



# Musgrove

**PETROLEUM CORPORATION**  
Clafin, Kansas

### NOTES

Company: Palmer Oil, Inc.

Lease: UPC 23-7

Field: Willis

Location: NE-SW-SE-SW (335' FSL & 1700' FWL)

Sec: 23 Twsp: 32S Rge: 37W

County: Stevens State: Kansas

KB: 3133' GL: 3120'

API #: 15-189-22831-00-00

Contractor: Duke Drilling Inc. (Rig #9)

Spud: 01/23/2014 Comp: 01/31/2014

RTD: 6521' LTD: 6524'

Mud Up: 4500' Type Mud: Chemical

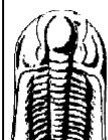
Samples Saved From: 4600' to RTD  
 Drilling Time Kept From: 4100' to RTD  
 Samples Examined From: 4600' to RTD  
 Geological Supervision from: 4600' to RTD  
 Geologist on Well: Wyatt Urban

Surface Casing: 8 5/8@1746'

Electronic Surveys: Logged by Pioneer Energy Services, DIL/BHCS, CNL/CDL, MEL

## Palmer Oil, Inc. well comparison sheet

|             | DRILLING WELL                                     |         |      |         | COMPARISON WELL                                      |         |                         |     | COMPARISON WELL  |         |                         |     |
|-------------|---|---------|------|---------|--|---------|-------------------------|-----|--|---------|-------------------------|-----|
|             | Palmer Oil- UPC 23-7<br>NE-SW-SE-SW<br>23-32S-37W |         |      |         | EOG Resources- UPC 23-2<br>SE-SW-NW-SW<br>23-32S-37W |         |                         |     | EOG Resources - 23-1 Willis<br>W2-SE-NW-SE<br>23-32S-37W |         |                         |     |
|             | 3133 KB   |         |      |         | 3123 KB  |         | Structural Relationship |     | 3122 KB  |         | Structural Relationship |     |
| Formation   | Sample  | Sub-Sea | Log  | Sub-Sea | Log  | Sub-Sea | Sample                  | Log | Log  | Sub-Sea | Sample                  | Log |
| B. Heebner  | 4144  | -1011   | 4144 | -1011   | 4145   | -1022   | 11                      | 11  | 4147   | -1025   | 14                      | 14  |
| Lansing     | 4263  | -1130   | 4263 | -1130   | 4263   | -1140   | 10                      | 10  |  |         |                         |     |
| Marmaton    | 4921  | -1788   | 4932 | -1799   | 4923   | -1800   | 1                       | 1   | 4948   | -1826   | 38                      | 27  |
| Cherokee    | 5119  | -1986   | 5122 | -1989   | 5120   | -1997   | 8                       | 8   | 5121   | -1999   | 13                      | 10  |
| Morrow      | 5636  | -2503   | 5644 | -2511   | 5638   | -2515   | 4                       | 4   | 5636   | -2514   | 11                      | 3   |
| St. Gen.    | 6209  | -3076   | 6213 | -3080   |  |         |                         |     |  |         |                         |     |
| St. Louis   | 6310  | -3177   | 6312 | -3179   |  |         |                         |     | 6356   | -3234   | 57                      | 55  |
| St. Louis B | 6390  | -3257   | 6394 | -3261   |  |         |                         |     |  |         |                         |     |
| RTD         | 6521  | -3388   | 6521 | -3388   | 6500   | -3377   | -11                     | -11 | 6590   | -3468   | 80                      | 80  |
| LTD         | 6524  | -3391   | 6524 | -3391   |  |         |                         |     |  |         |                         |     |



**TRILOBITE TESTING, INC.**

### DRILL STEM TEST REPORT

Palmer Oil Inc

23-32-37w Stevens, Ks

3118 N Cummings Rd  
Garden City, Ks

UPC #23-7

Job Ticket: 56602

DST#: 1



67846  
ATTN: Wyatt Urban

Job Ticket: 50022  
DST#: 1  
Test Start: 2014.01.30 @ 14:35:32

**GENERAL INFORMATION:**

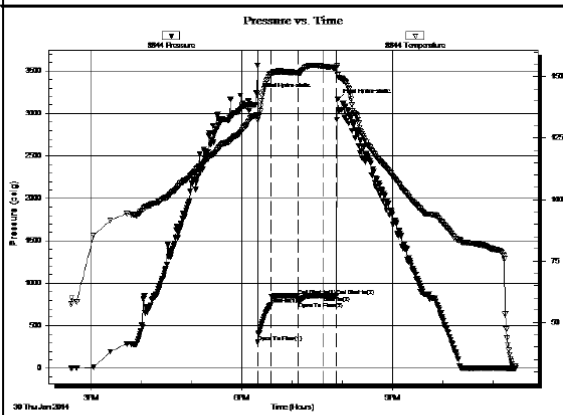
Formation: **St Louis**  
 Deviated: No Whipstock: 0.00 ft (KB)  
 Time Tool Opened: 18:18:17  
 Time Test Ended: 23:55:32  
 Test Type: Conventional Bottom Hole (Initial)  
 Tester: Shane McBride  
 Unit No: 55  
 Interval: **6345.00 ft (KB) To 6421.00 ft (KB) (TVD)**  
 Total Depth: 6421.00 ft (KB) (TVD)  
 Hole Diameter: 6.75 inches-Hole Condition: Poor  
 Reference Elevations: 3133.00 ft (KB)  
 3121.00 ft (CF)  
 KB to GR/CF: 12.00 ft

**Serial #: 8844**

**Outside**

Press@RunDepth: 855.37 psig @ 6346.00 ft (KB)  
 Capacity: 8000.00 psig  
 Start Date: 2014.01.30 End Date: 2014.01.30  
 Last Calib.: 2014.01.30  
 Start Time: 14:35:32 End Time: 23:26:32  
 Time On Btm: 2014.01.30 @ 18:17:32  
 Time Off Btm: 2014.01.30 @ 19:54:02

TEST COMMENT: Slid tool 15' to bottom B.O.B. in 1 min  
 No return  
 B.O.B. in 6 min.  
 No return



**PRESSURE SUMMARY**

| Time (Min.) | Pressure (psig) | Temp (deg F) | Annotation           |
|-------------|-----------------|--------------|----------------------|
| 0           | 3220.74         | 133.64       | Initial Hydro-static |
| 1           | 307.51          | 132.33       | Open To Flow (1)     |
| 17          | 749.89          | 151.02       | Shut-In(1)           |
| 49          | 852.14          | 151.49       | End Shut-In(1)       |
| 50          | 783.86          | 151.44       | Open To Flow (2)     |
| 80          | 855.37          | 154.17       | Shut-In(2)           |
| 95          | 855.45          | 153.55       | End Shut-In(2)       |
| 97          | 3162.74         | 150.76       | Final Hydro-static   |

**Recovery**

| Length (ft) | Description       | Volume (bbl) |
|-------------|-------------------|--------------|
| 1323.00     | w ater 100%w      | 16.88        |
| 189.00      | s m c w 10%m 90%w | 2.65         |
| 252.00      | m c w 35%m 65%w   | 3.53         |
|             |                   |              |
|             |                   |              |

**Gas Rates**

| Choke (inches) | Pressure (psig) | Gas Rate (Mcf/d) |
|----------------|-----------------|------------------|
|                |                 |                  |

**ROCK TYPES**

sdy lmst  
 Lmst fw<7  
 Lmst fw>7  
 shale, gry  
 Carbon Sh  
 shale, red  
 Ss

**ACCESSORIES**

**FOSSIL**

φ Oolite

**OTHER SYMBOLS**

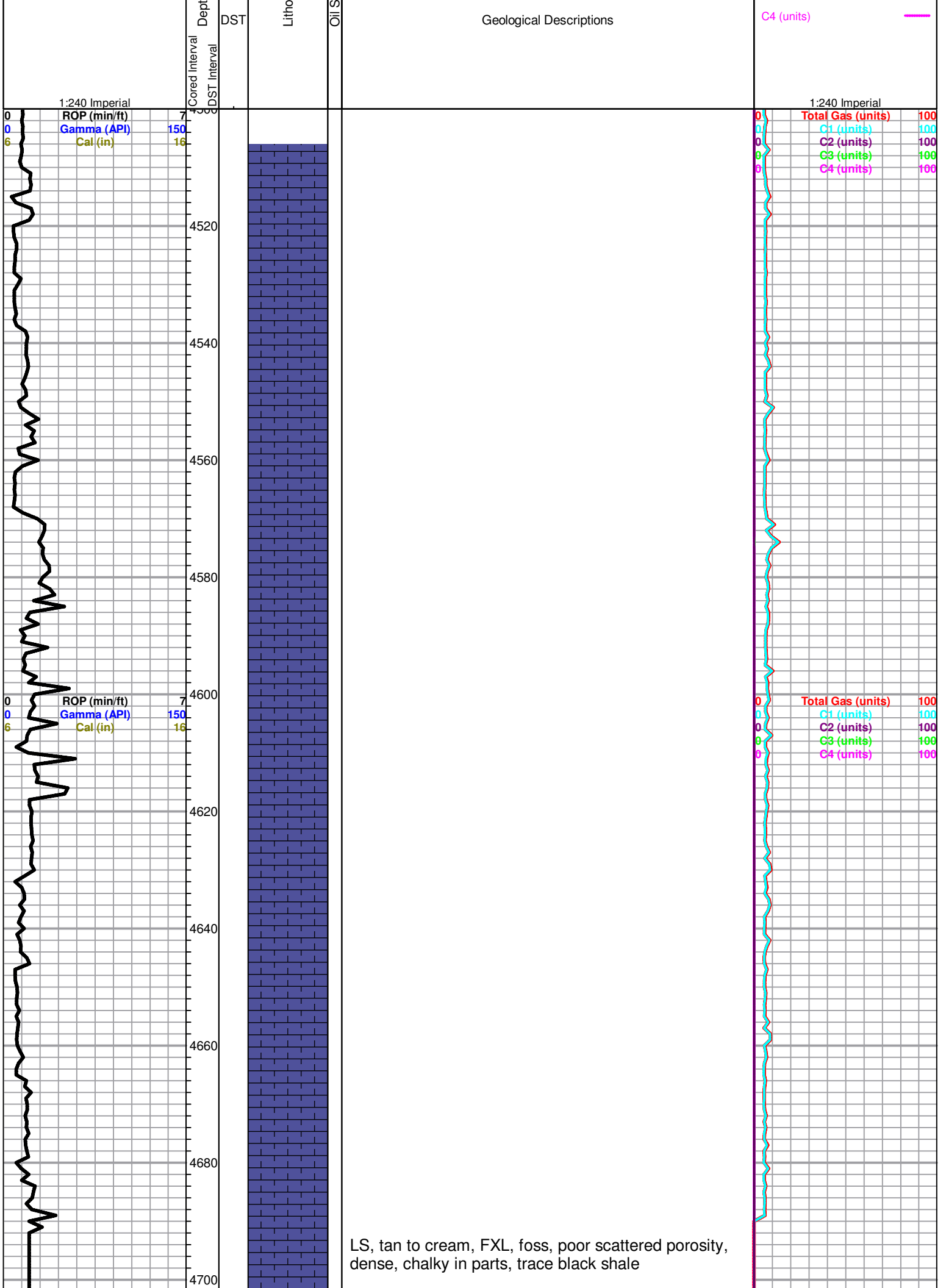
**Oil Show**

- Good Show
- Fair Show
- Poor Show
- Spotted or Trace
- Questionable Stn
- Dead Oil Stn
- Fluorescence
- \* Gas

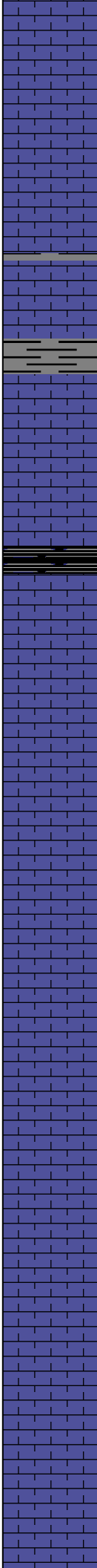
**DST**

- DST Int
- DST alt
- Core
- || tail pipe

| Curve Track #1 | Intervals | log | Flow | TG, C1 - C5       |
|----------------|-----------|-----|------|-------------------|
| ROP (min/ft)   |           |     |      | Total Gas (units) |
| Gamma (API)    |           |     |      | C1 (units)        |
| Cal (in)       |           |     |      | C2 (units)        |
|                |           |     |      | C3 (units)        |



4720  
4740  
4760  
4780  
4800  
4820  
4840  
4860  
4880  
4900  
4920



LS ,cream to tan, FXL, few foss, poor visible porosity, chalky

Sh. gray, maroon, silty

Black carb Sh.

LS, cream to tan, FXL, foss, chalky, poor visible porosity, trace white chert

LS, gray, mottled, FXL, poor visible porosity, chalky, trace black sh.

LS, tan, oom, fair vuggy porosity, calky, no shows

ROP (min/ft) 7  
Gamma (API) 150  
Cal (in) 16

Total Gas (units) 100  
C1 (units) 100  
C2 (units) 100  
C3 (units) 100  
C4 (units) 100

### Marmaton 4921 (-1788)

LS, cream to tan, FXL, few foss, poor visible porosity, dense, chalky in parts, trace, LS, brown FXL, dense, cherty no shows

LS, gray to tan, F-MXL, dense, poor visible porosity, trace gray sand, F.grained, well sorted, no shows

LS, cream to tan, ool, poorly developed, in parts, fair vuggy porosity, in parts, no shows,

LS, gray, mottled, FXL, chalky, poor visible porosity, no shows, trace maroon shale, no shows

LS, cream, tan, foss, FXL, chalky, poor visible porosity, no shows

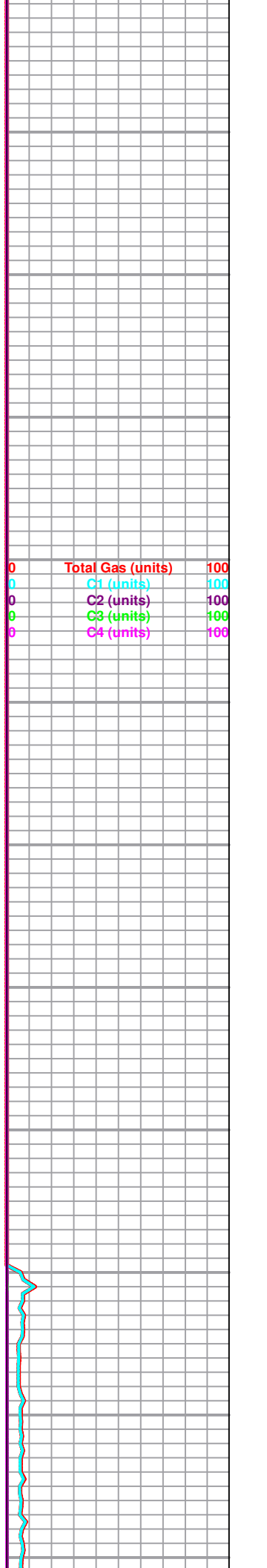
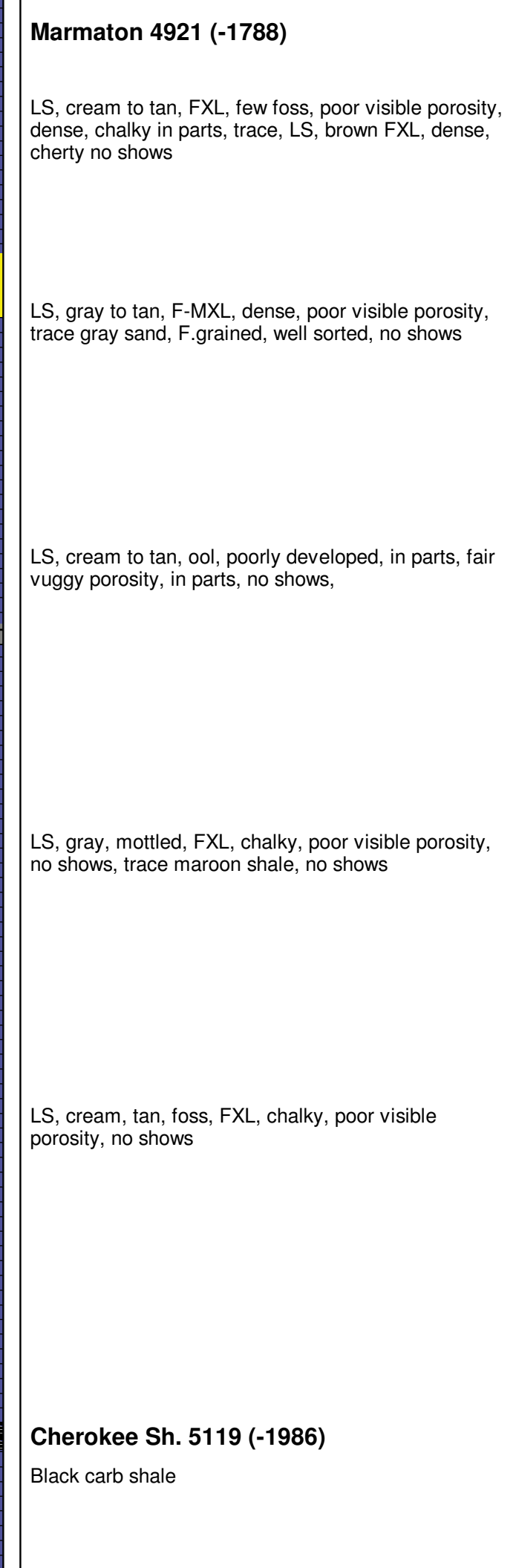
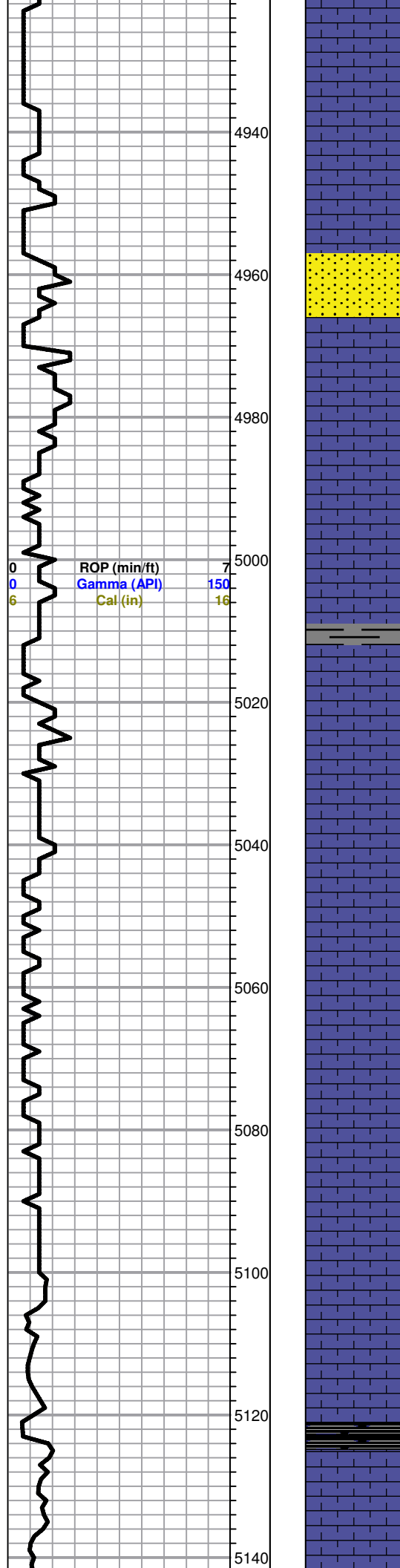
### Cherokee Sh. 5119 (-1986)

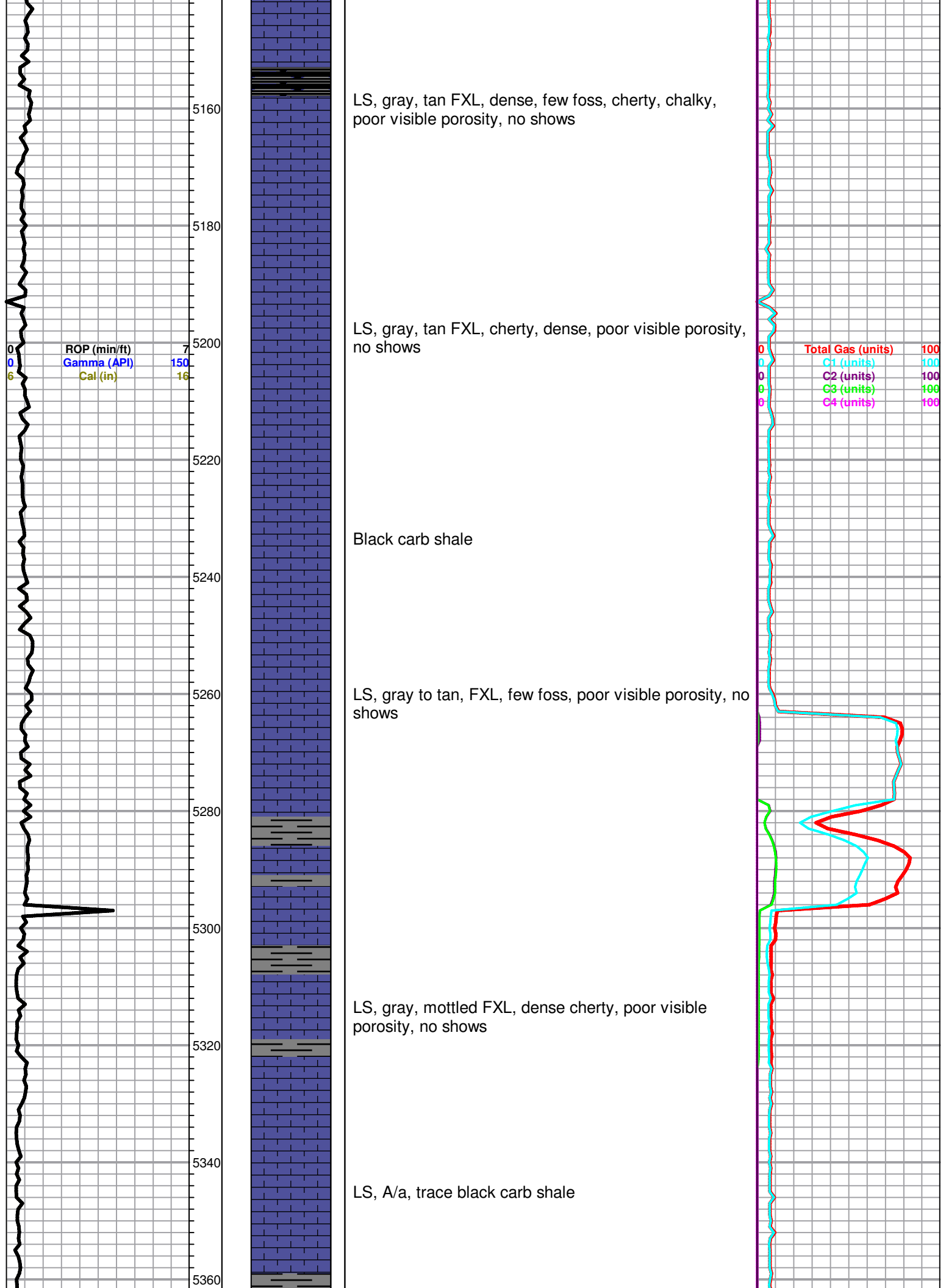
Black carb shale

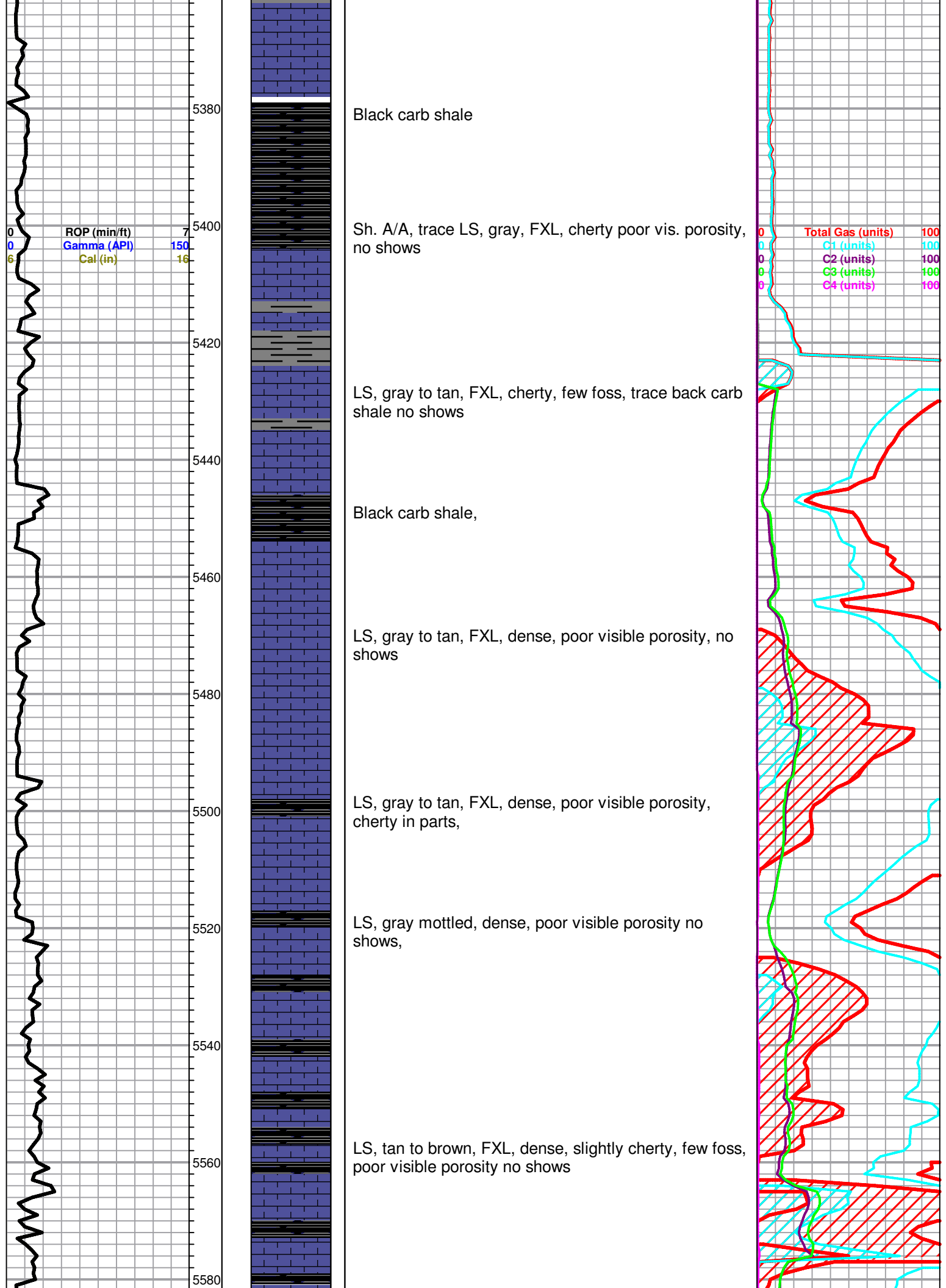
4940  
4960  
4980  
5000  
5020  
5040  
5060  
5080  
5100  
5120  
5140

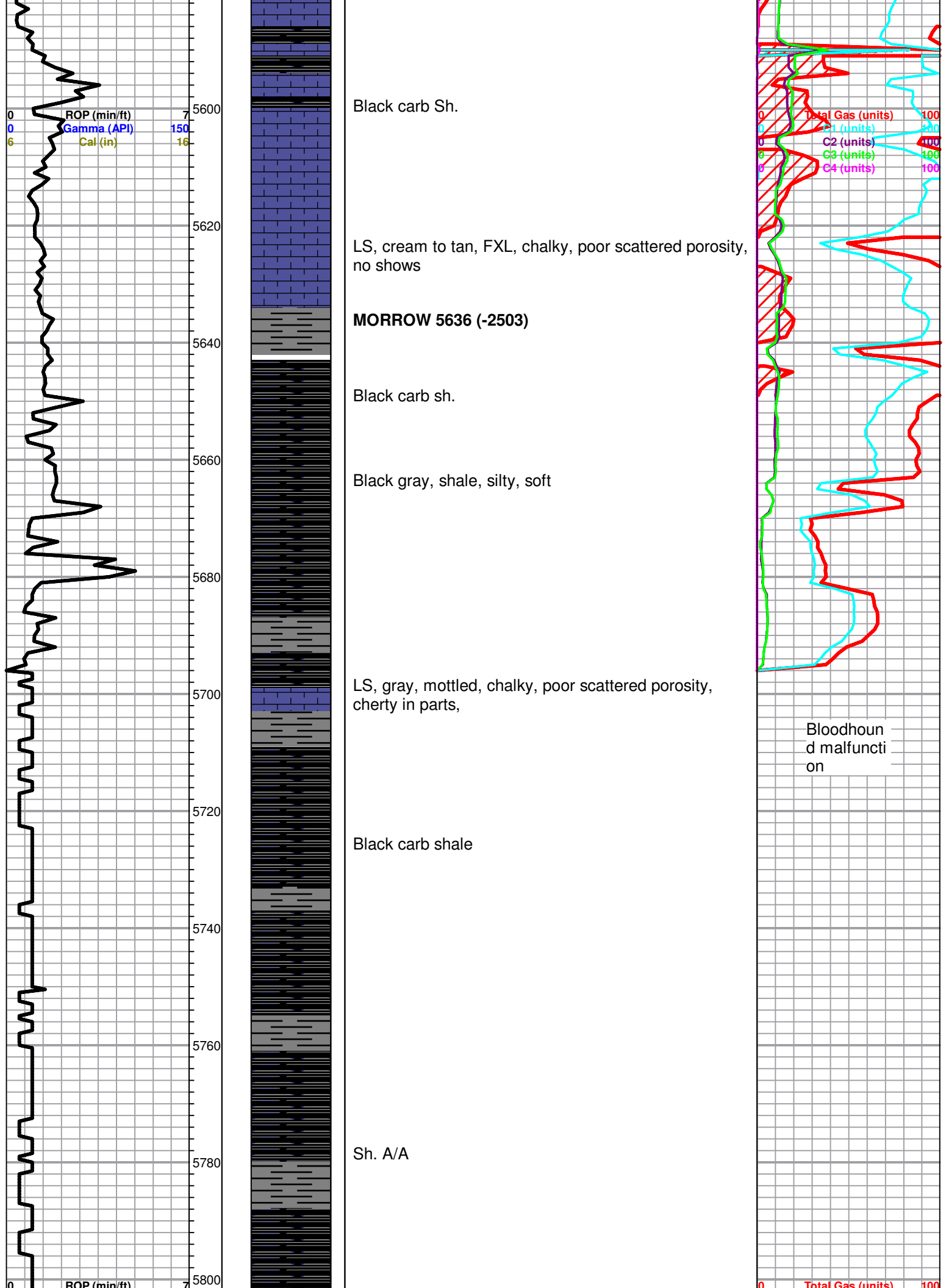
ROP (min/ft) 7  
Gamma (API) 150  
Cal (in) 16

Total Gas (units) 100  
C1 (units) 100  
C2 (units) 100  
C3 (units) 100  
C4 (units) 100

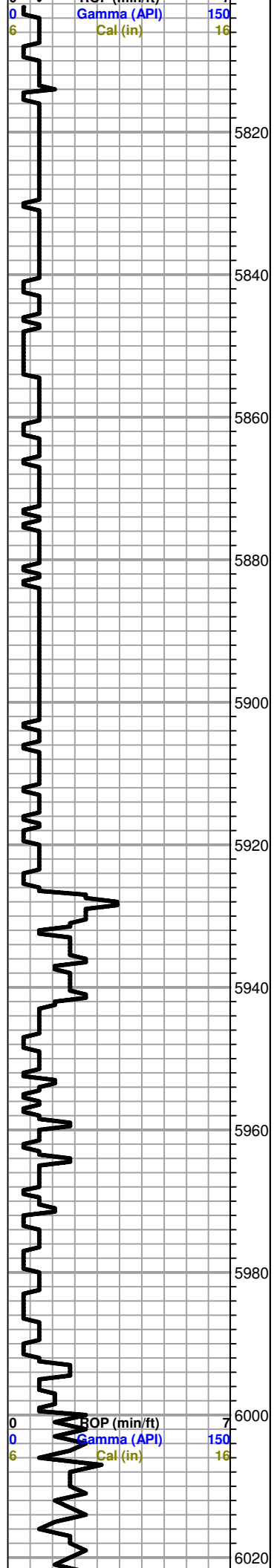










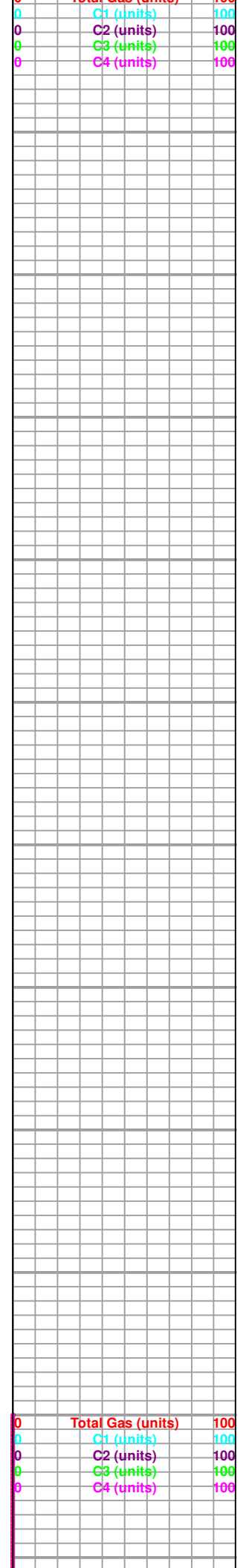


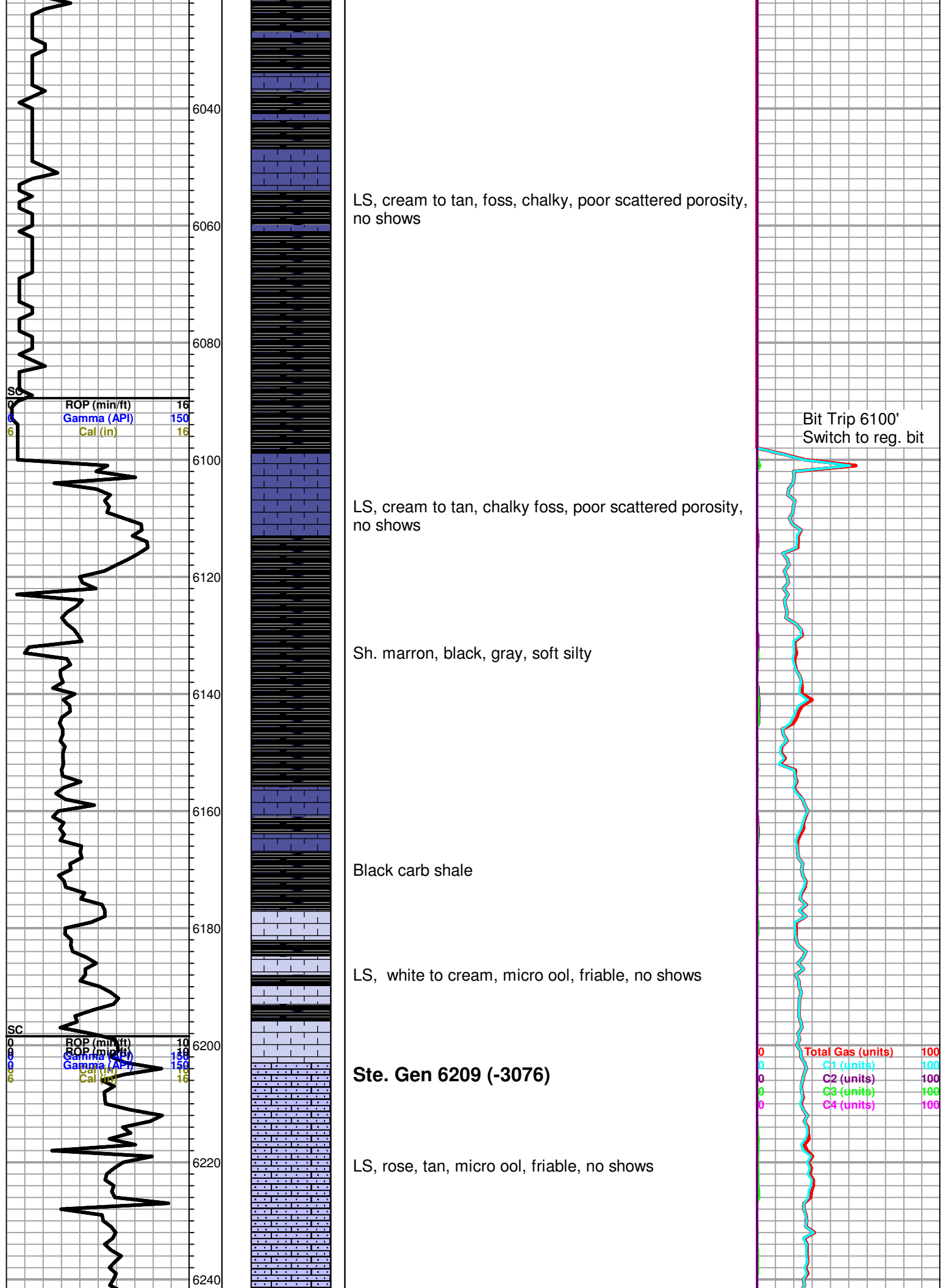
Sh. maroon, greenish, black carb

LS, gray, tan, mottled, chalky, black carb shale

LS, gray tan, mottled, chalky poor visible porosity, no shows

Black carb Sh.





LS, cream to tan, foss, chalky, poor scattered porosity, no shows

LS, cream to tan, chalky foss, poor scattered porosity, no shows

Sh. marron, black, gray, soft silty

Black carb shale

LS, white to cream, micro ool, friable, no shows

**Ste. Gen 6209 (-3076)**

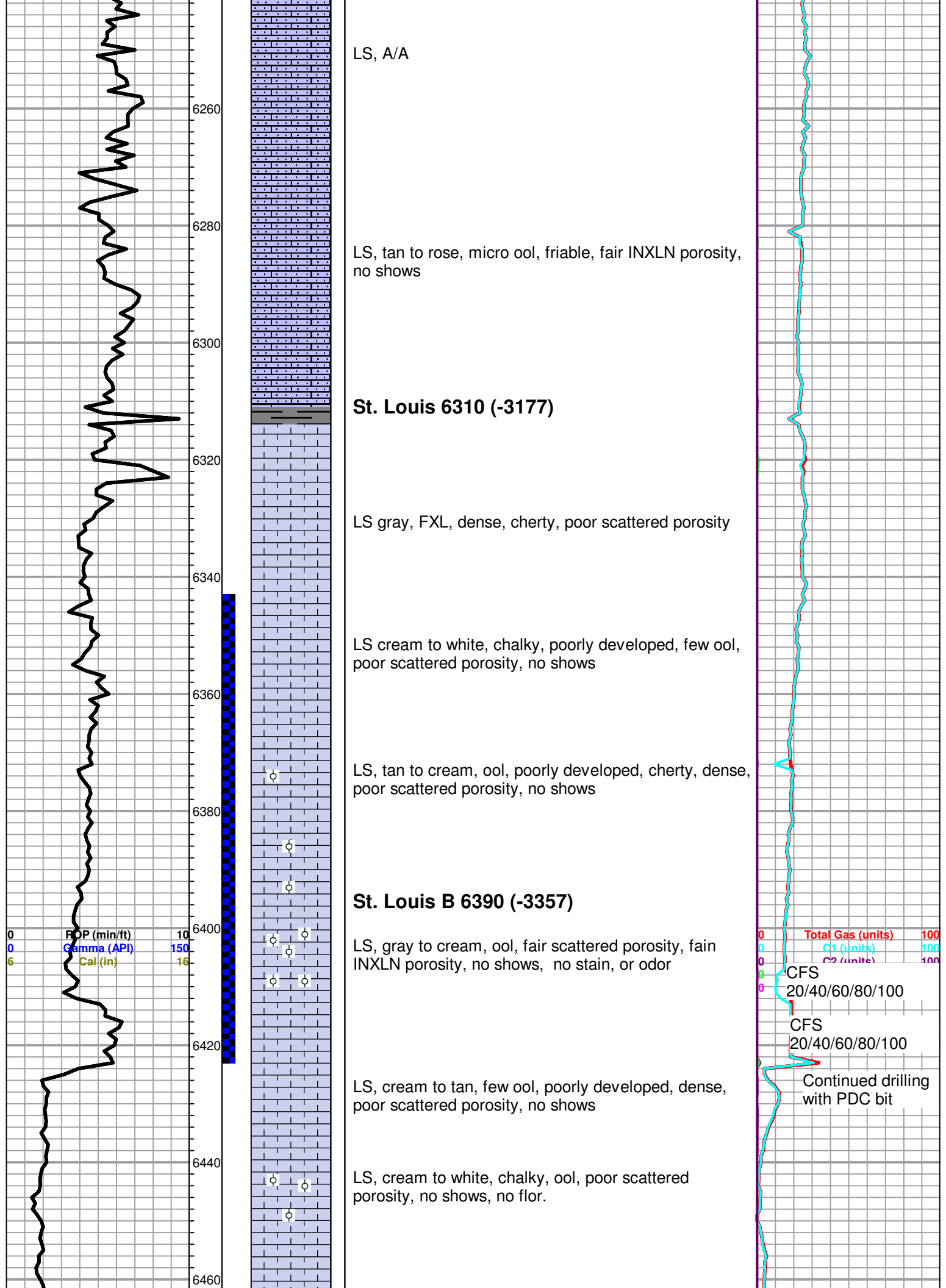
LS, rose, tan, micro ool, friable, no shows

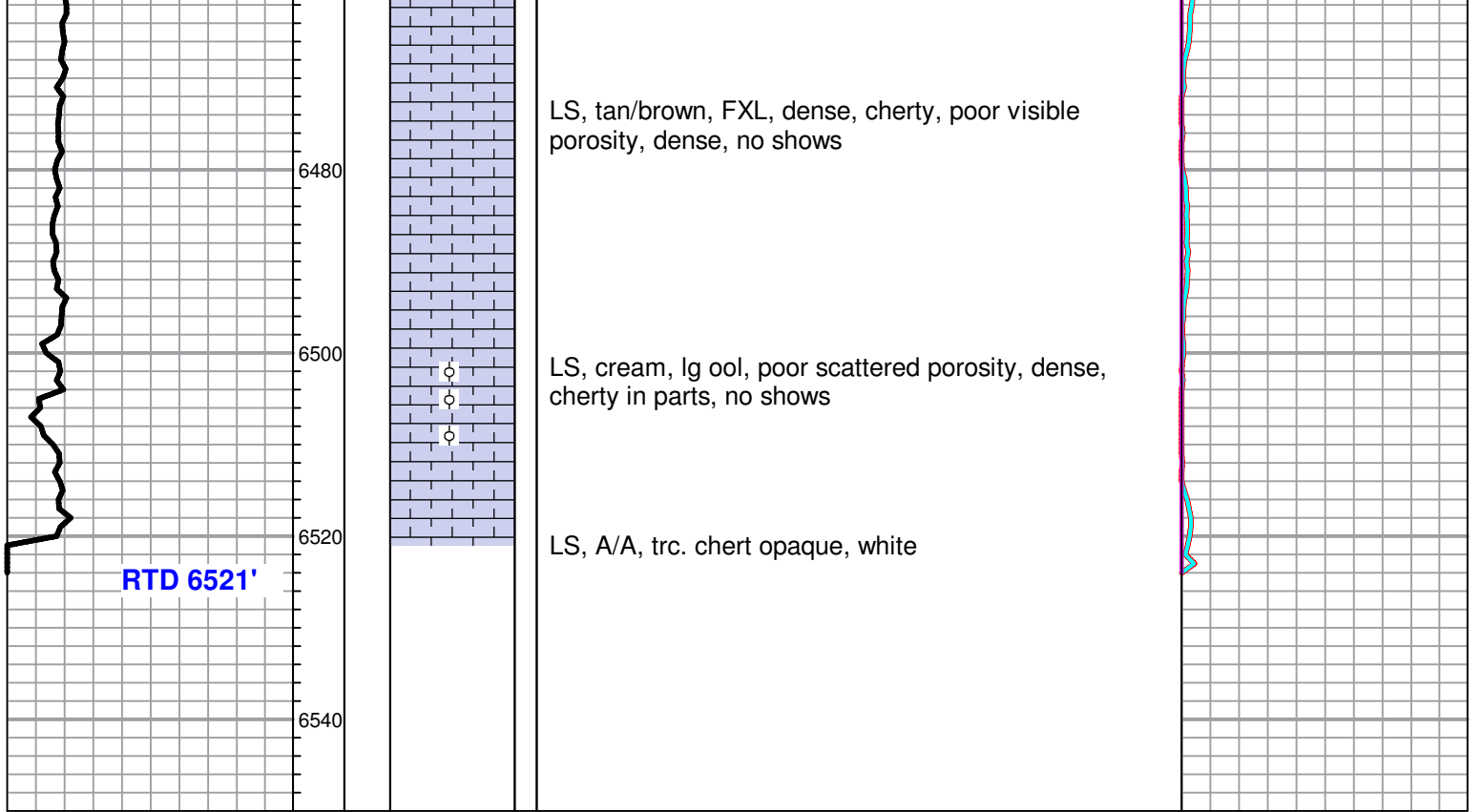
Bit Trip 6100'  
Switch to reg. bit

|   |                   |     |
|---|-------------------|-----|
| 0 | Total Gas (units) | 100 |
| 0 | C1 (units)        | 100 |
| 0 | C2 (units)        | 100 |
| 0 | C3 (units)        | 100 |
| 0 | C4 (units)        | 100 |

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

|              |     |
|--------------|-----|
| ROP (min/ft) | 10  |
| Gamma (API)  | 138 |
| Cal (in)     | 16  |





RTD 6521'

6480

6500

6520

6540

LS, tan/brown, FXL, dense, cherty, poor visible porosity, dense, no shows

LS, cream, lg ool, poor scattered porosity, dense, cherty in parts, no shows

LS, A/A, trc. chert opaque, white