KOLAR Document ID: 1515737

Confidentiality Requested:
☑ Yes ☐ No

KANSAS CORPORATION COMMISSION
OIL & GAS CONSERVATION DIVISION

Form ACO-1
January 2018
Form must be Typed
Form must be Signed
All blanks must be Filled

WELL COMPLETION FORM
WELL HISTORY - DESCRIPTION OF WELL & LEASE

OPERATOR: License # 3911
Name: Rama Operating Co., Inc.
Address 1: 101 S MAIN ST
Address 2:
City: STAFFORD State: KS Zip: 67578 + 1429
Contact Person: Robin L. Austin
Phone: (620) 234-5191
CONTRACTOR: License # 5142
Name: Sterling Drilling Company
Wellsite Geologist: Josh Austin
Purchaser:

Designate Type of Completion:
☑ New Well ☐ Re-Entry ☐ Workover
☑ Oil ☐ WSW ☐ SWD
☐ Gas ☐ DH ☐ EOR
☐ OG ☐ GSW
☐ CM *(Coal Bed Methane)*
☐ Cathodic ☐ Other *(Core, Expl., etc.)*:

If Workover/Re-entry: Old Well Info as follows:
Operator:
Well Name:
Original Comp. Date: Original Total Depth:
☐ Deepening ☐ Re-perf. ☐ Conv. to EOR ☐ Conv. to SWD
☐ Plug Back ☐ Liner ☐ Conv. to GSW ☐ Conv. to Producer

☐ Commingled Permit #:
☐ Dual Completion Permit #:
☐ SWD Permit #:
☐ EOR Permit #:
☐ GSW Permit #:

05/06/2020 Spud Date or Recompletion Date
05/15/2020 Date Reached TD
08/17/2020 Completion Date or Recompletion Date

API No.: 15-151-22513-00-00
Spot Description:
SW - SE - NW - NE Sec. 1 Twp. 28 S. R. 13 ☐ East ☑ West
1050 Feet from ☑ North / ☐ South Line of Section
1900 Feet from ☑ East / ☐ West Line of Section
Footages Calculated from Nearest Outside Section Corner:
☑ NE ☐ NW ☐ SE ☐ SW
GPS Location: Lat: *(e.g. xx.xxxxx)* , Long: *(e.g. -xxx.xxxxx)*
Datum: ☐ NAD27 ☐ NAD83 ☐ WGS84
County: Pratt
Lease Name: HILLARD Well #: 5-1
Field Name:
Producing Formation: Simpson
Elevation: Ground: 1841 Kelly Bushing: 1857
Total Vertical Depth: 4425 Plug Back Total Depth:
Amount of Surface Pipe Set and Cemented at: 1110 Feet
Multiple Stage Cementing Collar Used? ☐ Yes ☑ No
If yes, show depth set: Feet
If Alternate II completion, cement circulated from:
feet depth to: w/ sx cmt.

Drilling Fluid Management Plan
(Data must be collected from the Reserve Pit)
Chloride content: 4500 ppm Fluid volume: 160 bbls
Dewatering method used: Hauled to Disposal
Location of fluid disposal if hauled offsite:
Operator Name: Pauls Oilfield
Lease Name: Beckerdite License #: 31085
Quarter NW Sec. 21 Twp. 24 S. R. 13 ☐ East ☑ West
County: Stafford Permit #: D26547

AFFIDAVIT
I am the affiant and I hereby certify that all requirements of the statutes, rules and regulations promulgated to regulate the oil and gas industry have been fully complied with and the statements herein are complete and correct to the best of my knowledge.

Submitted Electronically

KCC Office Use ONLY
☐ **Confidentiality Requested**
Date: 08/25/2020
☐ **Confidential Release Date:** 08/25/2022
☑ **Wireline Log Received** ☐ **Drill Stem Tests Received**
☑ **Geologist Report / Mud Logs Received**
☐ **UIC Distribution**
ALT ☑ **I** ☐ **II** ☐ **III** **Approved by:** Karen Ritter **Date:** 08/25/2020

Page Two

Operator Name: Rama Operating Co., Inc. Lease Name: HILLARD Well #: 5-1

Sec. 1 Twp. 28 S. R. 13 ☐ East ☑ West County: Pratt

INSTRUCTIONS: Show important tops of formations penetrated. Detail all cores. Report all final copies of drill stems tests giving interval tested, time tool open and closed, flowing and shut-in pressures, whether shut-in pressure reached static level, hydrostatic pressures, bottom hole temperature, fluid recovery, and flow rates if gas to surface test, along with final chart(s). Attach extra sheet if more space is needed.

Final Radioactivity Log, Final Logs run to obtain Geophysical Data and Final Electric Logs must be emailed to kcc-well-logs@kcc.ks.gov. Digital electronic log files must be submitted in LAS version 2.0 or newer AND an image file (TIFF or PDF).

Drill Stem Tests Taken (Attach Additional Sheets)	☐ Yes	☑ No	
Samples Sent to Geological Survey	☑ Yes	☐ No	
Cores Taken	☐ Yes	☑ No	
Electric Log Run	☑ Yes	☐ No	
Geologist Report / Mud Logs	☑ Yes	☐ No	

List All E. Logs Run:

DIL
DUCP
MEL

☑ Log Formation (Top), Depth and Datum ☐ Sample

Name	Top	Datum
Attached	Attached	Attached

CASING RECORD ☑ New ☐ Used

Report all strings set-conductor, surface, intermediate, production, etc.

Purpose of String	Size Hole Drilled	Size Casing Set (In O.D.)	Weight Lbs. / Ft.	Setting Depth	Type of Cement	# Sacks Used	Type and Percent Additives
Conductor	17.5	13.375	54.5	308	60/40 Poz	350	2% gel 1/4 CF
Surface	12.250	8.625	28	1110	Comm 60/40 Poz	300	3%CC
Production	7.875	5.5	14	4416	60/40 Poz	125	Pro C

ADDITIONAL CEMENTING / SQUEEZE RECORD

Purpose:	Depth Top Bottom	Type of Cement	# Sacks Used	Type and Percent Additives
☐ Perforate ☐ Protect Casing ☐ Plug Back TD ☐ Plug Off Zone	-			
	-			

1. Did you perform a hydraulic fracturing treatment on this well? ☑ Yes ☐ No *(If No, skip questions 2 and 3)*
2. Does the volume of the total base fluid of the hydraulic fracturing treatment exceed 350,000 gallons? ☐ Yes ☑ No *(If No, skip question 3)*
3. Was the hydraulic fracturing treatment information submitted to the chemical disclosure registry? ☐ Yes ☐ No *(If No, fill out Page Three of the ACO-1)*

Date of first Production/Injection or Resumed Production/ Injection:	Producing Method:					
8/21/2020	☐ Flowing	☑ Pumping	☐ Gas Lift	☐ Other *(Explain)*		
Estimated Production Per 24 Hours	Oil Bbls.	Gas Mcf	Water Bbls.	Gas-Oil Ratio	Gravity	

DISPOSITION OF GAS:	METHOD OF COMPLETION:				PRODUCTION INTERVAL:	
					Top	Bottom
☐ Vented ☐ Sold ☑ Used on Lease *(If vented, Submit ACO-18.)*	☐ Open Hole	☑ Perf.	☐ Dually Comp. *(Submit ACO-5)*	☐ Commingled *(Submit ACO-4)*	4322	4338

Shots Per Foot	Perforation Top	Perforation Bottom	Bridge Plug Type	Bridge Plug Set At	Acid, Fracture, Shot, Cementing Squeeze Record *(Amount and Kind of Material Used)*
2	4322	4338			500 gal 15% acid

TUBING RECORD:	Size:	Set At:	Packer At:	
	2.875	4340		

Mail to: KCC - Conservation Division, 266 N. Main, Suite 220, Wichita, Kansas 67202

Form	ACO1 - Well Completion
Operator	Rama Operating Co., Inc.
Well Name	HILLARD 5-1
Doc ID	1515737

Tops

Name	Top	Datum
Heebner	3538	-1681
Toronto	3552	-1695
Brown Lime	3720	-1863
Lansing	3740	-1883
Base KC	4088	-2231
Mississippi	4192	-2335
Viola	4246	-2389
Simpson Shale	4286	-2429
Uper Sand	4290	-2433
Lower Sand	4322	-2465
Arbuckle	4412	-2568
RTD	4623	-2566

Form	ACO1 - Well Completion
Operator	Rama Operating Co., Inc.
Well Name	HILLARD 5-1
Doc ID	1515737

Casing

Purpose Of String	Size Hole Drilled	Size Casing Set	Weight	Setting Depth	Type Of Cement	Number of Sacks Used	Type and Percent Additives
Conductor	17.5	13.375	54.5	308	60/40 Poz	350	2% gel 1/4 CF
Surface	12.250	8.625	28	1110	Comm 60/40 Poz	300	3%CC
Production	7.875	5.5	14	4416	60/40 Poz	125	Pro C

CEMENT TREATMENT REPORT

Customer:	RAMA OPERATING	Well:	HILLIARD 5-1	Ticket:	ICT 3532
City, State:		County:	PRATT,KS	Date:	5/6/2020
Field Rep:	RANDY G.	S-T-R:	1-28S-31W	Service:	13 3/8" SRFACE PIPE

Downhole Information	
Hole Size:	17 1/2 in
Hole Depth:	312 ft
Casing Size:	13 3/8 in
Casing Depth:	308 ft
Tubing / Liner:	in
Depth:	ft
Tool / Packer:	
Tool Depth:	ft
Displacement:	bbls

Calculated Slurry - Lead	
Blend:	H - LITE
Weight:	12.6 ppg
Water / Sx:	9.8 gal / sx
Yield:	1.84 ft^3 / sx
Annular Bbls / Ft.:	bbs / ft.
Depth:	ft
Annular Volume:	0.0 bbls
Excess:	200%
Total Slurry:	65.5 bbls
Total Sacks:	200 sx

Calculated Slurry - Tail	
Blend:	60/40 POZ
Weight:	14.8 ppg
Water / Sx:	5.2 gal / sx
Yield:	1.21 ft^3 / sx
Annular Bbls / Ft.:	bbs / ft.
Depth:	ft
Annular Volume:	0 bbls
Excess:	105%
Total Slurry:	32.4 bbls
Total Sacks:	150 sx

TIME	RATE	PSI	STAGE BBLs	TOTAL BBLs	REMARKS
11:00PM			-	-	ON LOCATION SPOT EQUIPMENT
1:15 AM				-	RUN 7 JTS. 13 3/8" CSG X 48 #
3:00AM				-	CSG. ON BOTTOM
3:05AM				-	HOOK UP TO CSG - BREAK CIRCULATION WITH RIG PUMP
3:30AM	6.0		65.5	65.5	MIX 200 SKS H - LITE CEMENT @ 12.8 PPG
3:44AM	6.0		32.4	97.9	MIX 150 SKS 60/40 POZ @ 14.8 PPG
3:50AM	6.0		-	97.9	START DISPLACEMENT
4:00AM	4.0		42.0	139.9	CEMENT @ DESIRED DEPTH - CIRCULATION THRU JOB
				139.9	CIRCULATED 15 BBL TO PIT
				139.9	
				139.9	
				139.9	JOB COMPLETE
				139.9	THANK YOU!!
				139.9	
				139.9	
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				139.9	

	CREW	UNIT
Cementer:	K LESLEY	75
Pump Operator:	R OSBOURNE	524 - 522
Bulk #1:	EJ McGRAW	182 - 256
Bulk #2:		

SUMMARY		
Average Rate	Average Pressure	Total Fluid
5.5 bpm	#DIV/0! psi	140 bbls

Hurricane Services, Inc.
250 N. Water
Wichita, KS 67202

QUALITY WELL SERVICE, INC.

7405

Federal Tax I.D. # 481187368
Home Office 30060 N. Hwy 281, Pratt, KS 67124
Mailing Address P.O. Box 468
Office 620-727-3410 **Rich's Cell 620-727-3409**
Fax 620-672-3663 **Brady's Cell 620-727-6964**

Date	Sec.	Twp.	Range	County	State	On Location	Finish
5-9-20	1	28S	13W	PRATT	KS		

Lease H. LIARD Well No. S-1 Location PRATT KS HWY 54 & PRATT CO LAKE

Contractor STERLING DRLG RIG #1 Owner 1/4 E S W INTO

Type Job 85/8

To Quality Well Service, Inc.
You are hereby requested to rent cementing equipment and furnish cementer and helper to assist owner or contractor to do work as listed.

Hole Size	12 1/4	T.D.	1115'
Csg.	85/8 23#	Depth	1110.17
Tbg. Size		Depth	
Tool		Depth	
Cement Left in Csg.		Shoe Joint	40.51
Meas Line		Displace	66.75

Charge To RAMA OPERATING CO INC

Street

City State

The above was done to satisfaction and supervision of owner agent or contractor.

Cement Amount Ordered 200sx 60/40 2% GEL 3% CC 1/2# PS

100 sx MDC 3% CC 1/2# PS

EQUIPMENT

Pumptrk	8	No.	
Bulktrk	10	No.	
Bulktrk	15	No.	
Pickup		No.	

JOB SERVICES & REMARKS

Rat Hole

Mouse Hole

Centralizers ~~23~~ 23

Baskets 20 - 23

D/V or Port Collar

RUN 28 JTS 85/8 20# SET @ 1110.17
CSG ON BOTTOM HOOK UP TO CSG
BREAK CIRC W/ RIG DROP BALL & CIRC
START PUMPING H2O
START MIX & PUMP 100 sx MDC @ 12#/GAL
START MIX & PUMP 200 sx 60/40 2% GEL 3% CC 1/2#
SHUT DWN RELEASE 85/8 TR PLUG
START DISP
PLUG DWN 67 BBLS OUT 1000#
GOOD CIRC THRU JOB
CIRC CMT TO PIT LET SET 1 HR
FELL ABOUT 1' LEASED LEFT TKS ON LOC

THANK YOU TJ
PLEASE CALL AGAIN JAKE MIKE

X Signature

Common	120 sx
Poz. Mix	80 sx
Gel.	344#
Calcium	798#
~~Hulls~~	MDC 100 sx
Salt	
Flowseal	150#
Kol-Seal	
Mud CLR 48	
CFL-117 or CD110 CAF 38	
Sand	
Handling	320
Mileage	101 3750

85/8 FLOAT EQUIPMENT

Guide Shoe	1 EA
Centralizer	1 EA
Baskets	2 EA
AFU Inserts	1 EA
~~Float Shoe~~	TOP RUBBER PLUG 1 EA
~~Latch Down~~	HOOK - 1
SERVICE SUP	1 EA
LMV	10
Pumptrk Charge	SURFACE 2
Mileage	30
Tax	
Discount	
Total Charge	

Taylor Printing, Inc.

QUALITY WELL SERVICE, INC.

7420

Federal Tax I.D. # 481187368
Home Office 30060 N. Hwy 281, Pratt, KS 67124
Mailing Address P.O. Box 468

Office 620-727-3410
Fax 620-672-3663

Rich's Cell 620-727-3409
Brady's Cell 620-727-6964

Date	Sec.	Twp.	Range	County	State	On Location	Finish
5-16-20	1	28S	13W	PRATT	KS		

Lease HILLARD | Well No. S-1 | Location PRATT, KS HWY 54 to to LOKERD

Contractor STERLING DRLG RIG #1 | Owner 1/4 E SIW into

Type Job 5 1/2 L.S. | To Quality Well Service, Inc. You are hereby requested to rent cementing equipment and furnish cementer and helper to assist owner or contractor to do work as listed.

Hole Size 7 7/8 | T.D. 4425

Csg. 5 1/2 14# | Depth 4416 | Charge To Rama Operating Co., Inc

Tbg. Size | Depth | Street

Tool | Depth | City | State

Cement Left in Csg. | Shoe Joint 29.31 | The above was done to satisfaction and supervision of owner agent or contractor.

Meas Line | Displace | Cement Amount Ordered PROC 2% GEL 10% SALT 5#/sk KOLSEAL 1/4" PS

EQUIPMENT

Pumptrk 8	No.		
Bulktrk 15	No.		
Bulktrk	No.		
Pickup	No.		

JOB SERVICES & REMARKS

Rat Hole 30 sx

Mouse Hole

Centralizers 1-3-5

Baskets

D/V or Port Collar

Run 106 jts used 5 1/2 14# set 4416' CSG on Bottom TAG Hook up to CSG BREAK CIRC W/RIG DROP BALL & CIRC W/RIG START PUMPING 10 BBLS H2O 12 BBLS MF 10 BBLS H2O PLUG RAT HOLE 30 SX MIX & PUMP 125 SX PROC @ 14.8#/GAL SHUT DOWN WASH UP TRK & RELEASE PLUG START DISP 2% KCL LIFT PSI 920# 550# PLUG DOWN 1000# 107.02 PSI UP 1500# RELEASE HELD 1/2 BBL BACK GOOD CIRC THRU JOB THANK YOU TODD PLEASE CALL AGAIN TJ SAKE

X Signature

Common PROC 150 sx	
Poz. Mix	
Gel. 232#	
Calcium	
Hulls	
Salt 825#	
Flowseal 38#	
Kol-Seal 750#	
Mud CLR 48 500 GAL	
CFL-117 or CD110 CAF 38 CC-1 7 GAL	
Sand	
Handling 185	
Mileage 10 / 3750	

5 1/2 FLOAT EQUIPMENT

Guide Shoe 1 EA	
Centralizer 3 EA	
Baskets 1 AM 1 EA	
AFU Inserts 1 EA	
Float Shoe TOP RUBBER PLUG 1 EA	
Latch Down	
SERVICE SUP 1 EA	
LMV 10	
Pumptrk Charge LS	
Mileage 20	
Tax	
Discount	
Total Charge	

Joshua R. Austin

Petroleum Geologist

report for

RAMA Operating CO., Inc

COMPANY: RAMA Operating Company, Inc.

LEASE: Hillard #5-1

FIELD: Rollingson

LOCATION: SW-SE-NW-NE (1050' FNL & 1900' FEL)

SEC: 1 TWSP: 28s RGE: 13w

COUNTY: Pratt STATE: Kansas

KB: 1857' GL: 1841

API # 15-151-22513-00-00

CONTRACTOR: Sterling Drilling (rig #4)

Spud: 5/6/2020 Comp: 5/15/2020

RTD: 4425' LTD: 4423'

Mud Up: 3116' Type Mud: Chemical was displaced

Samples Saved From: 3100' to RTD

Drilling Time Kept From: 3100' to RTD

Samples Examined From: 3100' to RTD

Geological Supervision From: 3200' to RTD

Geologist on Well: Josh Austin

Surface Casing: 13 3/8" @ 307' & 8 5/8" @ 1110'

Production Casing: 5 1/2" @ 4416'

Electronic Surveys: Pioneer Energy Services

NOTES

On the basis of the positive structural position, shows in the samples and after reviewing the electric log, it was recommended by all parties involved in the Hillard #5-1 to run 5 1/2" production casing to further test the Simspon Sand. A drill stem test was not ran.

RAMA Operating Co., Inc.

well comparison sheet

	DRILLING WELL				COMPARISON WELL				COMPARISON WELL			
	Hillard #5-1				Hillard #4-1				Hillard #3			
	1857 KB				1856 KB		Structural Relationship		1849 KB		Structural Relationship	
Formation	Sample	Sub-Sea	Log	Sub-Sea	Log	Sub-Sea	Sample	Log	Log	Sub-Sea	Sample	Log
Heebner	3539	-1682	3538	-1681	3540	-1684	2	3	3532	-1683	1	2
Toronto	3556	-1699	3552	-1695	3554	-1698	-1	3				
Douglas	3579	-1722	3573	-1716	3576	-1720	-2	4				
Brown Lime	3724	-1867	3720	-1863	3722	-1866	-1	3	3714	-1865	-2	2
Lansing	3743	-1886	3740	-1883	3742	-1886	0	3	3732	-1883	-3	0
Base KC	4097	-2240	4088	-2231	4092	-2236	-4	5				
Mississippi	4194	-2337	4192	-2335	4188	-2332	-5	-3	4179	-2330	-7	-5
Viola	4249	-2392	4246	-2389	4243	-2387	-5	-2				
Simpson Shale	4288	-2431	4286	-2429	4282	-2426	-5	-3	4274	-2425	-6	-4
Upper Sand	4294	-2437	4290	-2433	4288	-2432	-5	-1				
Lower Sand	4324	-2467	4322	-2465	4318	-2462	-5	-3				
Arbuckle	4412	-2555	N/A	N/A	4410	-2554	-1	N/A				
Total Depth	4425	-2568	4423	-2566	4523	-2667						

ROCK TYPES

Cht, Cht vari, Dolsec, Lmst fw7>, shale, grn, shale, gry, Carbon Sh, Ss, Sltst

ACCESSORIES

MINERAL

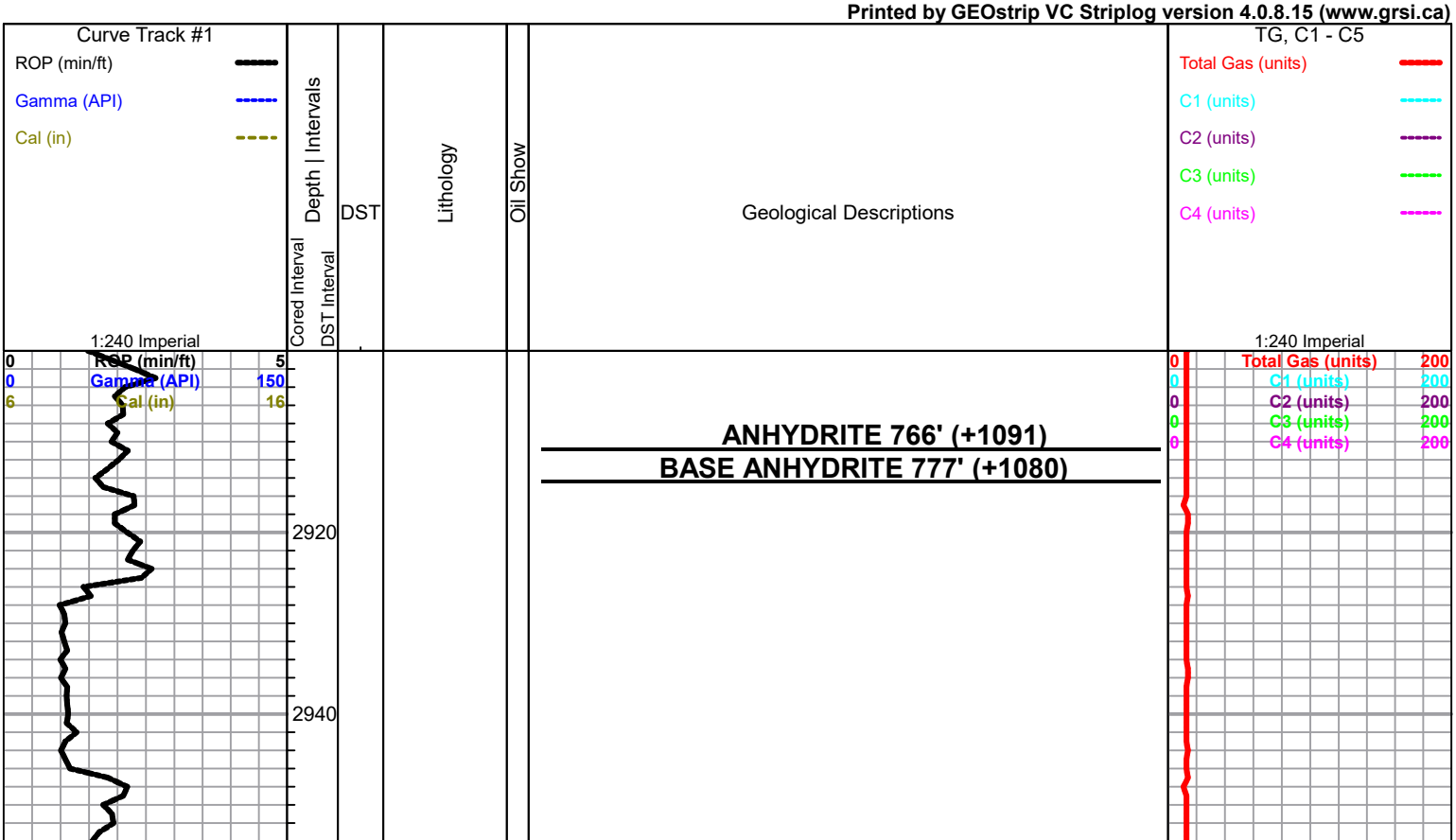
- Chert, dark
- Glauconite
- Pyrite
- Chert White

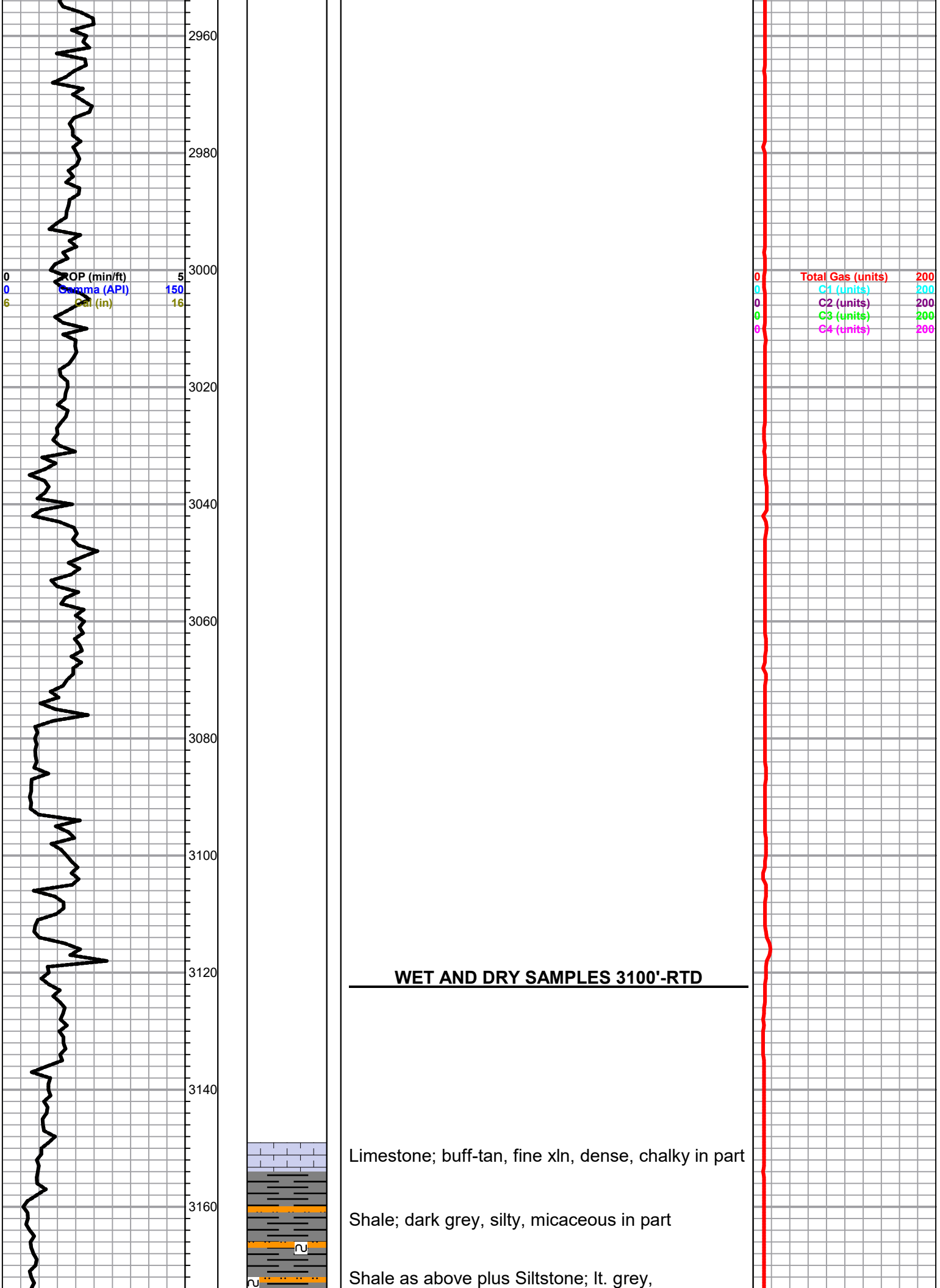
OTHER SYMBOLS

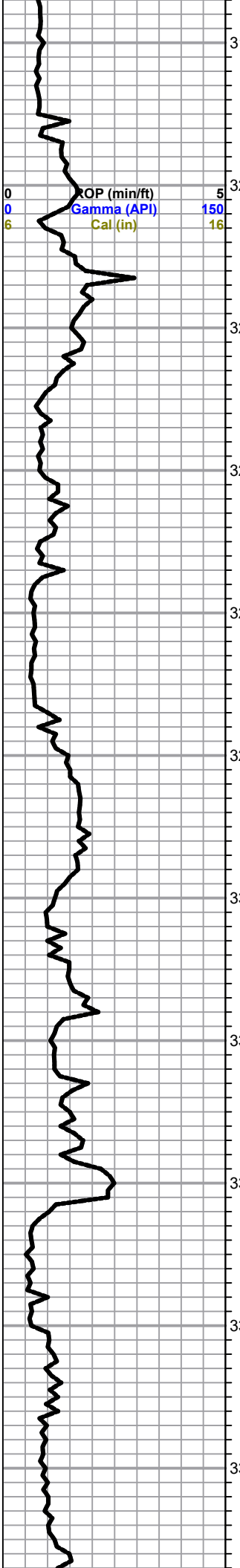
DST

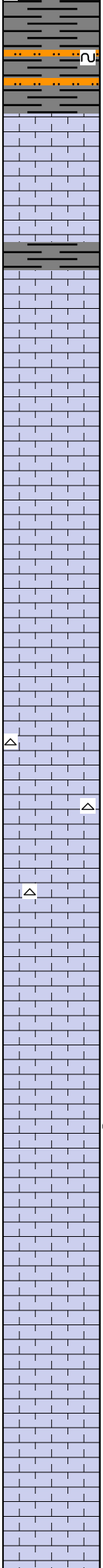
- DST Int
- DST alt
- Core
- tail pipe

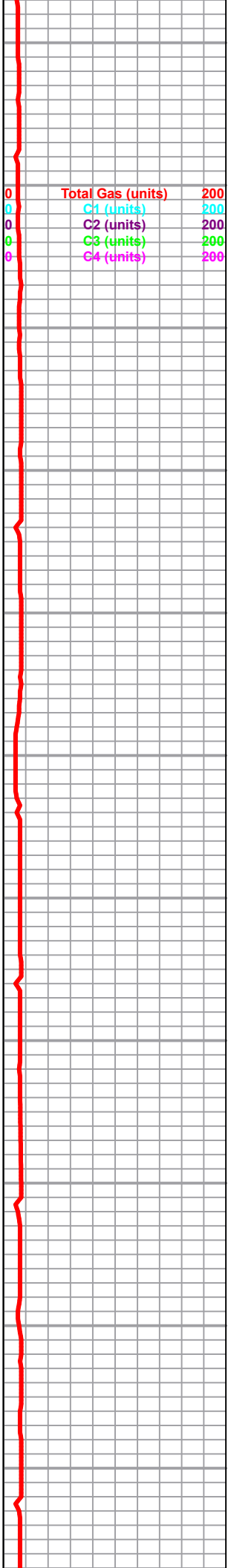
Printed by GEOstrip VC Striplog version 4.0.8.15 (www.grsi.ca)




0 ROP (min/ft) 5
0 Gamma (API) 150
6 Cal (in) 16
2960
2980
3000
3020
3040
3060
3080
3100
3120
3140
3160
0 Total Gas (units) 200
0 C1 (units) 200
0 C2 (units) 200
0 C3 (units) 200
0 C4 (units) 200
WET AND DRY SAMPLES 3100'-RTD
Limestone; buff-tan, fine xln, dense, chalky in part
Shale; dark grey, silty, micaceous in part
Shale as above plus Siltstone; lt. grey,







micaceous, glauconitic in part

TOPEKA 3190 (-1333)

Limestone; cream-tan, fine xln, fossiliferous in part, dense, poor visible porosity

green-grey shale

Limestone; buff-tan, sub oomoldic in part, dense, few cherty pieces, fossiliferous, no shows

Limestone; as above

Limestone; grey-cream, fossiliferous, few mottled pieces, chalky, slighlty fossiliferous, plus white chalk

Limestone as above plus Chert; white-opaque

Limestone; cream, highly fossiliferous, fair-good fossil cast type porosity, no shows

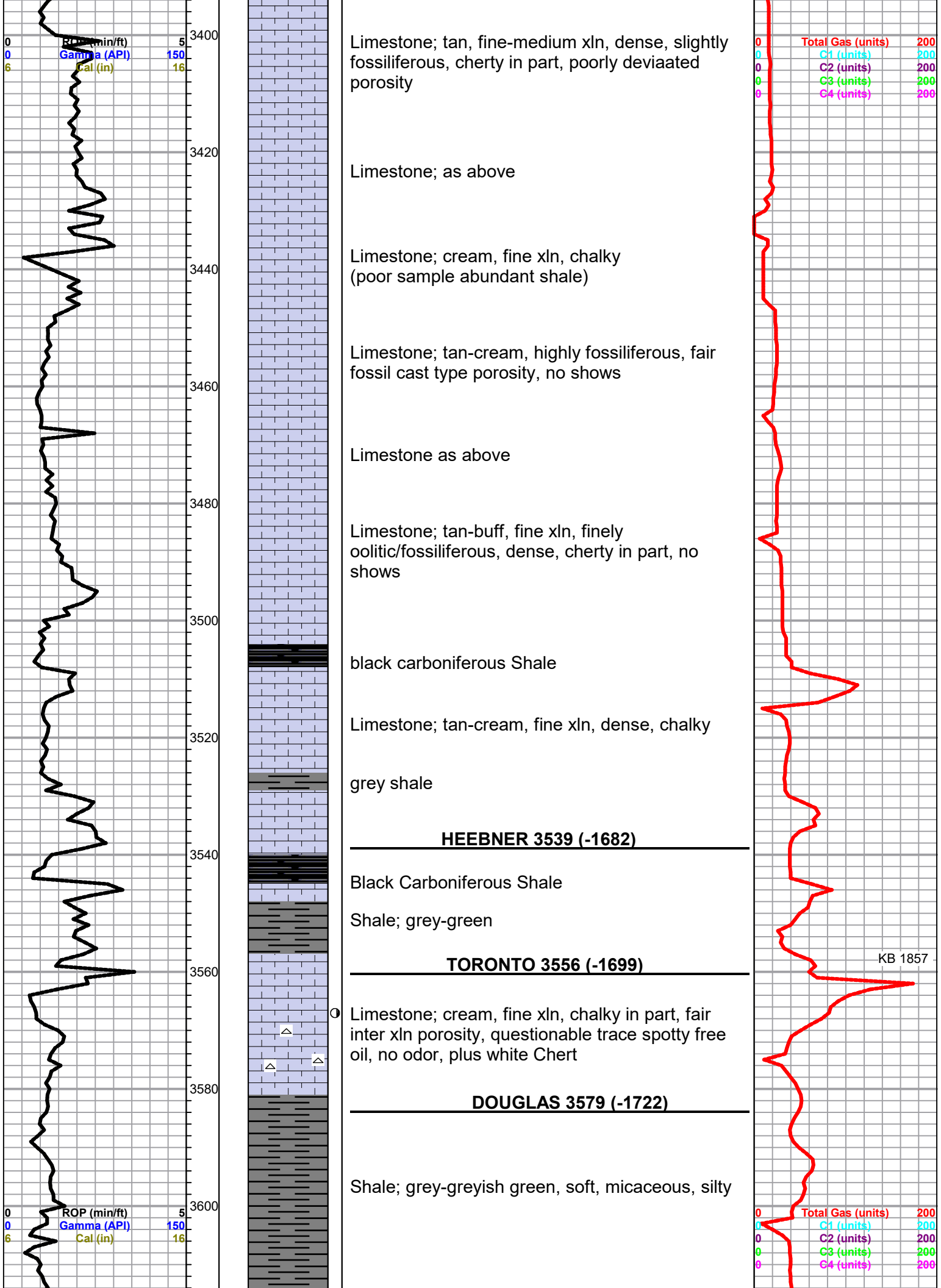
Limestone as above

Limestone; tan-cream, fine xln, dense, fossiliferous, sparry calcite, poorly developed porosity, no shows

Limestone; cream, fine xln, fossiliferous, few fossil fragments, scattered porosity, no shows

Limestone; as above

Limestone; cream-white, fine xln, chalky, plus white chalk, fair porosity, no shows



Limestone; tan, fine-medium xln, dense, slightly fossiliferous, cherty in part, poorly deviaated porosity

Limestone; as above

Limestone; cream, fine xln, chalky (poor sample abundant shale)

Limestone; tan-cream, highly fossiliferous, fair fossil cast type porosity, no shows

Limestone as above

Limestone; tan-buff, fine xln, finely oolitic/fossiliferous, dense, cherty in part, no shows

black carboniferous Shale

Limestone; tan-cream, fine xln, dense, chalky

grey shale

HEEBNER 3539 (-1682)

Black Carboniferous Shale

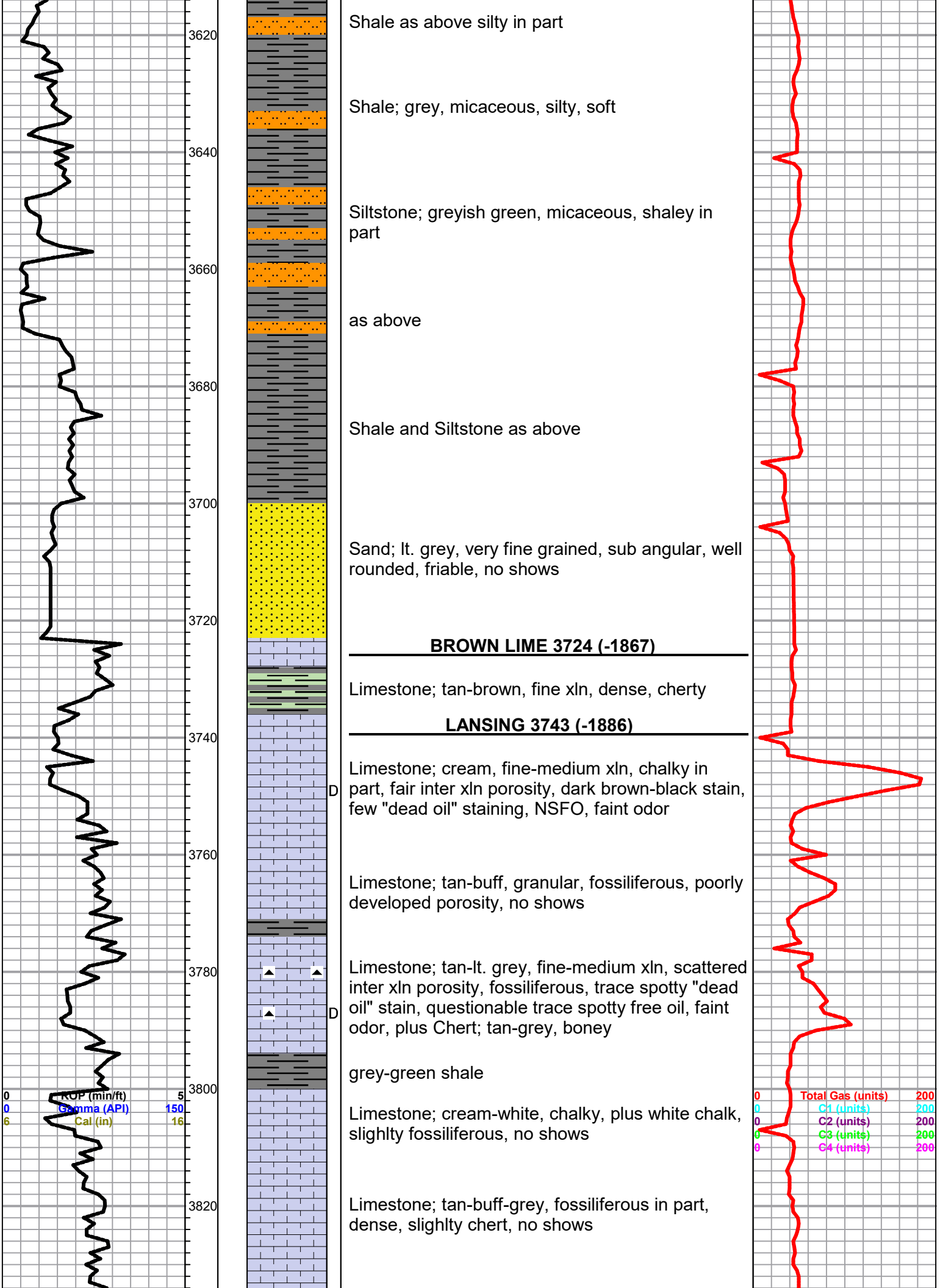
Shale; grey-green

TORONTO 3556 (-1699)

Limestone; cream, fine xln, chalky in part, fair inter xln porosity, questionable trace spotty free oil, no odor, plus white Chert

DOUGLAS 3579 (-1722)

Shale; grey-greyish green, soft, micaceous, silty



Shale as above silty in part

Shale; grey, micaceous, silty, soft

Siltstone; greyish green, micaceous, shaley in part

as above

Shale and Siltstone as above

Sand; lt. grey, very fine grained, sub angular, well rounded, friable, no shows

BROWN LIME 3724 (-1867)

Limestone; tan-brown, fine xln, dense, cherty

LANSING 3743 (-1886)

Limestone; cream, fine-medium xln, chalky in part, fair inter xln porosity, dark brown-black stain, few "dead oil" staining, NSFO, faint odor

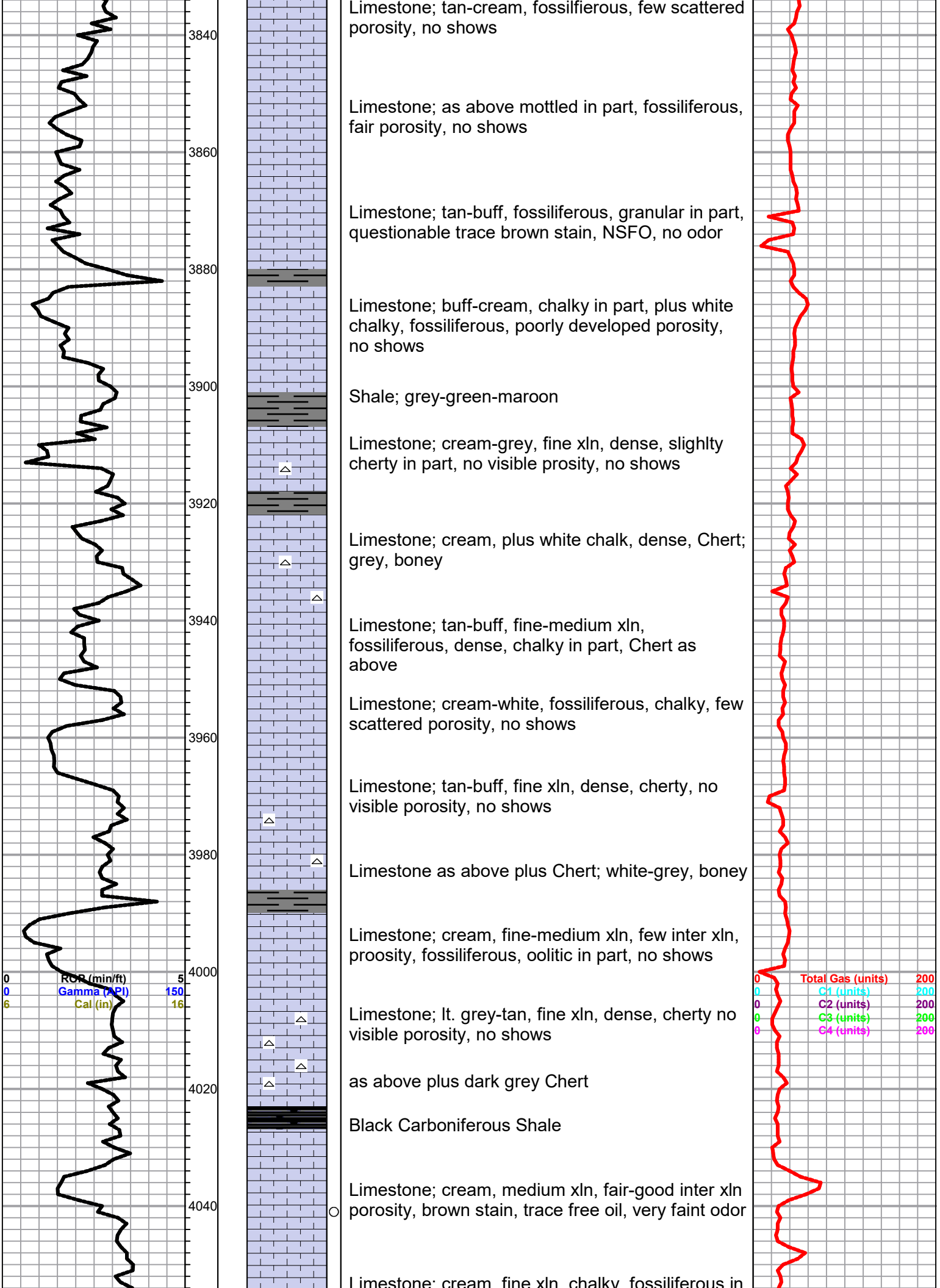
Limestone; tan-buff, granular, fossiliferous, poorly developed porosity, no shows

Limestone; tan-lt. grey, fine-medium xln, scattered inter xln porosity, fossiliferous, trace spotty "dead oil" stain, questionable trace spotty free oil, faint odor, plus Chert; tan-grey, boney

grey-green shale

Limestone; cream-white, chalky, plus white chalk, slighlty fossiliferous, no shows

Limestone; tan-buff-grey, fossiliferous in part, dense, slighlty chert, no shows



Limestone; tan-cream, fossilfierous, few scattered porosity, no shows

Limestone; as above mottled in part, fossiliferous, fair porosity, no shows

Limestone; tan-buff, fossiliferous, granular in part, questionable trace brown stain, NSFO, no odor

Limestone; buff-cream, chalky in part, plus white chalky, fossiliferous, poorly developed porosity, no shows

Shale; grey-green-maroon

Limestone; cream-grey, fine xln, dense, slighlty cherty in part, no visible prosity, no shows

Limestone; cream, plus white chalk, dense, Chert; grey, boney

Limestone; tan-buff, fine-medium xln, fossiliferous, dense, chalky in part, Chert as above

Limestone; cream-white, fossiliferous, chalky, few scattered porosity, no shows

Limestone; tan-buff, fine xln, dense, cherty, no visible porosity, no shows

Limestone as above plus Chert; white-grey, boney

Limestone; cream, fine-medium xln, few inter xln, proosity, fossiliferous, oolitic in part, no shows

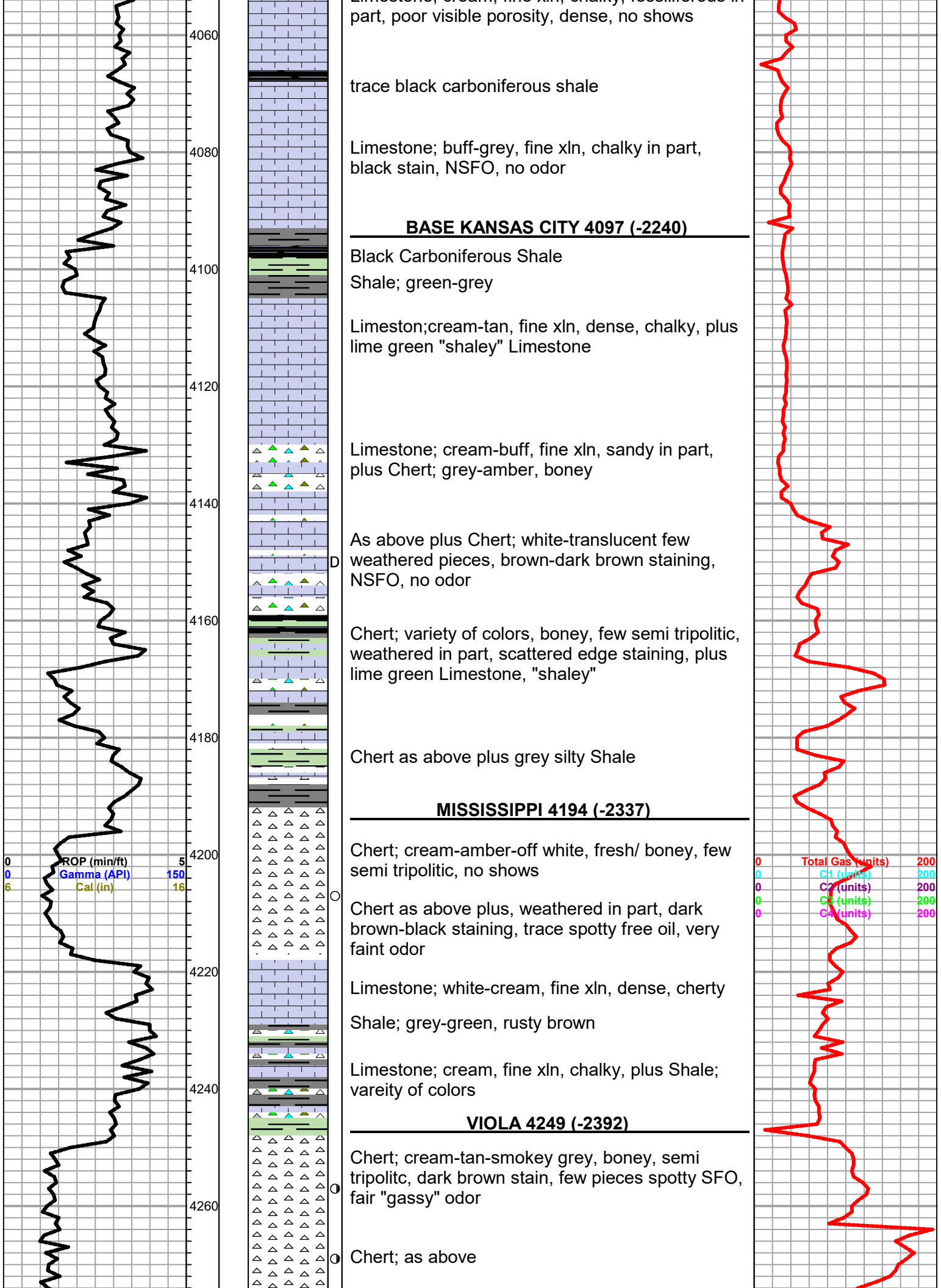
Limestone; lt. grey-tan, fine xln, dense, cherty no visible porosity, no shows

as above plus dark grey Chert

Black Carboniferous Shale

Limestone; cream, medium xln, fair-good inter xln porosity, brown stain, trace free oil, very faint odor

Limestone; cream, fine xln, chalky, fossiliferous in



part, poor visible porosity, dense, no shows

trace black carboniferous shale

Limestone; buff-grey, fine xln, chalky in part, black stain, NSFO, no odor

BASE KANSAS CITY 4097 (-2240)

Black Carboniferous Shale

Shale; green-grey

Limeston;cream-tan, fine xln, dense, chalky, plus lime green "shaley" Limestone

Limestone; cream-buff, fine xln, sandy in part, plus Chert; grey-amber, boney

As above plus Chert; white-translucent few weathered pieces, brown-dark brown staining, NSFO, no odor

Chert; variety of colors, boney, few semi tripolitic, weathered in part, scattered edge staining, plus lime green Limestone, "shaley"

Chert as above plus grey silty Shale

MISSISSIPPI 4194 (-2337)

Chert; cream-amber-off white, fresh/ boney, few semi tripolitic, no shows

Chert as above plus, weathered in part, dark brown-black staining, trace spotty free oil, very faint odor

Limestone; white-cream, fine xln, dense, cherty

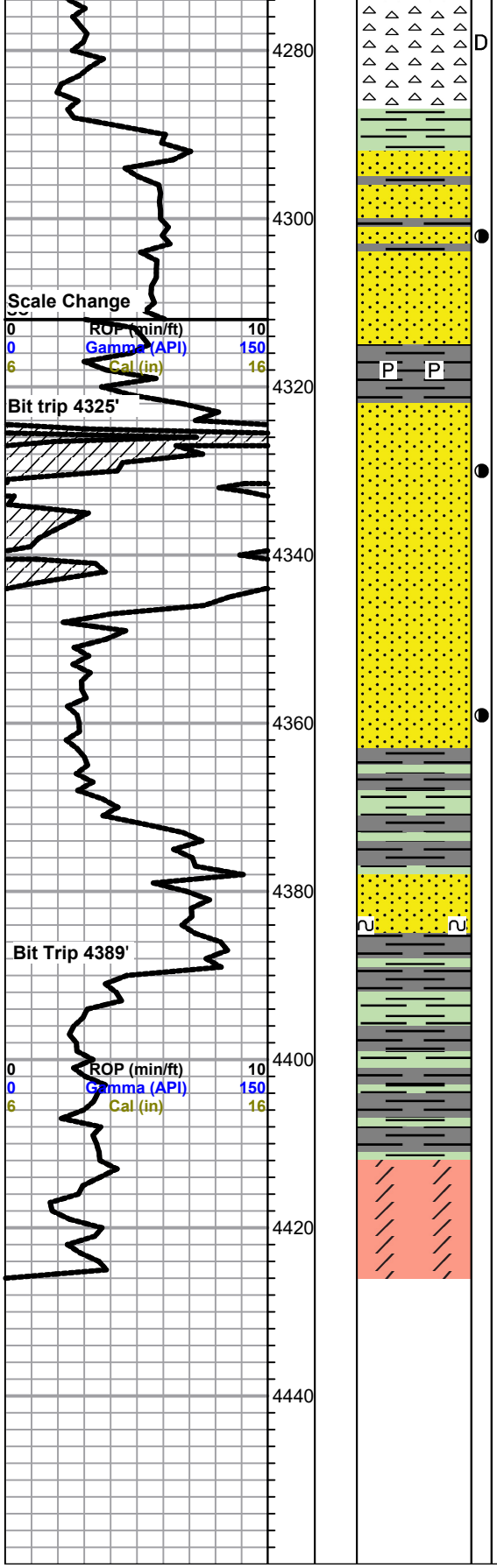
Shale; grey-green, rusty brown

Limestone; cream, fine xln, chalky, plus Shale; vareity of colors

VIOLA 4249 (-2392)

Chert; cream-tan-smokey grey, boney, semi tripolitc, dark brown stain, few pieces spotty SFO, fair "gassy" odor

Chert; as above



Chert; white, boney, semi triplotic, few black edge staining

SIMPSON SHALE 4288 (-2431)

Shale; green-grey, waxey

UPPER SIMPSON SAND 4294 (-2437)

Sand; clear-white, sub angular, sub rounded, friable, good inter granular porosity, spotty brown stain, SFO/SAT, very faint odor

Shale; gray with FeS2

LOWER SIMPSON SAND 4324 (-2467)

Quartzite; clear, well cemented, black-dark brown stain, SFO when sample broke, plus Sand; clear, poorly sorted, quartz inclusions, spotty stain, SFO, no odor

Quartzite and Sand as above

Sand; clear, sub angular, good interglanular porosity, brown spotty stain, SFO/SAT, fair-good odor

Shale; grey-green, micaceous in part, few silty pieces, plus FeS2

Sand; white, friable, very fine grained, sub rounded, sub angular, glauconite inclusions, no show

Shale; grey-dark grey-green, waxey

ARBUCKLE 4412 (-2555)

Dolomite; tan, fine xln, dense, sucrosic, few inter xln porosity, trace spotty free oil when sample broke, fair-good odor

ROTARY TOTAL DEPTH 4425 (-2568)