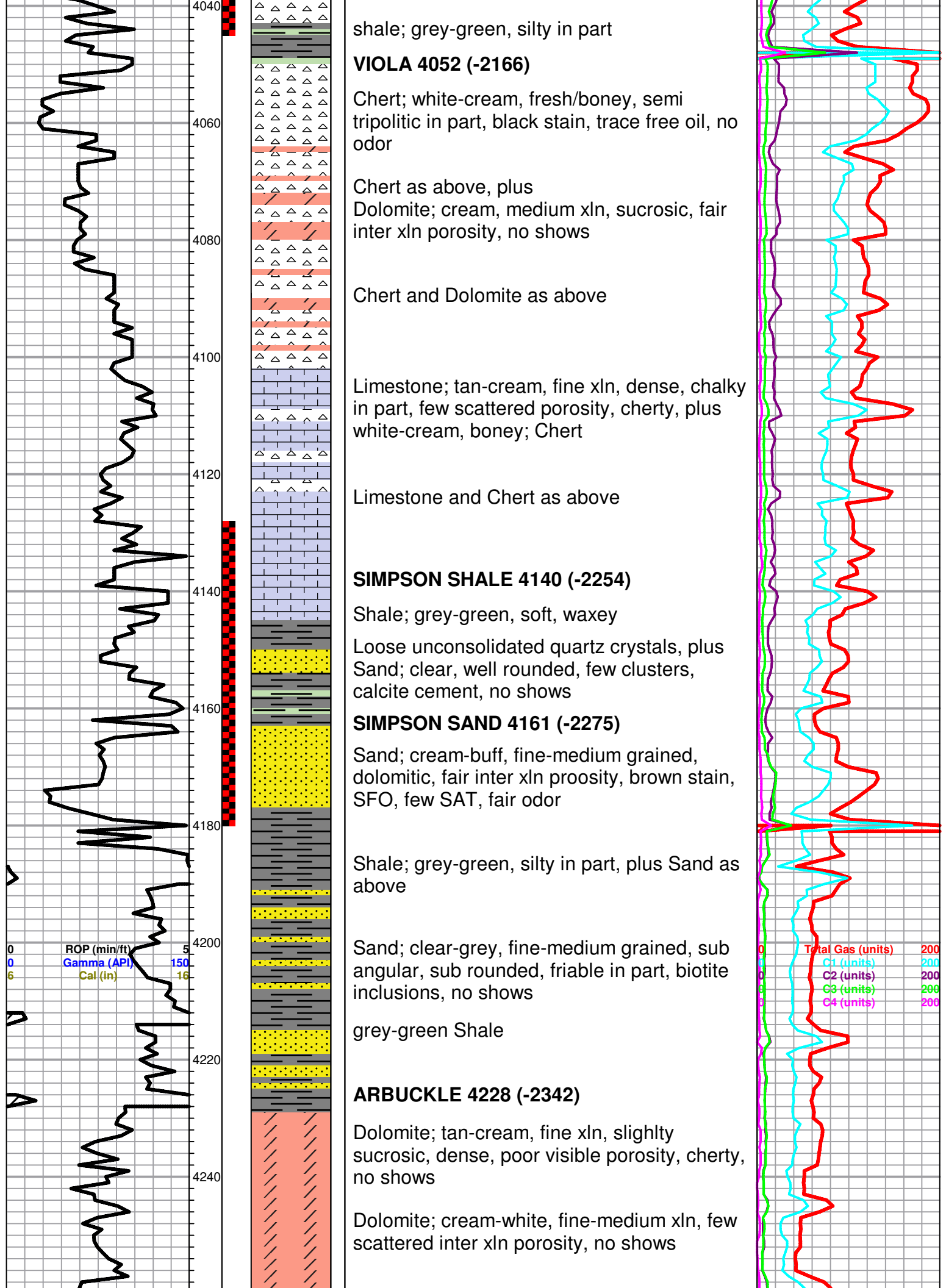
Limestone; cream-white, fine-medium xln, chalky, oolitic in part, black stain, questionable trace free oil, very faint odor

Limestone; cream, fine xln, sparry calcite, scattered porosity, brown-dark brown stain, SFO, few pieces SAT, faint odor

● Limestone; cream-grey, fine xln, fossiliferous-oolitic, good vuggy type porosity, brown stain, SFO, fair-good odor







shale; grey-green, silty in part

VIOLA 4052 (-2166)

Chert; white-cream, fresh/boney, semi tripolitic in part, black stain, trace free oil, no odor

Chert as above, plus Dolomite; cream, medium xln, sucrosic, fair inter xln porosity, no shows

Chert and Dolomite as above

Limestone; tan-cream, fine xln, dense, chalky in part, few scattered porosity, cherty, plus white-cream, boney; Chert

Limestone and Chert as above

SIMPSON SHALE 4140 (-2254)

Shale; grey-green, soft, waxey

Loose unconsolidated quartz crystals, plus Sand; clear, well rounded, few clusters, calcite cement, no shows

SIMPSON SAND 4161 (-2275)

Sand; cream-buff, fine-medium grained, dolomitic, fair inter xln proosity, brown stain, SFO, few SAT, fair odor

Shale; grey-green, silty in part, plus Sand as above

Sand; clear-grey, fine-medium grained, sub angular, sub rounded, friable in part, biotite inclusions, no shows

grey-green Shale

ARBUCKLE 4228 (-2342)

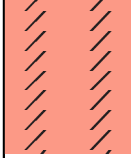
Dolomite; tan-cream, fine xln, slightly sucrosic, dense, poor visible porosity, cherty, no shows

Dolomite; cream-white, fine-medium xln, few scattered inter xln porosity, no shows

Total Gas (units) 200
 C1 (units) 200
 C2 (units) 200
 C3 (units) 200
 C4 (units) 200

ROP (min/ft) 5
 Gamma (API) 150
 Cal (in) 16

4260



Dolomite as above plus Chert; white-lt. grey

ROTARY TOTAL DEPTH 4275 (-2389)

