

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 # \_\_\_\_\_

Name: \_\_\_\_\_

Address 1: \_\_\_\_\_

Address 2: \_\_\_\_\_

City: \_\_\_\_\_ State: \_\_\_\_\_ Zip: \_\_\_\_\_ + \_\_\_\_\_

Contact Person: \_\_\_\_\_

Phone: ( \_\_\_\_\_ ) \_\_\_\_\_

CONTRACTOR: License # \_\_\_\_\_

Name: \_\_\_\_\_

Wellsite Geologist: \_\_\_\_\_

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 #: \_\_\_\_\_

Spud Date or Recompletion Date \_\_\_\_\_ Date Reached TD \_\_\_\_\_ Completion Date or Recompletion Date \_\_\_\_\_

API No.: \_\_\_\_\_

Spot Description: \_\_\_\_\_

\_\_\_\_\_ - \_\_\_\_\_ - \_\_\_\_\_ Sec. \_\_\_\_\_ Twp. \_\_\_\_\_ S. R. \_\_\_\_\_  East  West

\_\_\_\_\_ Feet from  North /  South Line of Section

\_\_\_\_\_ Feet from  East /  West Line of Section

Footages Calculated from Nearest Outside Section Corner:

NE  NW  SE  SW

GPS Location: Lat: \_\_\_\_\_, Long: \_\_\_\_\_  
(e.g. xx.xxxxx) (e.g. -xxx.xxxxx)

Datum:  NAD27  NAD83  WGS84

County: \_\_\_\_\_

Lease Name: \_\_\_\_\_ Well #: \_\_\_\_\_

Field Name: \_\_\_\_\_

Producing Formation: \_\_\_\_\_

Elevation: Ground: \_\_\_\_\_ Kelly Bushing: \_\_\_\_\_

Total Vertical Depth: \_\_\_\_\_ Plug Back Total Depth: \_\_\_\_\_

Amount of Surface Pipe Set and Cemented at: \_\_\_\_\_ 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: \_\_\_\_\_ ppm Fluid volume: \_\_\_\_\_ bbls

Dewatering method used: \_\_\_\_\_

Location of fluid disposal if hauled offsite: \_\_\_\_\_

Operator Name: \_\_\_\_\_

Lease Name: \_\_\_\_\_ License #: \_\_\_\_\_

Quarter \_\_\_\_\_ Sec. \_\_\_\_\_ Twp. \_\_\_\_\_ S. R. \_\_\_\_\_  East  West

County: \_\_\_\_\_ Permit #: \_\_\_\_\_

**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: \_\_\_\_\_

Confidential Release Date: \_\_\_\_\_

Wireline Log Received  Drill Stem Tests Received

Geologist Report / Mud Logs Received

UIC Distribution

ALT  I  II  III Approved by: \_\_\_\_\_ Date: \_\_\_\_\_

Operator Name: \_\_\_\_\_ Lease Name: \_\_\_\_\_ Well #: \_\_\_\_\_

Sec. \_\_\_\_\_ Twp. \_\_\_\_\_ S. R. \_\_\_\_\_  East  West County: \_\_\_\_\_

**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](mailto: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 <input type="checkbox"/> Yes <input type="checkbox"/> No <i>(Attach Additional Sheets)</i>  Samples Sent to Geological Survey <input type="checkbox"/> Yes <input type="checkbox"/> No  Cores Taken <input type="checkbox"/> Yes <input type="checkbox"/> No Electric Log Run <input type="checkbox"/> Yes <input type="checkbox"/> No Geologist Report / Mud Logs <input type="checkbox"/> Yes <input type="checkbox"/> No  List All E. Logs Run:	<input type="checkbox"/> Log Formation (Top), Depth and Datum <input type="checkbox"/> Sample  Name Top Datum
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CASING RECORD <input type="checkbox"/> New <input type="checkbox"/> 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

ADDITIONAL CEMENTING / SQUEEZE RECORD				
Purpose:	Depth Top Bottom	Type of Cement	# Sacks Used	Type and Percent Additives
<input type="checkbox"/> Perforate <input type="checkbox"/> Protect Casing <input type="checkbox"/> Plug Back TD <input type="checkbox"/> 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: <input type="checkbox"/> Flowing <input type="checkbox"/> Pumping <input type="checkbox"/> Gas Lift <input type="checkbox"/> Other <i>(Explain)</i> _____				
Estimated Production Per 24 Hours	Oil Bbls.	Gas Mcf	Water Bbls.	Gas-Oil Ratio	Gravity

DISPOSITION OF GAS: <input type="checkbox"/> Vented <input type="checkbox"/> Sold <input type="checkbox"/> Used on Lease <i>(If vented, Submit ACO-18.)</i>	METHOD OF COMPLETION: <input type="checkbox"/> Open Hole <input type="checkbox"/> Perf. <input type="checkbox"/> Dually Comp. <input type="checkbox"/> Commingled <i>(Submit ACO-5)</i> <i>(Submit ACO-4)</i>	PRODUCTION INTERVAL: Top Bottom
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Shots Per Foot	Perforation Top	Perforation Bottom	Bridge Plug Type	Bridge Plug Set At	Acid, Fracture, Shot, Cementing Squeeze Record <i>(Amount and Kind of Material Used)</i>

TUBING RECORD:	Size:	Set At:	Packer At:	
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Form	ACO1 - Well Completion
Operator	O'Brien Energy Resources Corp.
Well Name	KEYSTONE 8-4
Doc ID	1631925

Tops

Name	Top	Datum
Heebner	4462	-1771
Toronto	4483	-1799
Lansing	4606	-1913
Marmaton	5238	-2557
Cherokee	5410	-2718
Atoka	5659	-2966
Morrow	5709	-3018
Mississippi	5821	-3177
Ste. Genevieve	6153	-3378
St. Louis	6148	-3459



**O'Brien Energy Resources, Inc.**  
**Keystone No. 8-4, Angell SE Field**  
**Section 4, T33S, R29W**  
Meade County, Kansas  
November 2021

**Well Summary**

The O'Brien Energy Resources, Keystone No. 8-4 was drilled to a total depth of 6250' in the St. Louis without any problems. Minor lost circulation occurred at the top of the Lansing and remedied with 12 lbs/bbl LCM mud.

The Keystone No. 8-4 ran high relative to the Keystone No. 5-4 to the southwest. The Heebner to the Morrow ran 9' to 16' high. The Basal Chester came in 7' high and the primary objective St. Louis, 10' high. The St. Louis also came in 11' high relative to the Keystone No. 7-4.

An excellent hydrocarbon show occurred in the St. Louis(6148'-6154') and consists of a Dolomite to dolomitic Limestone in a very small percentage of the samples(<1%): Dark to medium brown, sucrosic to granular in part, moderate to coarsely crystalline, brittle, sandy, chert nodules, trace graygreen shale inclusions, fossiliferous, oolitic with interparticle porosity, intercrystalline porosity, even dark brown oil stain and trace live oil when crushed, dull brown hydrocarbon fluorescence, excellent streaming cut, with sandy dolomitic Shale.

4 1/2 " production casing was run to further evaluate the above mentioned show.

Respectfully Submitted,

Peter Debenham

## WELL DATA

Operator: O'Brien Energy Resources, Inc., John Forma – Portsmouth, NH

Prospect Geologist: David Ward, Ed Schuett, Denver

Well: Keystone No. 8-4, Angell SE Field

API: 15-119-21461

Location: 2182' FSL & 2101' FWL, Section 4, T33S, R29W, Meade County, Kansas – Southeast of Plains.

Elevation: Ground Level 2688', Kelly Bushing 2700'

Contractor: Duke Drilling Rig No. 1, Type: Double jackknife, double stand, Toolpusher Mike Godfrey, Drillers: Brothers Carlos and Saul Garcia and Henry Daiz

Company Man: Rodney Gonzales

Spud Date: 11/15/2021

Total Depth: 11/21/21, Driller 6250', Logger 6242', St. Louis

Casing Program: 8 5/8" J55 24 lbs/ft STC set at 1559'. 4 1/2" production casing set to TD, cement did circulate.

Mud Program: Winter Mud, engineer Adam Norris, displaced 2600', Chem. gel/LCM.

Wellsite Consultant: Peter Debenham, Call depth 4000', Box 350, Drake, CO 80515, 720/220-4860.

Mudlogging Trailer: MBC Logging, Meade, KS, Austin Gardner

Samples: 30' to 5700', 20' to TD.

Electric Logs: Wireline Solutions engineer Hector Garcia, Array Induction, Compensated Neutron/Density, Microlog, Hi Res.

Status: 4 1/2" production casing run to TD on 11/22/21.

## WELL CHRONOLOGY

11 PM				
<u>DATE</u>	<u>DEPTH</u>	<u>FOOTAGE</u>	<u>RIG ACTIVITY</u>	
11/16	800'	800'	Move to location and rig up rotary tools. Pump water, wait on pump. Mix spud mud. Drill rathole and mousehole. Spud in 12 1/4" surface hole(11/15/21) and drill to 800'.	
11/17	1565'	765'	Survey(1/2 deg.). Service rig and clean suction. Drill to 1565' and circulate and wiper trip and circulate. Trip for casing and run and cement 8 5/8" J-55, 24 lbs/ft STC set at 1559', cement did circulate. Wait on cement.	
11/18	2999'	1434'	Wait on cement. Drill cement and plug and 7 7/8" hole to 2999'. Survey(1 deg.). Displace mud system.	
11/19	4223'	1224'	Survey(1 deg.).	
11/20	5060'	837'	Lost circulation(120 bbls) at 4559'. Mix mud and LCM to 12 lbs/bbl and gain circulation. To 5000' and circulate and wiper trip. To 5060'.	
11/21	6040'	980'		
11/22	6250'TD	210'	To 6250'TD and circulate. Wiper trip to 5000' and circulate. Trip for logs and run Elogs. Trip in and circulate and wait on orders. Trip out laying down and run and cement 4 1/2" production casing to TD. Rig down.	

## BIT RECORD

<u>NO.</u>	<u>MAKE</u>	<u>TYPE</u>	<u>SIZE</u>	<u>OUT</u>	<u>FOOTAGE</u>	<u>HOURS</u>
1		PL516	12 1/4"	1565'	1565'	12 1/2
2		JZ/PDC	7 7/8"	6250'	4685'	77
Total Rotating Hours:						89 1/2
Average:						69.8 Ft/hr

## DEVIATION RECORD - degree

815' 1/2, 2145' 1, 4004' 1

## MUD PROPERTIES

<u>DATE</u>	<u>DEPTH</u>	<u>WT</u>	<u>VIS</u>	<u>PV</u>	<u>YP</u>	<u>pH</u>	<u>WL</u>	<u>CL</u>	<u>LCM-LBS/BBL</u>
11/16	851'	9.4	35	7	14	7.5	100	6000	8
11/17	1565'	8.3	28	1	2	6	100	1200	--
11/18	3044'	8.9	50	19	16	10	18.8	8000	4
11/19	4263'	9	40	14	12	11.5	12.4	8500	4
11/20	5106'	9.1	47	14	13	11.5	7.4	5100	10
11/21	6093'	9.2	61	22	14	11	6.4	3500	10

**ELECTRIC LOG FORMATION TOPS- KB Elev. 2700'**

<b><u>FORMATION</u></b>	<b><u>DEPTH</u></b>	<b><u>DATUM</u></b>	<b><u>*Keystone No. 5-4</u></b>	
			<b><u>DATUM</u></b>	<b><u>POSITION</u></b>
Casing	1559'			
Heebner	4462'	-1762'	-1771'	+9'
Toronto	4483'	-1783'	-1799'	+16'
Lansing	4483'	-1906'	-1913'	+7'
Marmaton	5238'	-2538'	-2557'	+19'
Cherokee	5410'	-2710'	-2718'	+8'
Atoka	5659'	-2959'	-2966'	+9'
Morrow	5709'	-3009'	-3018'	+9'
Mississippi Chester	5821'	-3121'	-3177'	+56'
Basal Chester	5920'	-3327'	-3330'	+3'
Ste. Genevieve	6153'	-3453'	-3378'	+25'
St. Louis	6148'	-3448'	-3459'	+11'
TD	6242'			

\*O'Brien Energy Resources, Keystone No. 5-4, 1350' FSL & 1320' FWL, Section 4, 33 S, 29W – to the Southwest.

**ELECTRIC LOG FORMATION TOPS- KB Elev. 2700'**

<b><u>FORMATION</u></b>	<b><u>DEPTH</u></b>	<b><u>DATUM</u></b>	<b><u>*Keystone No. 7-4</u></b>	
			<b><u>DATUM</u></b>	<b><u>POSITION</u></b>
Casing	1559'			
Heebner	4462'	-1762'	-1772'	+10'
Toronto	4483'	-1783'	-1798'	+15'
Lansing	4606'	-1906'	-1920'	+14'
Marmaton	5238'	-2538'		
Cherokee	5410'	-2710'	-2720'	+2'
Atoka	5659'	-2959'	-2972'	+12'
Morrow	5709'	-3009'	-3036'	+27'
Mississippi Chester	5821'	-3121'	-3145'	+24'
Basal Chester	5920'	-3327'	-3330'	+3'
Ste. Genevieve	6153'	-3453'	-3368'	
St. Louis	6148'	-3448'	-3460'	+12'
TD	6242'			

\*O'Brien Energy Resources, Keystone No. 7-4, 1485' FSL & 660' FWL, Section 4, 33 S, 29W – to the Southwest.







## OPERATOR

Company: O'Brien Energy Resources, Corp.  
 Address: 18 Congress St., Suite 207  
 Portsmouth, NH 03801  
 President/Owner John and Joe Forma




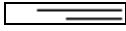
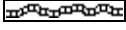


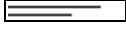
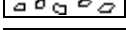

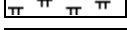

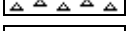


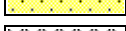
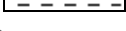

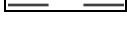
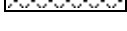
## GEOLOGIST

Name: Wellsite: Peter Debenham  
 Company: Petrolific Consulting Services  
 Address: P.O. Box 350  
 Drake, CO 80515  
 720/220-4860, Petrolific@gmail.com








































































## Comments

Duke Drilling Rig No. 1, Type: Double jackknife, double stand, Toolpusher Mike Godfrey, Drillers: Carlos Garcia, Saul Garcia, Henry Diaz, Engineer Rodney Gonzales, Winter Mud engineer Adam Norris, displaced 2600'. Wireline Solutions engineer Hector Garcia, Array Induction, Compensated Neutron/Density, Microlog, Hi Res. 4 1/2" production casing set to TD on 11/22/2021.

## ROCK TYPES

 Anhy	 Coal	 Lmst	 Shcol
 Bent	 Congl	 Meta	 Shgy
 Brec	 Dol	 Mrlst	 Sltst
 Cht	 Gyp	 Salt	 Ss
 Clyst	 Igne	 Shale	 Till

## ACCESSORIES

<b>FOSSIL</b>	 Plant	 Hvymin	 Gyp
 Algae	 Strom	 Kaol	 Ls
 Amph	<b>MINERAL</b>	 Marl	 Mrst
 Belm	 Anhy	 Minxl	 Sltstrg
 Bioclst	 Arggrn	 Nodule	 Ssstrg
 Brach	 Arg	 Phos	<b>TEXTURE</b>
 Bryozoa	 Bent	 Pyr	 Boundst
 Cephal	 Bit	 Salt	 Chalky
 Coral	 Brecfrag	 Sandy	 Cryxln
 Crin	 Calc	 Silt	 Earthy
 Echin	 Carb	 Sil	 Finexln
 Fish	 Chtdk	 Sulphur	 Grainst
 Foram	 Chtlt	 Tuff	 Lithogr
 Fossil	 Dol	<b>STRINGER</b>	 Microxln
 Gastro	 Feldspar	 Anhy	 Mudst
 Oolite	 Ferrpel	 Arg	 Packst
 Ostra	 Ferr	 Bent	 Wackest
 Pelec	 Glau	 Coal	
 Pellet	 Gyp	 Dol	
 Pisolite			

OTHER SYMBOLS

INTERVALS

- Core
- Dst

EVENTS

- ▽ Rft
- ▶ Sidewall

POROSITY TYPE

- ⊞ Earthy
- ⊞ Fenest
- ⊞ Fracture
- ⊞ Inter
- ⊞ Moldic
- ⊞ Organic
- ⊞ Pinpoint
- ⊞ Vuggy

SORTING

- ⊞ Well
- ⊞ Moderate
- ⊞ Poor

ROUNDING

- ⊞ Rounded
- ⊞ Subrnd
- ⊞ Subang

⊞ Angular

OIL SHOWS

- ⊞ Even
- ⊞ Spotted
- ⊞ Ques
- ⊞ Dead

# Petrolific Consulting Services

**Peter Debenham**

P.O. Box 350  
Drake, Colorado 80515

**Wellsite Geology**

720/220-4860  
petrolific@earthlink.net

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

Well Name: Keystone No. 8-4, Angell SE Field

Well Id:

Location: 2182'FSL & 2101'FWL, Section 4, 33S, R29W, Meade Co., KS

License Number: API: 15-119-21461

Region: Hougoton

Spud Date: 11/15/2021

Drilling Completed: 11/21/2021

Surface Coordinates: 2182'FSL & 2101'FWL, Section 4, 33S, R29W, Meade Co., KS

Bottom Hole Coordinates: 2182'FSL & 2101'FWL, Section 4, 33S, R29W, Meade Co., KS

Ground Elevation (ft): 2688'

K.B. Elevation (ft): 2700'

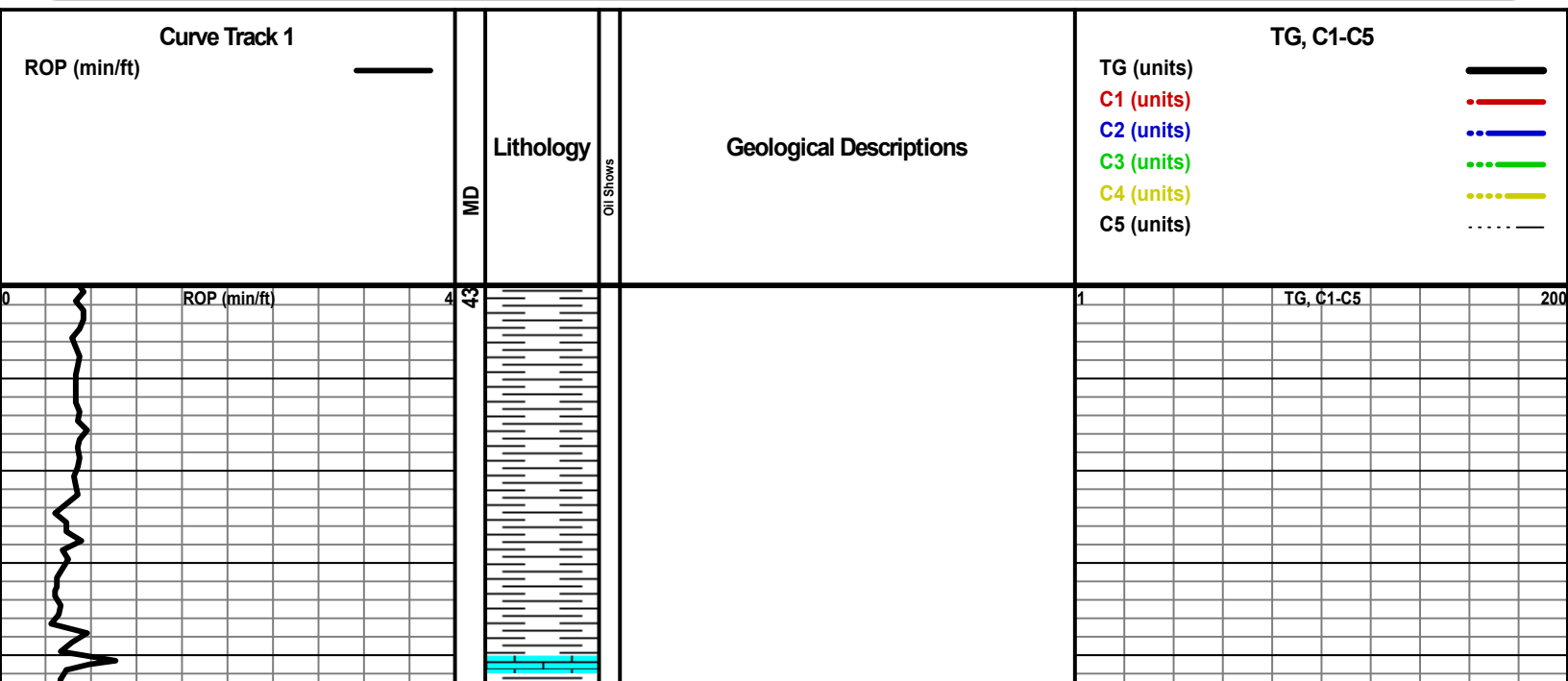
Logged Interval (ft): 4200' To: TD

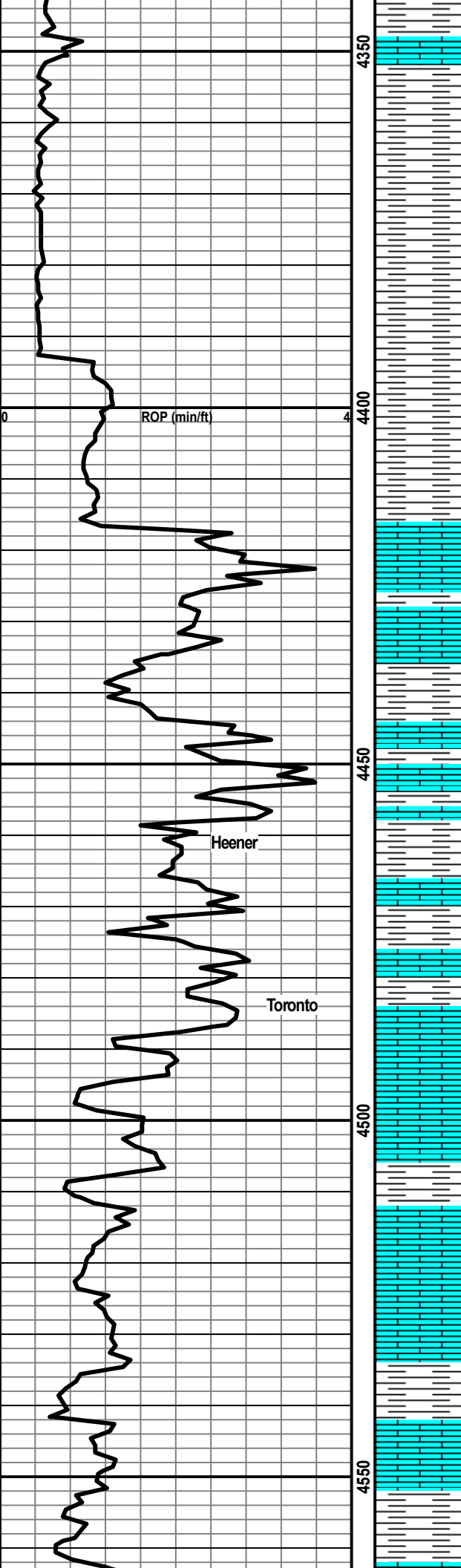
Total Depth (ft): 6250'

Formation: Lansing, Morrow, Chester, Ste Genevieve, St. Louis

Type of Drilling Fluid: Chemical Gel/LSND/LCM, mud up 2600'

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





ROP (min/ft)

4350  
4400  
4450  
4500  
4550

Heener

Toronto

LS: Med to lt bm tan biomcr micxn micsuc ip cln foss  
tr moldic & intxn por no flor no stn or cut with LS:  
Med to dk mot bm gy f xln hd dns arg to mry ip foss  
carb tt no show

SH: Blk dk bm to gy frm foss ip carb calc slty

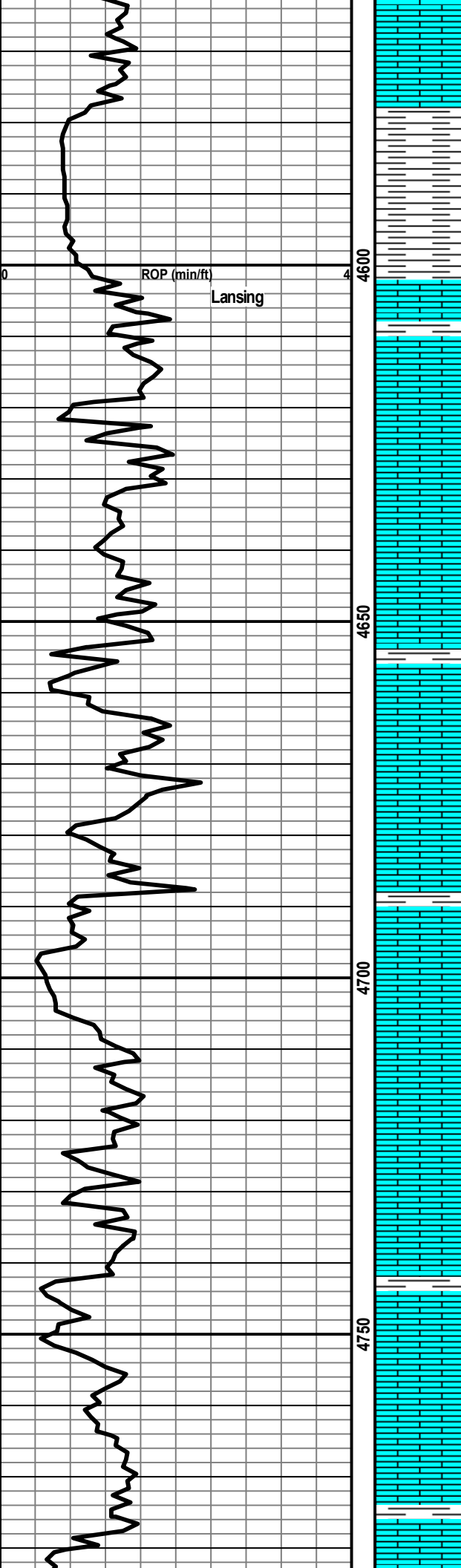
LS: Med to lt bm tan biomcr micxn micsuc ip cln foss  
tr moldic & intxn por no flor no stn or cut with LS:  
Med to dk mot bm gy f xln hd dns arg to mry ip foss  
carb tt no show

SH: Blk dk bm to gy frm foss ip carb calc slty

LS: Lt to med bm tan micxn micsuc ip cln to arg foss  
carb incl tr intxn por no show with LS: Med to dk  
mot bm occ blk f xln dns foss arg to mry ip carb tt no  
show

TG, C1-C5

200



SH: Gy bm frm blkly foss carb occ intbd with LS: aa no show

LS: Med to dk mot bm occ blk f xln dns foss arg to mry ip carb tt no show intbd with SH: Gy bm frm blkly foss carb occ intbd with LS: aa no show

LS: Mot bm lt bm gy biomicro f xln hd dns foss cln to arg occ tr intxln & moldic por no show

LS: Med to lt mot bm bf micxln micsuc ip sbchky cln foss tr intxln por no show

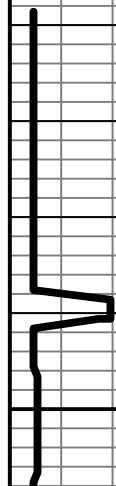
LS: Lt mot bm gy biomicro f xln cln v foss occ moldic & intxln por pred hd & tt no show occ intbd with SH: Dk bm blk blkly frm slty carb

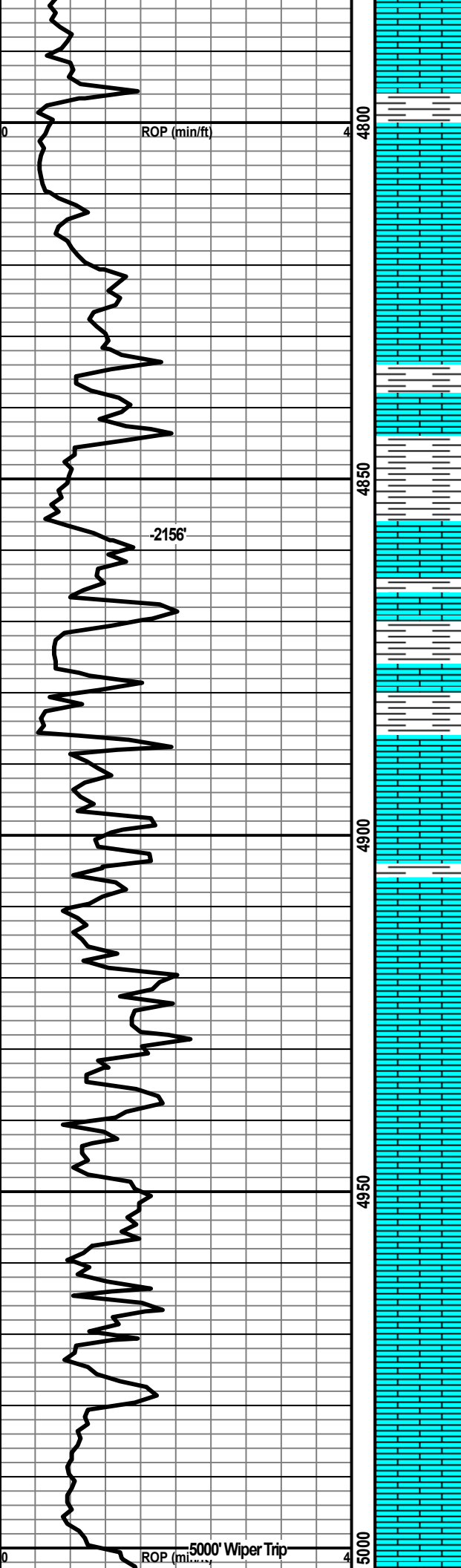
LS: Med bm crpxln hd dns cln sil ip tt no show with LS: Lt bm f xln brit cln v ool w/exc oomoldic por no show

LS: Lt to med bm oomicro f xln brit cln v ool exc oomoldic por no flor no stn or cut

LS: Mot bm gy crpxln hd dns sil foss tt no show

TG, C1-C5





LS: Med bm micxn micsuc brit cln exc oomoldic por tr  
intxn por no show with LS: Lt bm bf micxn micsuc ip  
brit cln sbchky foss hd & sil ip no show

TG, C1-C5

LS: Mot bm crpxn hd dns sil foss cln to arg tt no  
show

SH: Blk v dk bm frm sbfis to blk carb sity to wxy calc  
intbd with LS: Lt bm bf micxn micsuc ip brit cln  
sbchky foss tr intxn por no flor no stn or cut

-2156'

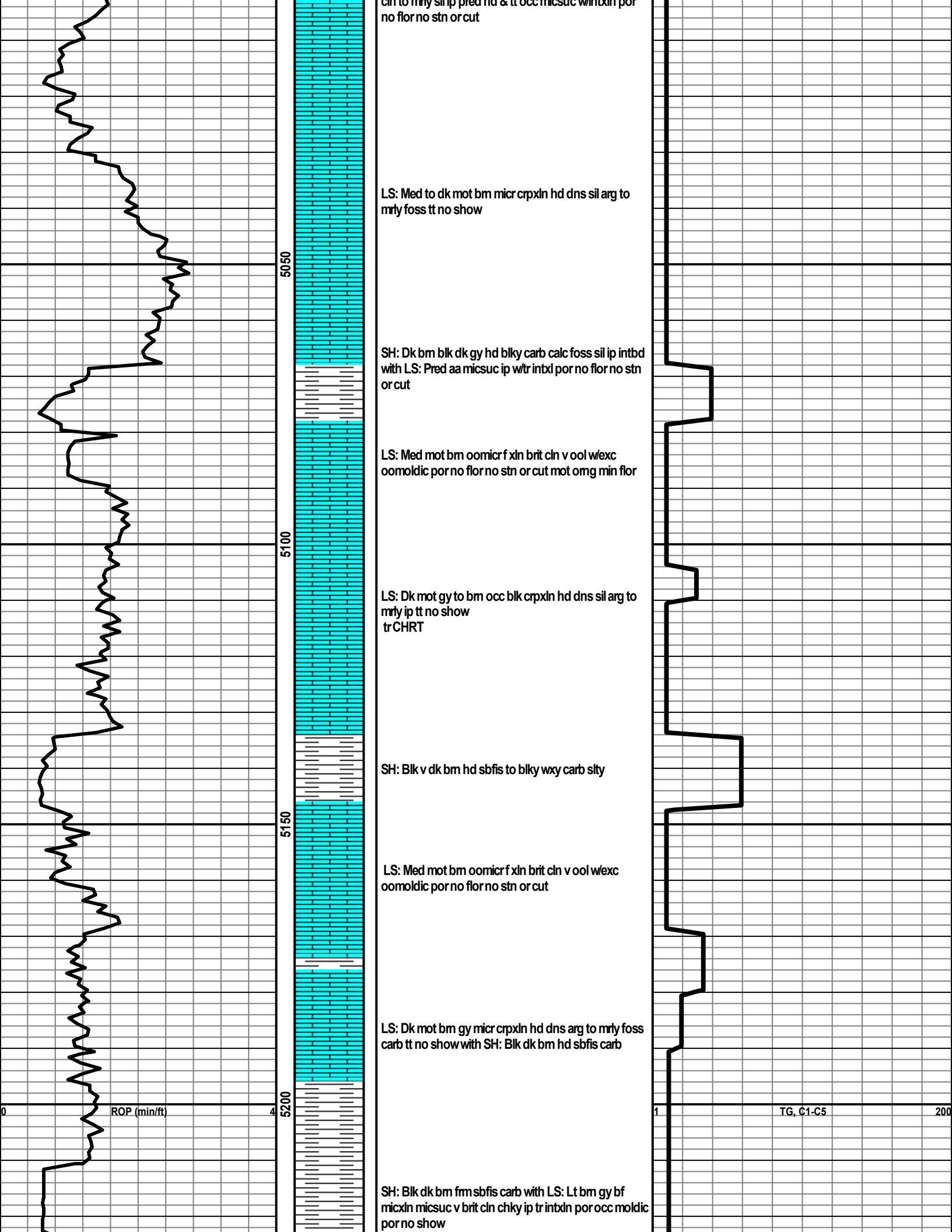
LS: Lt to med mot bm to gy micxn micsuc ip pred hd  
& sil tt/ occ tr moldic & intxn por no flor no stn or cut

LS: Lt bm gy bf micxn micsuc v brit cln chky ip tr  
intxn por occ moldic por no show

SH: Blk dk bm frm sbfis carb with LS: Lt bm gy bf  
micxn micsuc v brit cln chky ip tr intxn por occ moldic  
por no show

LS: Med to dk mot bm lt bm bf micro/crpxn micsuc ip  
ch to mtu cil in pred hd & tt occ micsuc v intbd por

TG, C1-C5



cln to mly sil ip pred hd & tt occ micsuc w/intrn por no flr no stn or cut

LS: Med to dk mot bm micr crpxln hd dns sil arg to mry foss tt no show

SH: Dk bm blk dk gy hd blk carb calc foss sil ip intbd with LS: Pred aa micsuc ip w/tr intrl por no flr no stn or cut

LS: Med mot bm oomicr f xln brit cln v ool w/exc oomoldic por no flr no stn or cut mot omg min flr

LS: Dk mot gy to bm occ blk crpxln hd dns sil arg to mry ip tt no show trCHRT

SH: Blk v dk bm hd sbfis to blk wxy carb sity

LS: Med mot bm oomicr f xln brit cln v ool w/exc oomoldic por no flr no stn or cut

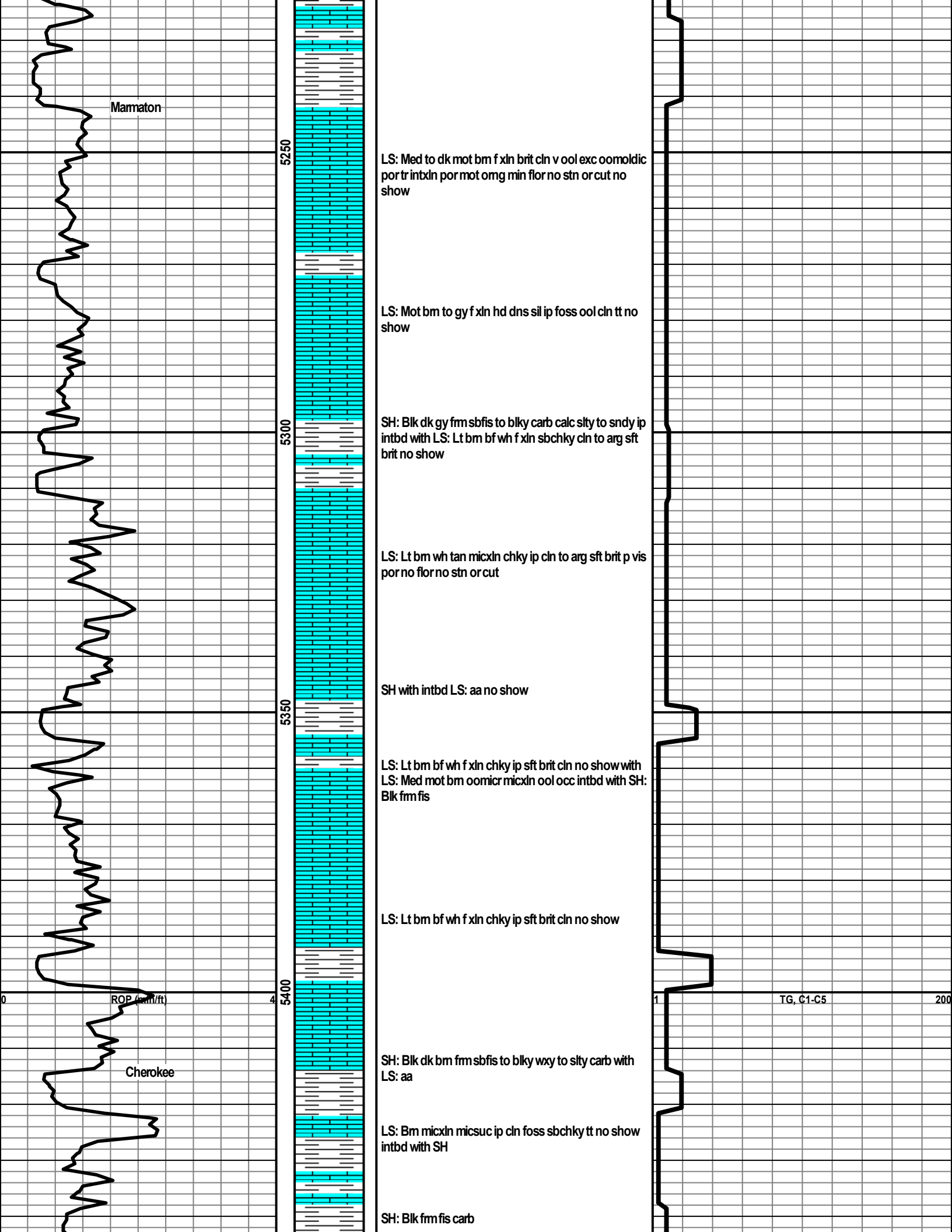
LS: Dk mot bm gy micr crpxln hd dns arg to mry foss carb tt no show with SH: Blk dk bm hd sbfis carb

SH: Blk dk bm frm sbfis carb with LS: Lt bm gy bf micxn micsuc v brit cln chky ip tr intrn por occ moldic por no show

ROP (min/ft)

TG, C1-C5





Marmaton

5250

LS: Med to dk mot bm f xln brit cln v ool exc oomoldic por tr intxln por mot omg min flor no stn or cut no show

LS: Mot bm to gy f xln hd dns sil ip foss ool cln tt no show

5300

SH: Blk dk gy frm sbfis to blk carb calc slty to sndy ip intbd with LS: Lt bm bf wh f xln sbchky cln to arg sft brit no show

LS: Lt bm wh tan micxn chky ip cln to arg sft brit p vis por no flor no stn or cut

5350

SH with intbd LS: aa no show

LS: Lt bm bf wh f xln chky ip sft brit cln no show with LS: Med mot bm oomicr micxn ool occ intbd with SH: Blk frm fis

5400

LS: Lt bm bf wh f xln chky ip sft brit cln no show

ROP (cm/ft)

Cherokee

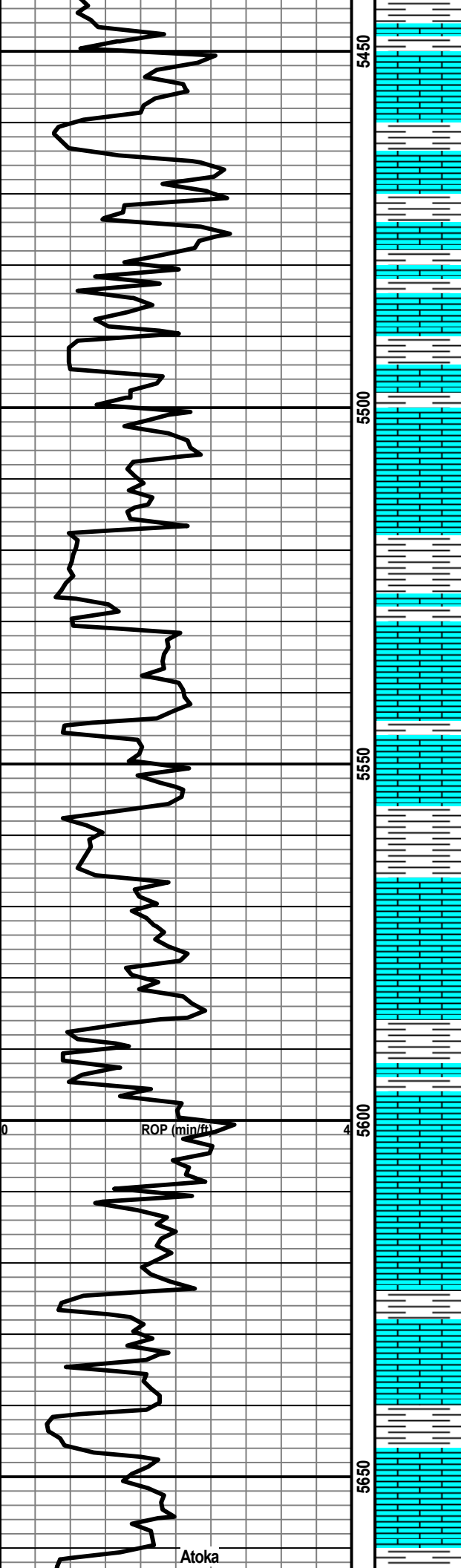
SH: Blk dk bm frm sbfis to blk wxy to slty carb with LS: aa

LS: Bm micxn micsuc ip cln foss sbchky tt no show intbd with SH

SH: Blk frm fis carb

TG, C1-C5

200



LS: Med to dk bm occ blk crpxln hd dns sil arg foss p vis por no show

SH: Blk dk gy to bm sbfis frm carb stly

LS: Med to dk bm to gy biomicr crpxln hd dns foss arg to mry carb tt no shoow intbd with SH: Blk frm fis carb

LS: Med to dk bm to gy biomicr crpxln hd dns foss arg to mry carb tt no shoow intbd with SH: Blk frm fis carb

LS: Med to dk mot bm gy occ blk micr crpxln hd dns arg to mry foss carb tt intbd with SH: Blk frm fis carb

SH: Blk dk bm frm sbfis to blk carb calc

LS: Dk bm f xln hd dns foss arg to mry tt no show with SH: aa

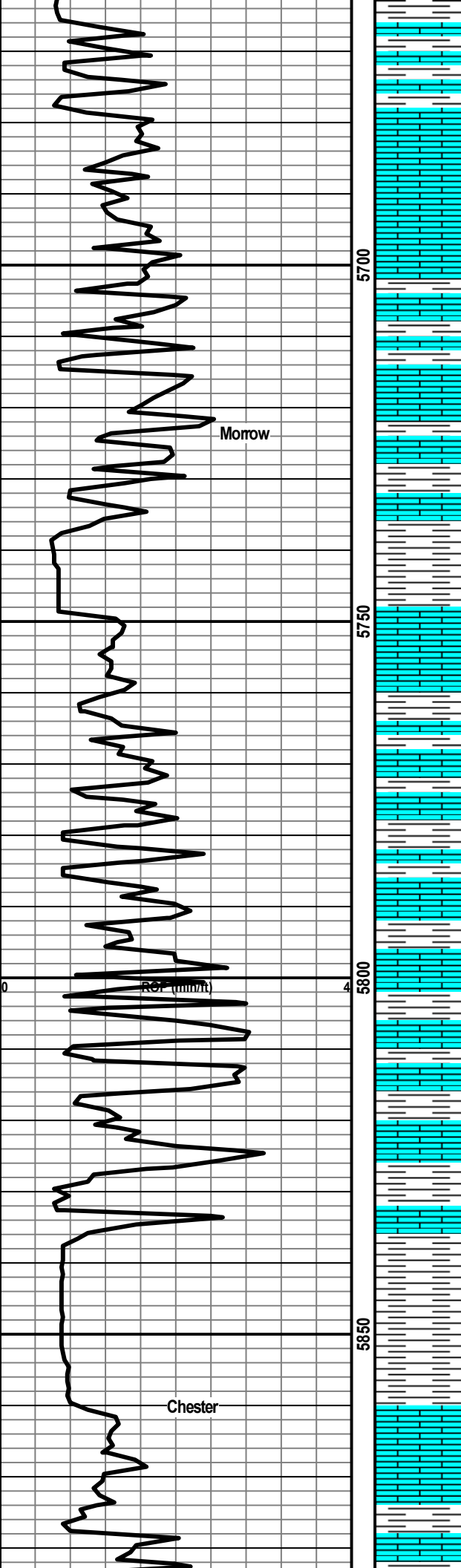
SH: Blk dk bm to gy hd blk to sbfis carb calc stly

LS: Mot bm to gy bf micln frm dns to tr intxn por sbchky ip chn to arg no flor no stn or cut

TG, C1-C5

200

Atoka



SH: Blk dk bm frm sbfis to blk carb intbd with LS:  
Mot bm bf f xln hd dns sbchky p vis por no flor no stn  
or cut

SH: Blk dk bm frm sbfis blk wxy carb

LS: Spec bm to gy gygn frm dns f xln sndy glauc tt no  
show

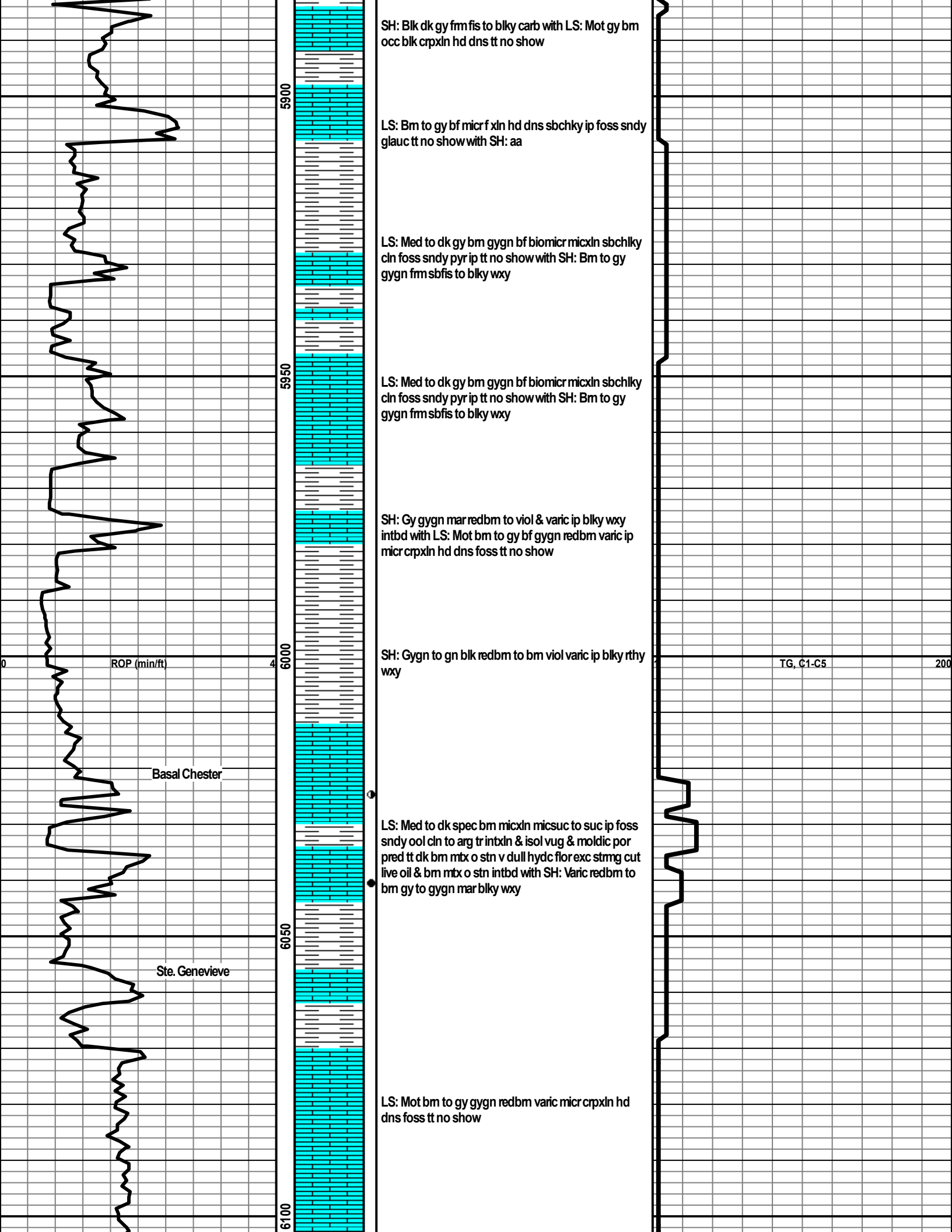
LS: Mot gy to bm gygn f xln dns sndy glauc tt no  
show intbd with SH: Dk bm to blk frm sbfis to blk  
carb occ sndy

SH: Dk gy blk frm sbfis to blk carb occ intbd with LS:  
aa no show

LS: Lt bm bf wh sbchky to chky foss carb tt no stn or  
cut no show intbd with SH: Dk bm to gy blk frm sbfis  
to blk sndy ip carb with free Pyr & Chrt

TG, C1-C5

200



SH: Blk dk gy frm fis to blk cy carb with LS: Mot gy bm  
occ blk crpxln hd dns tt no show

LS: Bm to gy bf micr f xln hd dns sbchky ip foss sndy  
glauc tt no show with SH: aa

LS: Med to dk gy bm gygn bf biomicr micxln sbchky  
cln foss sndy pyr ip tt no show with SH: Bm to gy  
gygn frm sbfis to blk wxy

LS: Med to dk gy bm gygn bf biomicr micxln sbchky  
cln foss sndy pyr ip tt no show with SH: Bm to gy  
gygn frm sbfis to blk wxy

SH: Gy gygn mar redbm to viol & varic ip blk wxy  
intbd with LS: Mot bm to gy bf gygn redbm varic ip  
micr crpxln hd dns foss tt no show

SH: Gygn to gn blk redbm to bm viol varic ip blk rthy  
wxy

Basal Chester

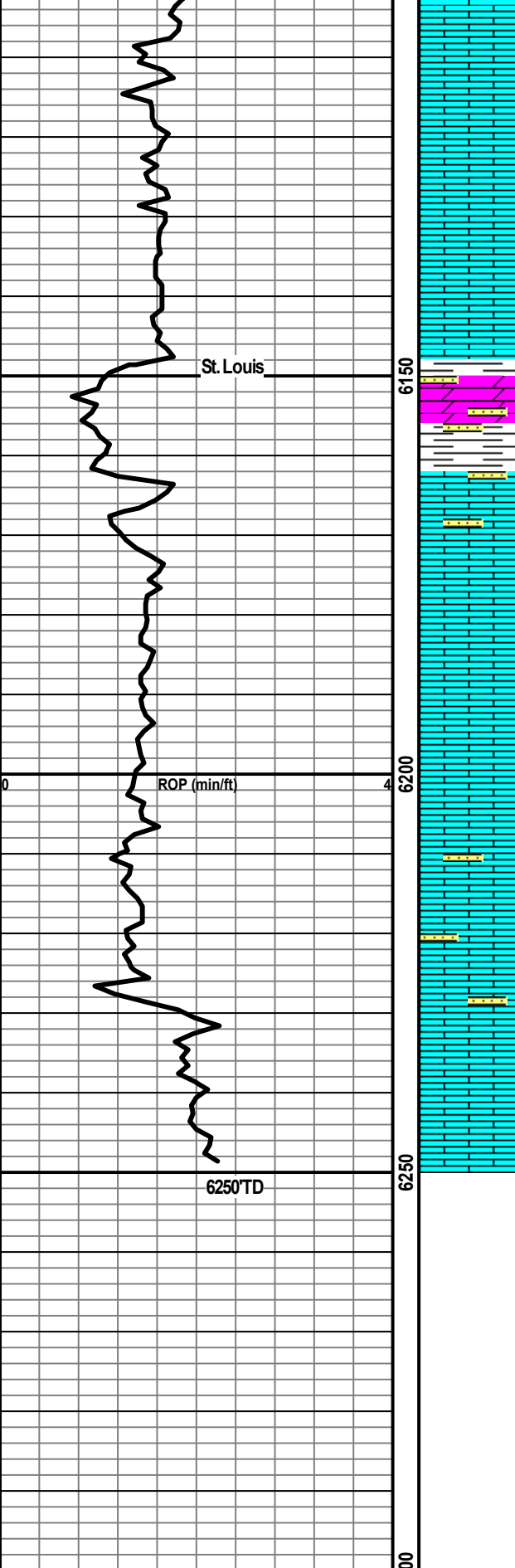
LS: Med to dk spec bm micxln micsuc to suc ip foss  
sndy ool cln to arg tr intxln & isol vug & moldic por  
pred tt dk bm mtx o stn v dull hycr flor exc stmg cut  
live oil & bm mtx o stn intbd with SH: Varic redbm to  
bm gy to gygn mar blk wxy

Ste. Genevieve

LS: Mot bm to gy gygn redbm varic micr crpxln hd  
dns foss tt no show

TG, C1-C5

200



LS: Med to lt bm bf gygn micr f xln micsuc ip arg v  
sndy tt/tr intxn por no flor no stn or cut

Trap Test

Gas readings may have  
plugged off.

DOL/Dolic LS: Dk to med bm to gy mot suc to gran ip  
brit sndy chrt nodls gygn sh incl foss ool occ in part  
& intxn por occ vug por dk even bm hydc flordull bm  
hydc flor exc strmg cut occ gd even bm o stn tr live oil  
when crushed gd show (<<1 % spl) with sndy dolic SH

LS: Lt bm bf wh micxln micsuc brit cln sndy foss  
intxn & moldic por no flor no stn or cut

TG, C1-C5

200

LS: Med to lt bm f xln hd dns sil sndy tt no show with  
tr CHRT

LS: Lt bm bf micxln subchky ip foss ool sndy ip cln p  
vis por no show tr CHRT